Distributed DC/DC architecture for an LVDC hydrogen production microgrid based on concentrated photovoltaïc sources
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In the context of the decrease of fossil fuels and ecological transition, hydrogen production has been identified as a solution for storage consumption of renewable energies. High efficiency solar cells can be used in conjunction with solar concentration to further push the limits of photovoltaic energy production. In order to maximize this production, high precision solar tracking in addition to optimized conversion devices are needed. In this study, a distributed DC/DC architecture is proposed with a Low Voltage DC microgrid, aiming to optimize energy flows between high efficiency concentrated photovoltaic production and hydrogen production from electrolyzers.

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**LVDC microgrid for hydrogen production based on concentrated PV**

**The ADREAM platform**

**Concentrated PV + Tracking**

**Perspectives**

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**Distributed converter architecture**

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**AC microgrid for energy production and consumption. DC microgrid + storage: Lead-acid batteries + supercapacities**

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**Experimental test with small size electrolyzer cells + CPV**

**Modeling Electrolyzer cells in collaboration with RCAST, Tokyo (Equivalent circuit models, EIS)**

**Extrapolating results for bigger scale hydrogen production.**