



efeu

Efficient Energy Use

NetZED Concept – a Study in Regional Energy Systems

NetZED is a conceptual tool for regional energy systems. The research consisted of studying information flows between various actors, studies with different market models and validation with novel use cases.

NetZED a concept for understanding regional energy flows

NetZED is designed to be a flexible regional energy system concept which aims to provide a comprehensive energy management platform for regional energy systems. It is designed at the same time to be a viable and scalable solution for the existing and future energy systems.

In the EFEU program Empower IM studied different models which could be used as building blocks for a regional energy system. The models varied from local communities to distributed systems which were either connected to the electricity grid or completely islanded from the grid, allowing us to recognize different business opportunities for electricity market domain service providers.

Discovery - Importance of defining the balance area boundaries

The main discovery in addition to the novel regional energy system building blocks was made when we studied the energy flows in the system by running simple system wide commands which targeted energy efficiency gains in the whole system.

Our research discovered that when managing the energy flows in the regional energy system, it is important to be able to take into account all the energy flows in the system, otherwise there is a risk

of having a system which is partially optimized and not optimized as a whole. *Figures 1 and 2* illustrate different system configurations where the results of system response to control commands can be seen in a system where all the resources follow the control command and in a system where resources partially follow the control commands.

Going forward

The NetZED concept and the data-analysis done during the project have proved that a comprehensive all-inclusive design when building novel energy efficiency services is important in order to achieve results which will be effective and sustainable in the current market environment and in the future.

For more information, please kindly contact:

Olli Huotari, olli.huotari@empower.fi

Jan Segerstam, jan.segerstam@empower.fi

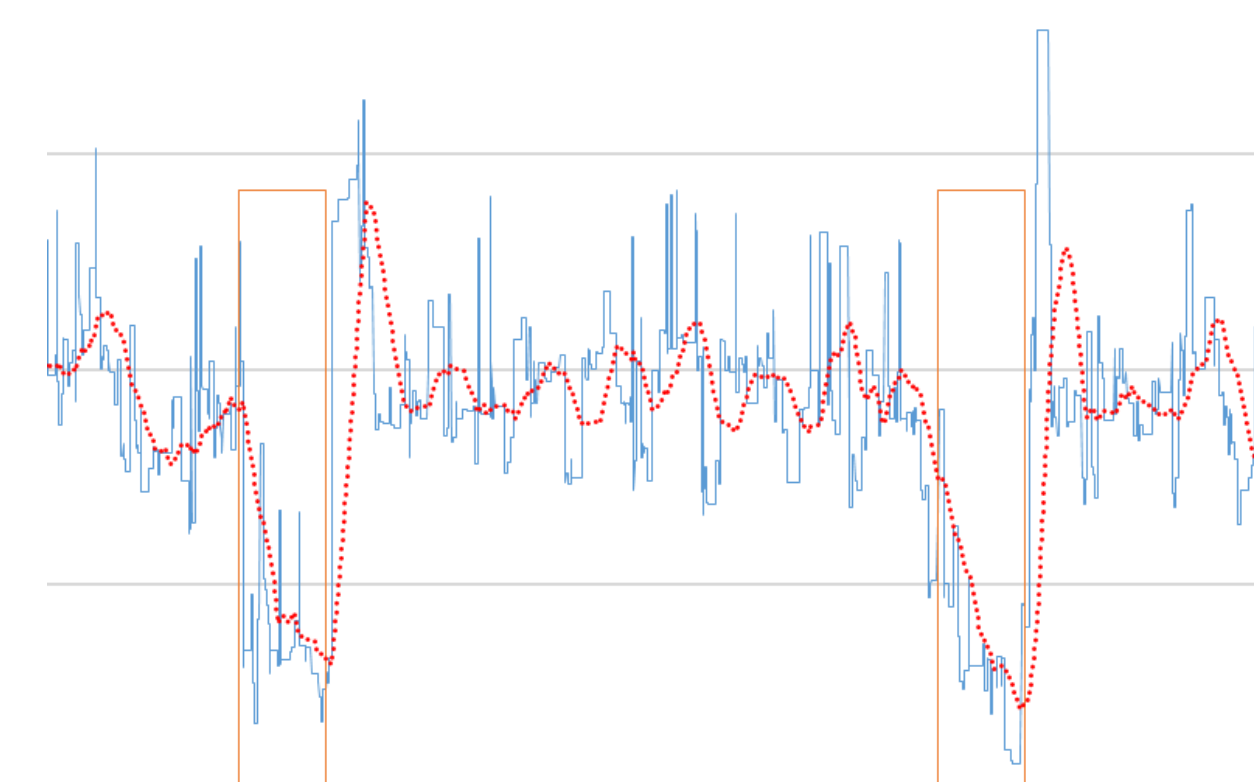


Figure 1.

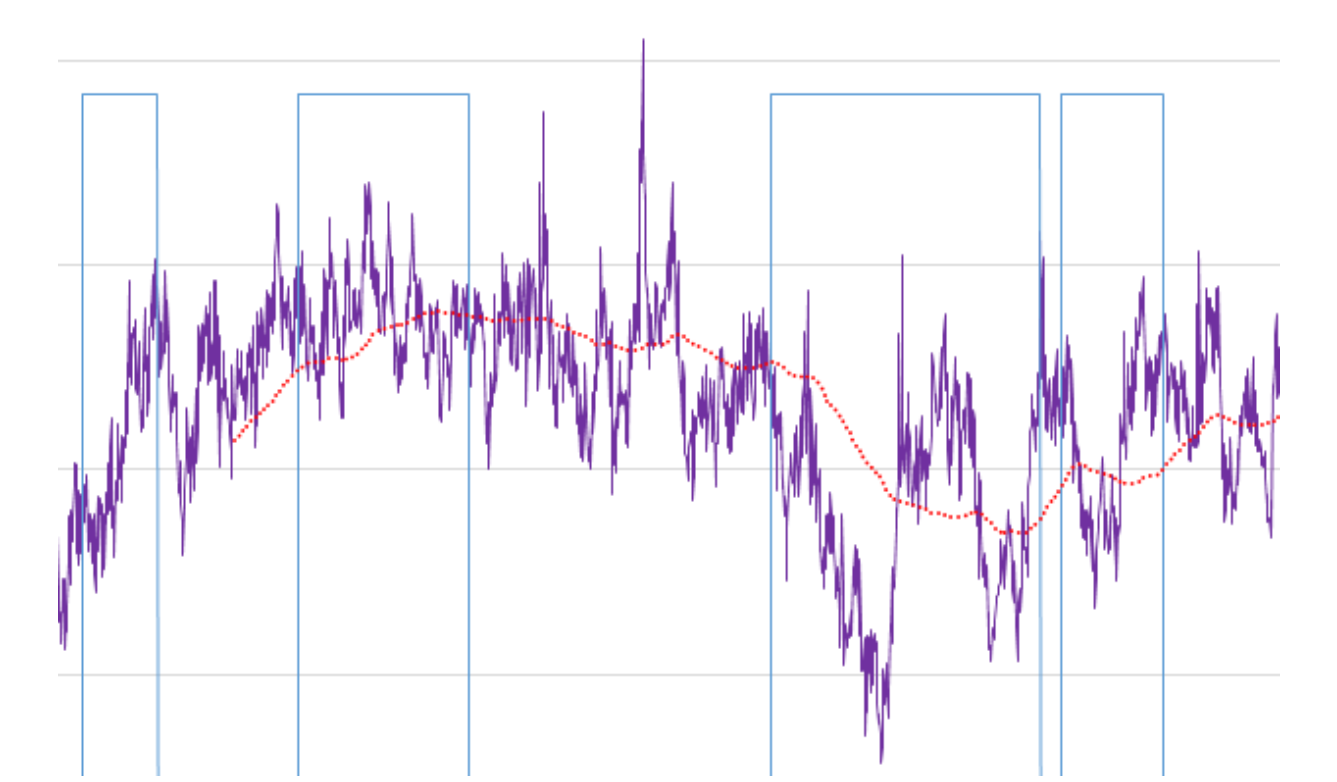


Figure 2.



Solution Architect for Global
Bioeconomy & Cleantech Opportunities

EMPOWER 
enerim