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Resillion Completes IDSR Stream 4 Lot 2 Demonstrations

Key Lessons and Future Directions

We are thrilled to announce the successful completion of the IDSR Stream 4 Lot 2 demonstrations, a significant milestone in our journey towards enhancing the UK's energy management capabilities. This project, part of the Department for Energy Security and Net Zero's Flexibility Innovation Programme (FIP), has provided invaluable insights into the interoperability and effectiveness of Demand Side Response (DSR) technologies.

Project Overview

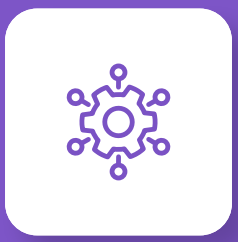
The IDSR Stream 4 Lot 2 project, led by Resillion in collaboration with PNDC, ScottishPower, and QualityLogic, aimed to demonstrate the interoperability of Energy Smart Appliances (ESAs) and Demand Side Response Service Providers (DSRSPs) within a real-world environment. The project commenced in January 2023 and concluded in January 2025, involving extensive testing and evaluation of DSR systems to ensure they meet the growing demands of the modern energy grid.

Key Achievements

The final report highlights several critical achievements:

Successful Demonstrations

Despite the challenges, the project successfully demonstrated the potential of DSR technologies to enhance grid stability and consumer engagement. The demonstrations provided valuable data and insights that will inform future developments.



Enhanced Interoperability

The project made significant strides in improving the interoperability of ESAs and DSRSPs. The lessons learned and recommendations provided will help refine standards and protocols, paving the way for more seamless integration of DSR technologies.

Consumer Insights

The project gathered important feedback on consumer experience, highlighting areas for improvement in user interfaces and registration processes. This will help make DSR technologies more accessible and user-friendly for a broader audience.

Collaboration and Innovation

The project showcased the power of collaboration, bringing together a diverse consortium of partners, including manufacturers of distributed energy resources, government bodies, the energy industry, and other stakeholders. This collaborative approach ensured a comprehensive and effective demonstration of DSR technologies.

Findings and Recommendations

Based on the findings, the report provides several recommendations:

- We discovered significant interoperability issues among the delivered systems, with only 50% of the ESA/CEM combinations successfully passing registration and deregistration with one DSRSP. Therefore, we recommend updating PAS 1878:2021 to address interoperability and user experience gaps to enhance the effectiveness of DSR mechanisms.
- To avoid proprietary lock-ins and enhance interoperability, we recommend creating a reference OpenADR implementation. This recommendation stems from the finding that the lack of a common sample stack for a Virtual End Node (VEN) and Virtual Top Node (VTN) hindered seamless integration.
- We found that the alignment of metering requirements with PAS 1878 capabilities, especially when using time-of-use tariffs, was unclear. Hence, we recommend aligning with the smart metering system to clarify metering requirements and manage pricing boundaries relative to ESA applied offsets.
- Early interoperability testing was identified as crucial to resolving specification and design ambiguities. Therefore, we recommend conducting earlier interoperability testing to complement certification testing and ensure implementations are more mature before conformance checking.
- The project faced difficulties in tracing discussions and conclusions from the PAS Query Log process. To address this, we recommend documenting requirements changes by maintaining a controlled draft copy of PAS 1878 to document agreed changes and clarifications.
- The lack of ESA/CEM able to participate in DSR Operation runs highlighted the need for scalability demonstrations. We recommend conducting scaled-up demonstrations to establish the impacts of using PAS 1878 defined mechanisms at scale.
- We identified the need for DSR logic to automatically manage the selection of ESA during DSR events. Therefore, we recommend enhancing DSRSP capability to include this functionality, ensuring accurate power shifting and addressing challenges related to ESA availability changes.
- We encountered issues with SSL certificates and static IP addresses, which are crucial for secure communication. Therefore, we recommend defining cybersecurity requirements early in the development of DSR products to avoid expensive hardware redesigns later on and ensure secure handling of data.

Complex and Challenging Project Highlights Resillion's Strengths

Resillion's leadership in this project highlights our exceptional delivery capability in managing complex projects.

Our ability to coordinate and collaborate with a diverse range of consortium partners, including manufacturers of distributed energy resources, government bodies, the energy industry, and other stakeholders, has been instrumental in the success of this project. Our comprehensive approach ensures that our solutions are effective, reliable, and ready for large-scale deployment.

In addition to our delivery capability, Resillion's strengths in addressing conformance and interoperability, quality engineering, and cybersecurity have been crucial in this project. Our commitment to quality engineering and continuous improvement has enabled us to identify and address challenges effectively, providing valuable insights and recommendations that will shape the future of energy flexibility solutions.

Our contributions to the standards development process, combined with the technical and practical support from our partner PNDC's unique lab facility, have been essential in advancing the development of energy flexibility solutions. This collaborative effort ensures that our solutions meet the highest standards of conformance, interoperability, and cybersecurity.

Looking Ahead

As we progress, Resillion is committed to advancing the development and deployment of smart energy technologies. We provide a comprehensive range of services, including ensuring the cybersecurity of distributed energy resources, conducting conformance and interoperability testing to comply with grid codes and international standards, and supporting the approval of new and innovative equipment by distribution network operators. This enables energy retailers and manufacturers to introduce new services, deliver high-quality customer experiences, and navigate the energy transition effectively. Our expertise in these areas guarantees our customers solutions are robust, secure, and prepared to meet the evolving demands of the energy sector.

We are excited about the future of energy flexibility solutions and the role they will play in achieving the UK's Net Zero goals. Stay tuned for more updates and insights as we continue to innovate and lead the way in smart energy management.

For more on how Resillion can assure your energy transformation, get in touch at hello@resillion.com

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