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Demonstration of innovative forms of storage and their successful operation and integration into innovative energy system and grid architectures



AGISTIN

Advanced Grid Interfaces for
innovative STorage INtegration

Ms2.2: Innovative energy storage integration requirements, incentives and constraints

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1 Executive Summary

Task 2.2 of the AGISTIN project conducted an online survey amongst grid users that have DC connected applications, to develop functional requirements of industrial users for integrating innovative storage solutions. Here are presented the main take-aways that can be drawn from the feedbacks received during the survey activity, between May 22nd and June 16th. As a general overview, the respondents were from Europe, mainly from Chemical industry, in particular related to Hydrogen production, and developers of integrated Storage and renewables (PV, Wind) solutions. In total 39 participants provided answers to the online questionnaire, which was organized in two main sections. The first section was mandatory for all participants, while the second section was optional since it was related to actual technical details to available assets.

2 Main Takeaways

The AGISTIN survey was structured in two main sections. The first section focused on the type of services and use cases of interest for the industrial users, related to DC-connected assets. As shown in Figure 1, the main interest is located in energy optimization, which will have a huge impact on storage sizing, both energy and power. Limiting power flow to overcome network constraints also ranked in high position, reflecting the big impact it on the sizing of the storage. It can also be noticed that the other services that are of top interest, such as reactive power requirements improvement, power quality improvement, unbalance reduction, SCR requirements reduction, mostly have a higher impact on inverter control rather than on battery sizing. Even if power available from the battery might be impacted, energy sizing of the storage will be fully guided by self-consumption optimization.

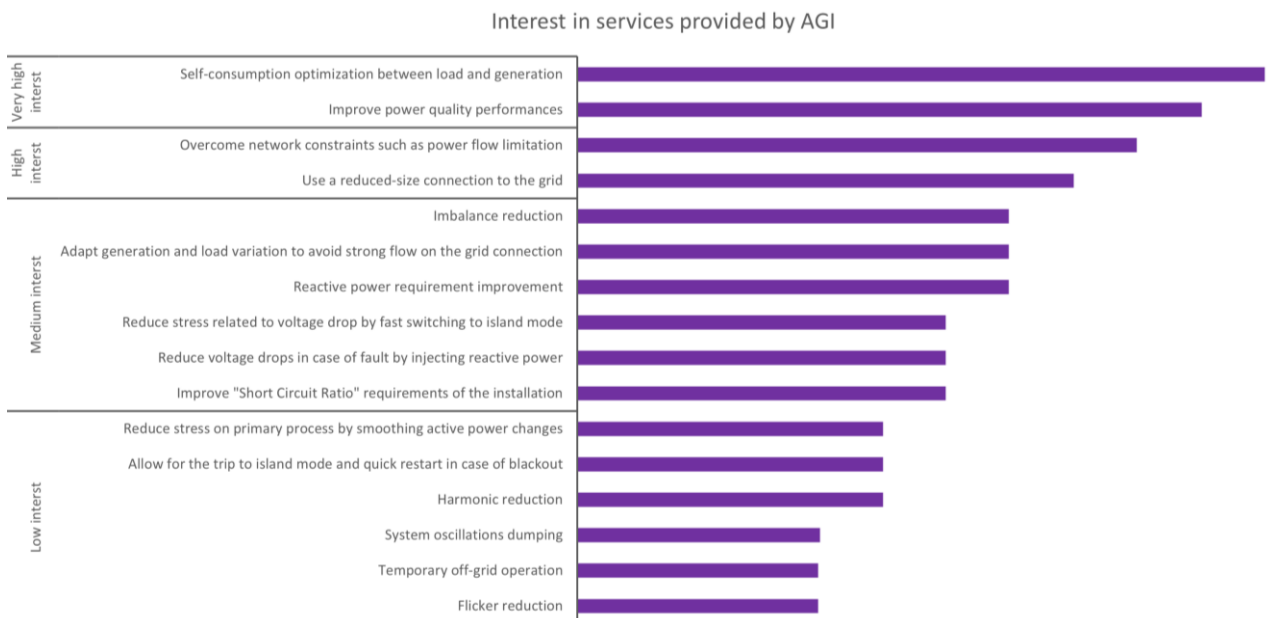


Figure 1 - Interest in services provided by AGI

With respect to power quality, the interest mostly converged into power quality issues related to harmonics. On the other hand, power quality issues related to unbalances, flicker and immunization

against voltage drops/faults impacts, have shown little interest amongst the respondents.

Finally, island operations, voluntarily or during grid black out, are in the bottom of the ranking.

Stress reduction on the primary process have also shown little interest, probably due to the fact that most people that answered the questionnaire were related to “static” application. (PV, Chemical Storage, Electric Vehicles, Hydrogen production).

One important general information is that there were few answers to specific technical questions focused on sizing of AGI and components (storage, loads, generation), as few respondents already have DC connected application, and therefore don't know yet their technical characteristics.

At this stage, the feedback gathered from the lack of answers to the second section of the questionnaire, together with the opposite high interest in some possible applications of AGI, could be interpreted as an opportunity to anticipate needs and technical requirements during the project lifetime, expecting a growing adoption of DC-connected solutions that can benefit from the AGI concept in the near future.

3 Next Steps

To improve the lessons learned from this survey, bilateral meeting will be proposed to the respondents, to allow them to get a better understanding of the project stakes and how their input can drive the project in a direction that will better fit their needs.

Final conclusions coming from the survey and the follow up bilater meetings will be reported in AGISTIN's Deliverable D2.2, due to in month 12 of the project (December 2023).