DOOSAN Škoda Power

ASTERIx-CAESar

AIR-BASED SOLAR THERMAL ELECTRICITY FOR EFFICIENT RENEWABLE ENERGY INTEGRATION & COMPRESSED

Vývoj inovativních systémů pro efektivní akumulaci energie

No.	HORIZON-CL5-2022-D3-03-01
Program	Horizon 2020
Time frame	10/2023 ÷ 10/2027
Project coordinator	FUNDACION CENER, ESP
Project partners	17 partners (mainly universities and SMEs). Turbomachinery partners: Universidad de Sevilla, SoftInWay Switzerland GmbH, Bluebox energy Ltd.
PJT Rationale	The project focuses on the development of a novel high-efficiency solar thermal power plant concept with an integrated electricity storage solution. The project combines air-based central receive. Concentrated Solar Power (CSP) and Compressed Air Energy Storage (CAES) to maximize conversion efficiency and power grid energy management, enabling a new operation strategy and business model. The hybrid concept initiates a futuristic era with adaptive renewable power plants, producing both electrical and thermal energy, including process heat supply and reverse osmosis desalination. As cheap off-peak electricity is used to provide the air compression work of the topping Brayton cycle, the overall peak solar-to-electric energy conversion efficiency of the proposed power plant may reach up to 40% efficiency, which doubles the peak efficiency with respect to state-of-the-art CSP technology.
DSPW Project Target	**WP4: Advanced CAES and power cycle development and Optimization** 10/23 – 10/26 (36 M) - CAES Expander development and design proposal (small and large scale) 07/25 - 10/26 (15 M) - Bottoming cycle optimization (small and large scale - ORC and steam) 02/26 – 10/26 (7M) - Overall CAES and power cycle parameter optimization and design definition 11/25– 10/26 (23 M) – Process control challenges **WP7 (48 M) - Dissemination & Communication Activities** **WP8 (48 M) - Administrative and Financial management**

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