

Newsletter 0: Introducing the Annex 35 project

Spring 2020

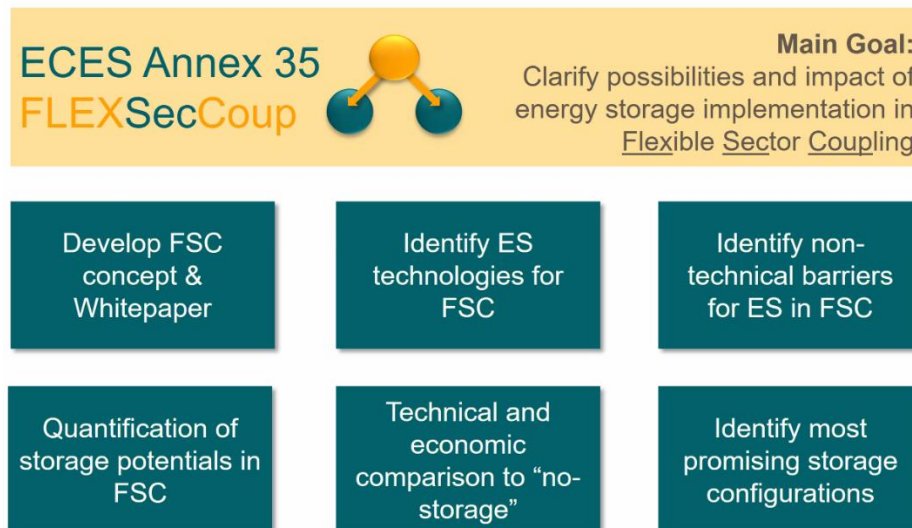
Dear reader,

This newsletter is written as a part of the Danish contribution to the IEA ECES Annex 35, on *Flexible sector coupling through energy storage*, which runs until 2022. The articles will explain the status of the project and bring relevant insights from other projects. This newsletter is dedicated to introducing the project.

Project introduction

The aim is to assess the potential of integrating energy storages (ES) in sector coupling points to improve the system flexibility – thereby increasing the capability of increasing shares of fluctuating renewable energy production. The Annex 35 builds on the Annex 28 which focused on decentralized storage solutions and their potential. In that project it was shown that sector coupling facilitated by various storage solutions could improve the cost-effectiveness when decarbonizing the energy system.

Figure 1: Key tasks in Annex 35 on flexible sector coupling (FSC) through energy storage (ES).



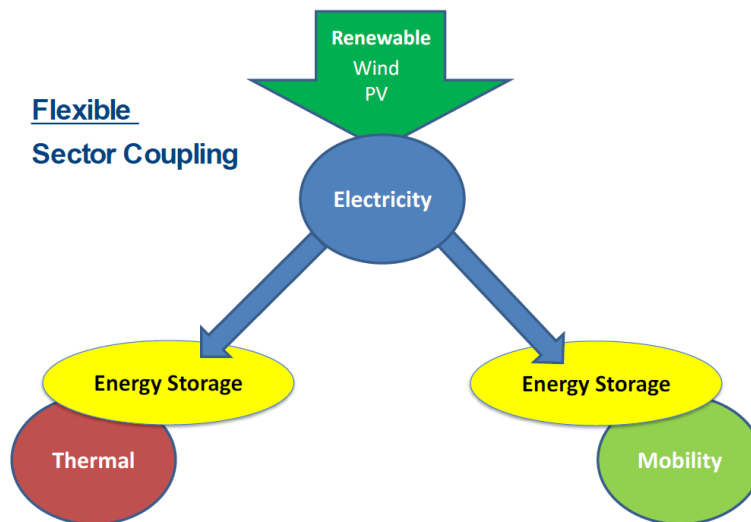
One example is a thermal storage for district heating in connection to a combined heat and power unit or an electric heat pump, to improve the flexibility of the power-heat coupling. Another example could be the production of electrofuels, based on hydrogen and CO₂, for transportation purposes and hydrogen storage in this connection.

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The assumed concept of sector coupling of the Annex 35 is illustrated in the figure below. Electrification is a key aspect of this, and the main sector coupling points are power-to-heat and power-to-mobility. A sector coupling can be considered with or without a storage option, and that difference is the core of the study. To assess whether the additional flexibility provided by a storage configuration, and the following reduction of fuel consumption and other system costs, is worth the investment costs and storage losses.

Figure 2: Illustration of the assumed concept of flexible sector coupling in the Annex 35.



Project background

The project is designed to support and contribute to the work in the Annex 35 of the technology collaboration programme (TCP) for energy conservation through energy storage (ECES). The Annex is coordinated by the operating agent Andreas Hauer from ZAE, The Bavarian center for applied energy research. The first meeting took place in Bad Tölz in Bavaria, Germany. Here the Annex was started up with participants from Germany, Austria, Switzerland, the Netherlands, Sweden, South Korea and Denmark and the international organizations IRENA and the World Bank. The Danish participation is supported by the Danish Energy Agency through the funding body EUDP.

Kind regards

Daniel Trier
dt@planenergi.dk

Rasmus Lund
rl@planenergi.dk

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