

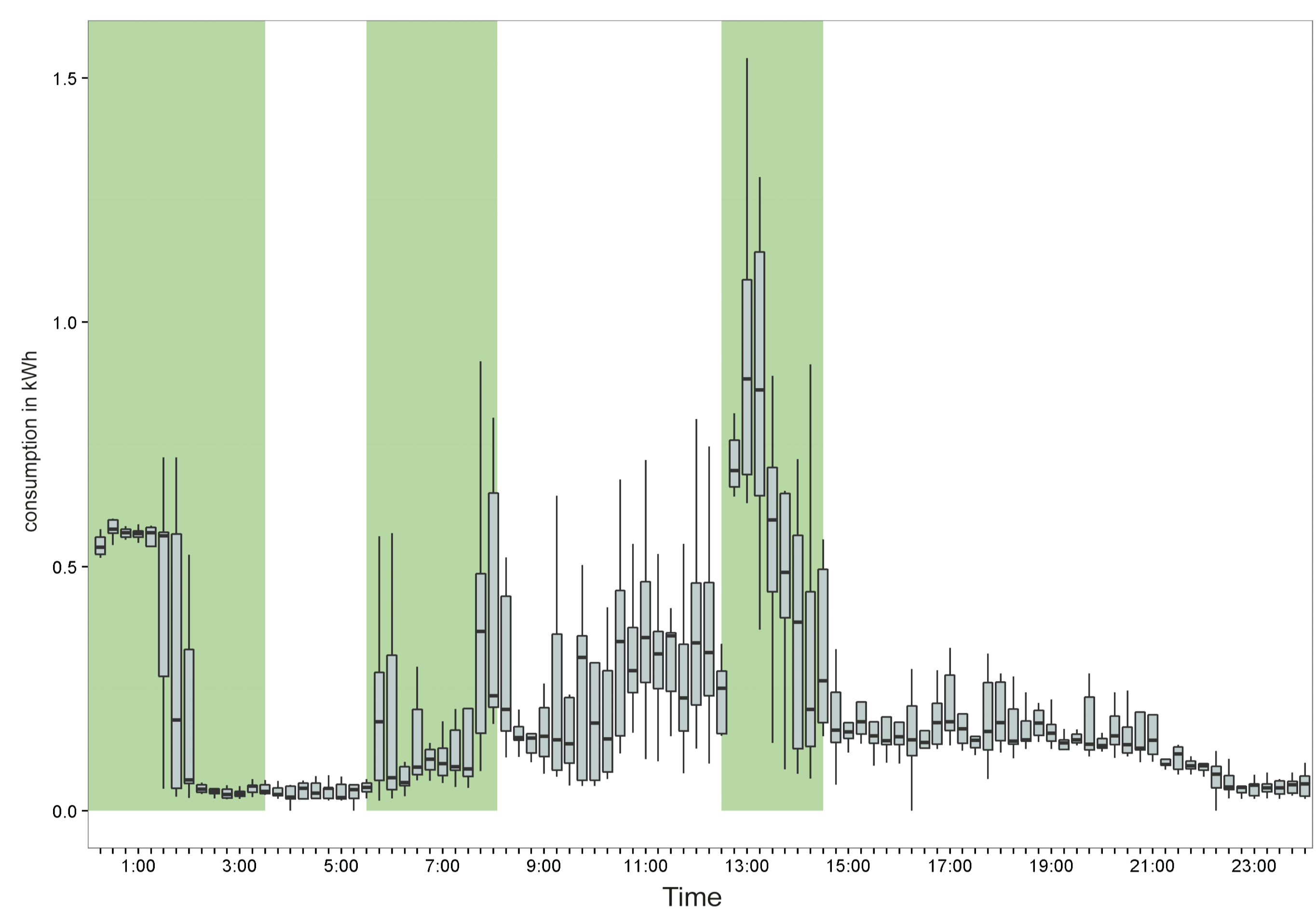
# LOCAL OPTIMISATION OF THE DISTRIBUTION NETWORK (LODIS)

## Objective

The project focuses on assessment of several areas: optimisation of the local power production and consumption balance, the level of preparedness of technologies, the experiences with smart grid application and the possible synergy with current ripple control system.

## Hypothesis

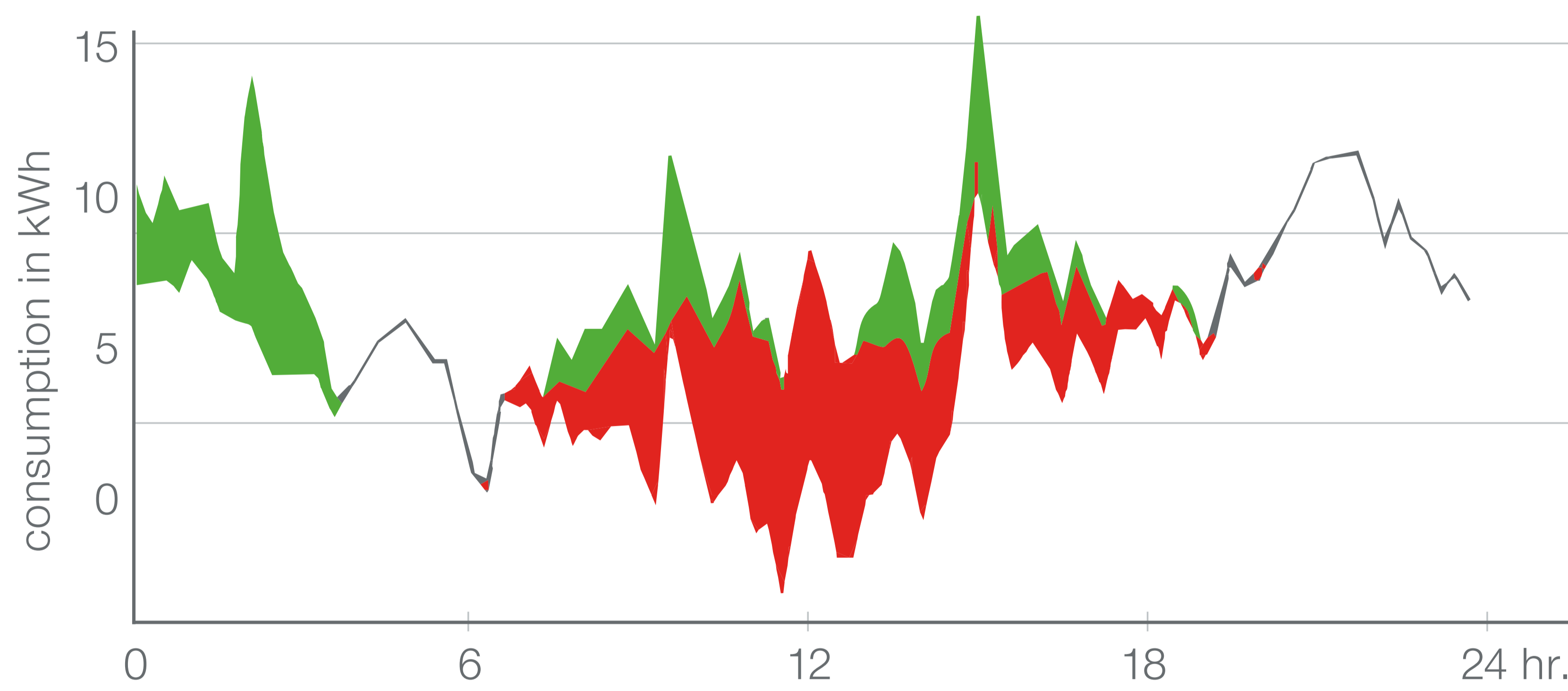
Up to 80% of energy produced by photovoltaic sources is transferred from low-voltage to medium-voltage levels. Assumption is that the energy is consumed as close as possible to generation and to eliminate overflows and to reduce technical losses.



Daily consumption curve

## Description

LODIS solution provides the transfer of household consumption within the peak generation periods of photovoltaic power plants utilizing blocking



Impact of production (red) and control consumption (green) on the daily balance 0–24 hr.

times of accumulation appliances. The goal of the algorithm is to find the best setting of switching times for the following day of each delivery point while taking into account the estimated production and consumption.

## Implementation

The project was implemented in three locations equipped with smart meters, data concentrators and connected to prediction and optimization data center. LODIS is completely automated and uses 15-minute measuring intervals.

## Evaluation

In comparison with ripple control system LODIS resulted in an increase in locally produced electric power by 20% and confirmed the hypothesis that data provided by smart meters may be used and achieve real benefits.