

Next generation of AC coupled Hybrid systems - 3 phase parallel operation of grid forming battery inverters

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1 Purpose of the work

The emerging demand for expandable Hybrid systems and Mini-Grids as well as the upcoming application of distributed energy supply structures, put a special focus on the grid forming units of these systems. The classical master/slave operation for self commutated inverters, which just enables a limited expandability in terms of power and storage capacity, can be replaced by an innovative multi master system, providing the option of unlimited expandability.

2 Approach / Methods

With the introduction of the parallel operation of single phase inverters in 2001, the fundamentals of a new control technology have been applied and demonstrated. In a further step these single phase devices have been enhanced in order to be clustered to “three phase inverters” also offering unlimited expandability.

3 Results & Conclusion

Results from laboratory tests and experience from the first pilot installation „HYBRIX“ (San Agustin del Guadalix, Spain), consisting of three clusters of three single phase inverters, will be presented.



Fig.1: „HYBRIX“ pilot installation

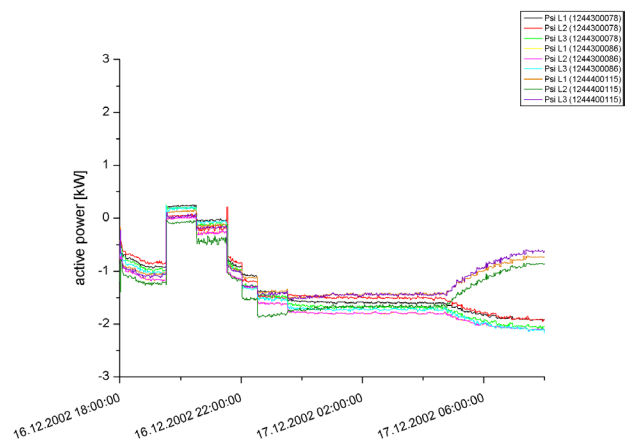


Fig.2: Power sharing of 3 Sunny Island clusters