

Distributed generator (DG)



BIO

Markus is a passionate renewable energy entrepreneur focused on expanding their solar farm business. They prioritise environmental responsibility and financial success, aiming to maximise revenue from clean energy generation.

GOALS

- Generate and sell clean energy.
- Contribute to achieving net zero carbon emissions.
- Maximise revenue from their solar farm and battery storage.
- Secure the best locations for future solar projects.

BEHAVIOURS

- Installs and operates solar panels and battery storage systems.
- Participates in flexibility markets to sell excess energy.
- Seeks information on network constraints and flexibility needs.
- Researches and plans future projects based on market opportunities

Challenges

- Difficulty forecasting curtailment (when their energy production is limited)
- Complexities in accessing flexibility markets with new assets.
- Long lead times for connecting additional solar panels to the network.
- Lack of information to confidently forecast costs and revenue



BIO

With a degree in Environmental Sciences and over 15 years of experience in sustainable energy projects, Emma has been leading a Community Energy Group for the past 5 years. Emma is passionate about making renewable energy accessible and affordable for their community.

GOALS

- To support the community in transitioning to renewable energy through distributed generation.
- To retrofit existing properties within the community to be more energy-efficient and compatible with renewable energy systems.
- To secure funding and support for energy projects within the community.

BEHAVIOURS

- Seeks out information and resources on renewable energy technologies and funding opportunities.
- Engages with community members to raise awareness and gather support for energy projects.
- Coordinates with energy experts and professionals to plan and implement projects.

Challenges

- Finding affordable and practical solutions for retrofitting a wide variety of properties.
- Navigating complex regulatory environments and securing necessary permits.
- Ensuring projects are financially viable and can secure funding.

NEEDS

- Up-to-date information on current and future network constraints.
- Reliable forecasts of flexibility needs to optimise market participation.
- Transparent pricing and clear access levels for investment plans.
- Simple access to national and local flexibility markets.
- Real-time network information to optimise market interaction.
- Quick and easy connections for new solar projects.
- Minimised operational costs
- Transparency on potential curtailment risks.
- Confidence in the fairness and transparency of flexibility markets.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP OUR DG STAKEHOLDERS THIS YEAR

- Collaborating with DNOs, the ESO, and Ofgem to release network capacity, enabling distributed generators to connections.
- Open data portal provides high-quality datasets and information for visualisation and analysis, supporting distributed generators in their planning and operations.
- Incorporating Local Area Energy Plans and forecasts for distributed generation, enabling distributed generators to align their projects with network development activities.

HOW DSO WILL HELP DG STAKEHOLDERS

Our market development commitment

Engaging customers and aggregators in the flexibility market benefits distributed generators by providing opportunities to participate in trading and promoting transparency

Our network operations commitment

Enhancing network visibility through smart meters supports distributed generators by ensuring reliable and resilient supply within the network

Our network development commitment

Developing robust forecasting processes helps distributed generators by identifying future network needs and promoting energy efficiency measures based on data sharing

Battery storage operator



BIO

Michael is an energy storage consultant specialising in advising industrial and commercial (I&C) clients on energy solutions. They are passionate about helping businesses reduce costs and achieve sustainability goals.

GOALS

- Help I&C clients optimise energy usage and reduce costs.
- Promote the adoption of battery storage solutions for I&C clients.
- Develop innovative approaches to integrate battery storage into industrial processes.
- Contribute to a more sustainable and flexible energy network.

BEHAVIOURS

- Analyses client energy consumption data.
- Identifies opportunities for energy cost savings and efficiency improvements.
- Advises clients on the benefits of battery storage.
- Develops and implements battery storage solutions for I&C clients.

Challenges

- Limited awareness about the benefits of battery storage.
- Battery degradation.
- Energy market complexities.

NEEDS

- Clear and accessible information on the benefits of battery storage.
- Case studies demonstrating successful battery storage deployments.
- Streamlined grid connection processes.
- Standardised technical specifications.
- Support for integrating battery storage with existing energy management systems.
- Open access to data on flexibility and pricing models.
- User-friendly platforms for participation in flexibility markets.
- Planning data to understand the best place to connect.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP MICHAEL THIS YEAR

- Leading the Open Networks Market Development workstream, driving consistency in products, procurement, and contracting processes, making it easier for battery storage operators to participate in flexibility markets.
- Enhancing the Open Data portal with half-hourly forecasts for flexibility, enabling battery storage operators to optimise their operations.
- Incorporating flexibility contract opportunities, allowing battery storage operators to defer network reinforcement costs.

HOW DSO WILL HELP MICHAEL

Our market development commitment

Facilitating trading through marketplace platforms supports battery storage operators in participating efficiently in the flexibility market

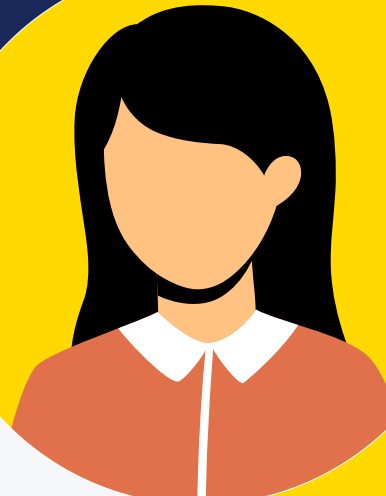
Our network operations commitment

Offering flexible connections benefits battery storage operators by providing efficient scheduling of resources and enhancing network operations


Our network development commitment

Seeking alternative solutions to conventional reinforcement helps battery storage operators by engaging in innovative solutions for network development

Local authority



BIO
Isabella is a climate change officer working for a local authority. They are passionate about sustainability and plays a key role in developing and implementing Local Area Energy Plans to achieve net zero targets.



BIO
Jordan has been serving as an elected member of the local council, with a notable focus on sustainable development and energy policies. With a background in public policy, Jordan is deeply committed to leveraging their role to foster sustainable energy practices within the community. With a proactive approach to understanding and influencing the energy sector's evolution in alignment with community needs.

GOALS

- Reduce the local authority's carbon footprint and energy consumption.
- Encourage and support residents and businesses to adopt sustainable practices.
- Contribute to the achievement of the UK's overall net zero targets.
- Identify and implement cost-effective decarbonisation measures.

BEHAVIOURS

- Develops and implements Local Area Energy Plans.
- Collaborates with stakeholders across various sectors.
- Designs, delivers and secures funding for schemes that have an impact on demand.
- Raises awareness about climate change and its impacts.
- Monitors and reports on progress towards local decarbonisation goals.

Challenges

- Limited understanding on local energy consumption patterns and renewable energy potential and the data available.
- Difficulty in engaging residents and businesses in climate action initiatives.
- Lack of clarity on the role and responsibilities of DSOs in facilitating the transition to net zero.
- Uncertainties around the costs and benefits of different decarbonisation technologies.

GOALS

- To strengthen the strategic partnership between the local council and DSO, ensuring community interests are prioritised.
- To advocate for policies that promote renewable energy integration and support local economic development.
- To facilitate community engagement and awareness on energy-related issues.

BEHAVIOURS

- Actively participates in meetings and discussions with DSO representatives, industry stakeholders, and fellow council members to stay informed about energy trends and policies.
- Engages in public outreach events and town hall meetings to gather input and educate constituents on energy initiatives.
- Collaborates with local businesses, community groups, and government agencies to identify opportunities for energy efficiency improvements and renewable energy projects.

Challenges

- Understanding the complexities of energy policies, regulations, and market dynamics.
- Balancing the need for strategic decision-making with community expectations and budget constraints.
- Communicating effectively with diverse stakeholders, including residents, businesses, and other government entities, on energy-related matters.

NEEDS

- Granular data on local energy use and low-carbon energy generation potential.
- Clear and accessible information on opportunities to provide flexibility services.
- User-friendly platforms for data visualisation and analysis, informing their own reporting on progress towards net-zero.
- Strong partnerships with DSO/DNOs to develop and implement local area energy plans.
- Collaborative platforms for knowledge sharing and best practice exchange with other local authorities.
- Clear and supportive government policies that incentivise local decarbonisation efforts.
- Streamlined regulatory processes for deploying renewable energy and low-carbon technologies.
- Connections – quick, cheap and collaborative to get projects underway.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP OUR LOCAL AUTHORITY STAKEHOLDERS THIS YEAR

- Providing Local Area Energy Planning templates and forecasts for distributed generation per council, helping local authorities plan and develop their energy projects.
- Facilitating discussions on decarbonisation needs and collaborating on electric vehicle charging infrastructure frameworks, supporting local authorities in their efforts to decarbonise.
- Engaging with local authorities through quarterly bilaterals, incorporating their decarbonisation and economic growth projects into the network development plans.

HOW DSO WILL HELP LOCAL AUTHORITY STAKEHOLDERS

Our market development commitment
Collaborating with local authorities for whole system outcomes supports them in contributing to sustainable market development within their regions
Our network operations commitment
Enhancing network visibility through smart meters benefits local authorities by ensuring reliability and resilience of supply within their communities
Our network development commitment
Developing plans for low carbon transportation aligns with local authorities' goals, contributing to sustainable network development and meeting community needs at minimum cost



BIO

Akria is a facilities manager for a large industrial plant. They are responsible for the overall operations and efficiency of the facility, including energy consumption.

GOALS

- Generate and sell clean energy.
- Reduce the facility's energy costs.
- Improve the facility's energy efficiency.
- Ensure a reliable supply of electricity to maintain production levels.
- Meet the company's sustainability targets.

BEHAVIOURS

- Monitors energy consumption data.
- Identifies and implements energy efficiency and invests in low carbon technologies.
- Analyses energy bills.
- Seeks to understand the capacity available.

Challenges

- High energy prices.
- Complexities of the energy market.
- Difficulty forecasting their future energy needs.
- Limited knowledge on getting involved with flexibility.

NEEDS

- Visibility of any planned constraints or outages.
- Ability to participate in flexibility markets as a cost-effective alternative to reinforcement.
- Educational resources on energy efficiency and flexibility options.
- Technical assistance for implementing energy-saving measures.
- Early notice of any outages or disruptions
- Planning data to understand the best place to connect.
- Clear understanding of the benefits and risks to alternative energy options.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP AKRIA THIS YEAR

- Expanding and enhancing stakeholder engagement, influencing the removal of participation barriers, making it easier for industrial and commercial customers to engage in the flexibility market.
- Providing consistent tools and resources, including the Open Data portal, to help industrial and commercial customers analyse their energy usage and make informed decisions.
- Embedding support for local authorities and facilitating low carbon connections, incorporating the projects driven by industrial and commercial customers into network development plans.

HOW DSO WILL HELP AKRIA

Our market development commitment

Inclusivity strategies benefit industrial and commercial customers by involving them in flexibility market discussions and addressing their priorities

Our network operations commitment

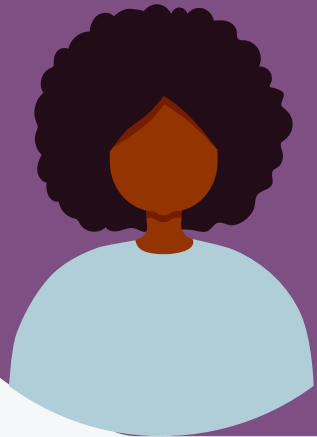
Ensuring reliability and resilience of supply supports industrial and commercial customers by providing a stable energy supply and efficient network operations

Our network development commitment

Transparent decision-making processes help industrial and commercial customers by ensuring awareness of network development needs and cost efficiencies

Network operator

BIO



Sarah is a seasoned professional with over 20 years of experience in the energy industry, specialising in gas distribution network operations. They hold a senior management position within the Gas Distribution Network Operator company, overseeing strategic planning and operational efficiency.

GOALS

- Ensure the safe and reliable distribution of gas to customers.
- Optimise network operations to meet regulatory requirements and enhance customer service.
- Implement innovative technologies to improve network efficiency and sustainability.

BEHAVIOURS

- Analytical and detail-oriented in assessing network performance and identifying improvement opportunities.
- Collaborative in working with stakeholders to address operational challenges and ensure compliance.
- Proactive in adopting new technologies and industry best practices for network optimisation.

Challenges

- Managing aging infrastructure while transitioning towards more sustainable energy solutions.
- Building an agile energy infrastructure in a transforming landscape.

BIO



Alex is Chief Technology Officer at Independent Distribution Network Operator (IDNO) with a background in electrical engineering. With a focus on network development and innovation, Alex plays a key role in shaping the future of energy distribution systems.

GOALS

- Drive technological advancements to enhance network resilience and flexibility.
- Foster collaboration with stakeholders to promote sustainable energy solutions.
- Ensure compliance with regulatory standards while promoting operational excellence.

BEHAVIOURS

- Explores cutting-edge technologies for network modernisation and decarbonisation.
- Strategic thinker, aligning network development initiatives with long-term sustainability goals.
- Adaptive leader, navigating complex regulatory environments and fostering industry partnerships.

Challenges

- Integrating renewable energy sources into the network while maintaining system stability.
- Adapting to changing regulatory frameworks and market dynamics in the energy sector.
- Balancing cost-efficiency with investments in infrastructure upgrades for future-proofing the grid.

NEEDS

- Access to advanced data analytics tools for real-time monitoring and decision-making.
- Collaboration with industry partners to drive innovation and implement best practices.
- Regulatory support and clear guidelines to navigate the evolving energy market landscape.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP OUR NETWORK OPERATOR STAKEHOLDERS THIS YEAR

- North-South collaboration and developing a flexibility revenue calculator, making it easier for network operators to adopt flexible services.
- Collaborating with other network control rooms, sharing best practices and shaping operational practices for improved coordination in the future.
- Providing transparency through methodologies like Distribution Network Options Assessment (DNOA), incorporating stakeholder engagement, evaluation methods, and flexible and conventional interventions.

HOW DSO WILL HELP NETWORK OPERATOR STAKEHOLDERS

Our market development commitment

Developing a robust process for engaging key participants helps network operators facilitate participation in the flexibility market, supporting transparent market facilitation

Our network operations commitment

Using automation systems for efficient operation benefits network operators by enhancing decision-making processes across networks and ensuring reliable energy supply

Our network development commitment

Transparent decision-making processes support network operators in making informed decisions about strategic interventions, optimising network operations, and enhancing system reliability

Flexibility aggregator



BIO

Taran is a resource analyst at a flexibility aggregator company that builds portfolios of flexible energy resources from residential and commercial customers. They are data-driven and passionate about optimising energy markets for a cleaner future.

GOALS

- Maximise the value of the company's flex resource portfolio.
- Secure new and diverse sources of flexible energy resources.
- Optimise resource availability to meet market demand for flexibility services.
- Contribute to the company's growth and profitability.

BEHAVIOURS

- Analyses energy market data to identify opportunities for flexibility services, and stacking to maximise revenue.
- Identifies and negotiates contracts with potential customers for flexible energy resources.
- Manages the onboarding and engagement of customers.
- Monitors and optimises the performance of the flex resource portfolio.
- Prepares reports and presentations to communicate market trends and portfolio performance.

Challenges

- Limited visibility into real-time grid conditions and flexibility needs.
- Difficulty in forecasting the availability of residential resources.
- Complexities in managing diverse customer types and needs.
- Lack of standardised data formats for resource integration
- Variety of prices offered for flexibility in different locations
- Ability to stack assets in different markets.

NEEDS

- Access to real-time data on network constraints and flexibility needs.
- Transparent information on DSO and ESO flexibility service requirements.
- Standardised forecasting tools to predict customer resource availability.
- User-friendly platforms for managing and optimising diverse customer resources across multiple markets.
- Streamlined communication channels to ensure reliable resource availability from customers.
- Standardised data formats for seamless integration of customer resources into the portfolio.
- Clear and consistent regulatory frameworks for flexibility markets.
- Support for innovation in new flex resource types and applications.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP TARAN THIS YEAR

- Strategically utilising platforms like ElectronConect and PicloMAX, maximising routes to market and enabling flexibility aggregators to participate in both ESO and DSO markets.
- Publishing all Common Evaluation Methodology (CEM) tool evaluations, ensuring transparency for flexibility services, and providing data for flexibility planning and dispatch decisions.
- Collaborating with Northern Powergrid to identify regional barriers to flexibility participation and opportunities for ESO collaboration, improving the environment for flexibility aggregators.

HOW DSO WILL HELP TARAN

Our market development commitment

Encouraging new entrants into the market benefits flexibility aggregators by expanding opportunities for participation and promoting seamless connections between buyers and sellers

Our network operations commitment

Applying short-term forecasting techniques supports flexibility aggregators in efficiently managing network operations and resources

Our network development commitment

Identifying future network needs at LV levels helps flexibility aggregators by providing insights into network development requirements based on data sharing

Domestic customer

DSO is essential for delivering reliable, affordable, and sustainable electricity



BIO

Danielle is a tech-savvy homeowner who is passionate about environmental sustainability. They drive an electric vehicle (EV) and is considering installing solar panels to reduce their carbon footprint.

GOALS

- Reduce their reliance on traditional grid-supplied electricity.
- Maximise their self-consumption of solar energy.
- Lower their energy bills through a combination of solar generation and EV charging.
- Contribute to a cleaner and more sustainable energy future

BEHAVIOURS

- Actively monitors their home energy consumption using their smart meter.
- Charges their EV at home whenever possible.
- Researches and participates in energy-saving programs and trials through their energy supplier .
- Considers ways to further reduce their reliance on the electricity network.

Challenges

- High upfront costs to low carbon technologies
- Uncertainty about the future value of solar energy ownership.
- Complexities in participating in flexibility markets for home energy storage.

CUSTOMER IN VULNERABLE CIRCUMSTANCES



BIO

Allan is a retired pensioner living on a fixed income. They are concerned about managing their energy bills and staying warm during the winter months.

GOALS

- Reduce their energy bills and keep heating costs manageable.
- Maintain a comfortable living temperature in their home.
- Access financial assistance and support programs for vulnerable energy consumers.

BEHAVIOURS

- Practices energy-saving measures at home, such as turning off lights and appliances when not in use.
- Monitors their thermostat settings to control heating costs.
- May be hesitant to adopt new technologies due to cost concerns.

Challenges

- Difficulty affording rising energy bills, especially during winter.
- Limited knowledge about energy efficiency measures and financial assistance programmes.
- Vulnerability to cold temperatures due to poorly insulated housing.

NEEDS

- A reliable power supply that can easily be connected to.
- Clear and understandable information on energy efficiencies and emerging new technologies.
- Understand how flexible solutions could help reduce energy bills down and create opportunities to earn money.
- Clear messaging on incentives available for participating in flexibility, and processes for participating.
- Access to energy efficiency upgrades and insulation improvements to reduce heating costs.
- Specialised customer support services for vulnerable energy consumers.



DSO ACTIVITIES WE HAVE DELIVERED TO HELP OUR DOMESTIC CUSTOMER'S THIS YEAR

- Improving market confidence and standardised practices through the Open Networks Project, creating a conducive environment for domestic customers to engage.
- Enhancing the Open Data portal with high-quality datasets and information, promoting transparency and providing the tools needed for domestic customers to understand and manage their energy usage.
- Incorporating Local Area Energy Plans and facilitating low carbon connections, ensuring that the network development plans address the needs and aspirations of domestic customers.
- Incorporating sustainability and economic growth considerations through the stakeholder panel framework, ensuring that the needs of customers in vulnerable circumstances are taken into account in network planning and development.

HOW DSO WILL HELP DOMESTIC CUSTOMER

Our market development commitment

Ensuring inclusivity strategies benefits domestic customers by involving them in discussions about the flexibility market, addressing their priorities like reliability, cost, fairness, and inclusivity

Our network operations commitment

Enhancing network visibility through smart meters supports domestic customers by providing a stable energy supply and ensuring reliable operations within the network.
Ensuring reliability of the network benefits vulnerable customers by providing a stable energy supply.

Our network development commitment

Developing initiatives based on customer feedback helps domestic customers adapt to new technologies, ensuring awareness of opportunities within a smart flexible electricity system



BIO

Andrea is a seasoned system engineer at the Electricity System Operator (ESO). They are responsible for ensuring the secure and efficient operation of the national electricity transmission network.

GOALS

- Maintain a secure and reliable supply of electricity across the entire country.
- Balance electricity supply and demand in real-time.
- Facilitate the integration of large-scale renewable energy generation.
- Optimise the utilisation of the national transmission network
- Coordinated planning processes

BEHAVIOURS

- Monitors real-time data on electricity generation, transmission, and consumption.
- Forecasts electricity demand and generation based on historical data and weather patterns.
- Issues instructions to generators to adjust their output based on grid requirements.
- Manages network emergencies and ensures a swift restoration of power supply.
- Develops and implements strategies for grid expansion and interconnection with neighbouring interfaces

Challenges

- Increasing volatility in electricity generation due to the growth of renewable energy sources.
- A lack of data sharing and standardisation between the ESO and DSOs
- Complexities in coordinating electricity markets across different regions
- Difficulty in forecasting and balancing demand and supply

NEEDS

- Real-time data exchange on the performance of DERs connected to distribution networks.
- Standardised communication protocols for seamless integration
- Improved coordination and information sharing with DSO/DNOs for a holistic view of the whole-system
- Efficient and transparent market mechanisms for trading flexibility services across different regions and markets
- Clear and consistent regulatory frameworks for participation in flexibility markets
- Standardised data formats
- Investment in advanced forecasting tools and grid management technologies (aligned forecasting approaches for a common goal)
- Research and development of innovative solutions for integrating large-scale renewable energy sources.
- Planning processes



DSO ACTIVITIES WE HAVE DELIVERED TO HELP ANDREA THIS YEAR

- Collaborating with DNOs, local authorities, and other stakeholders to drive market confidence and standardised practices, ensuring a conducive environment for ESO operations.
- Incorporating ESO FES scenarios and using Best View standardised across all DNOs, promoting consistent tools across networks for ESO operations.
- Leading the Open Networks Project, coordinating initiatives to optimise future system coordination, enabling a more efficient and reliable electricity system.

HOW DSO WILL HELP ANDREA

Our market development commitment

Engaging with key participants like ESOs ensures a coordinated approach to developing the flexibility market, supporting efficient energy supply management

Our network operations commitment

Offering flexible connections benefits ESOs by ensuring reliable energy supply across the system through efficient network operations

Our network development commitment

Collaborating with neighbouring DNOs supports ESOs in sharing information for projects like modelling EV charging infrastructure needs, enhancing overall system reliability