POLICY TECHNOLOGY MARKET
ENERGY STORAGE Global Conference
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Simulation based analysis of control strategies for Heat Pump integration in district heating networks

Session: EASE Global conference student award

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Background

More renewable energy ->
71% by 2020

More intermittent generation

More research in grid stabilizing

Power-to-Heat and storage

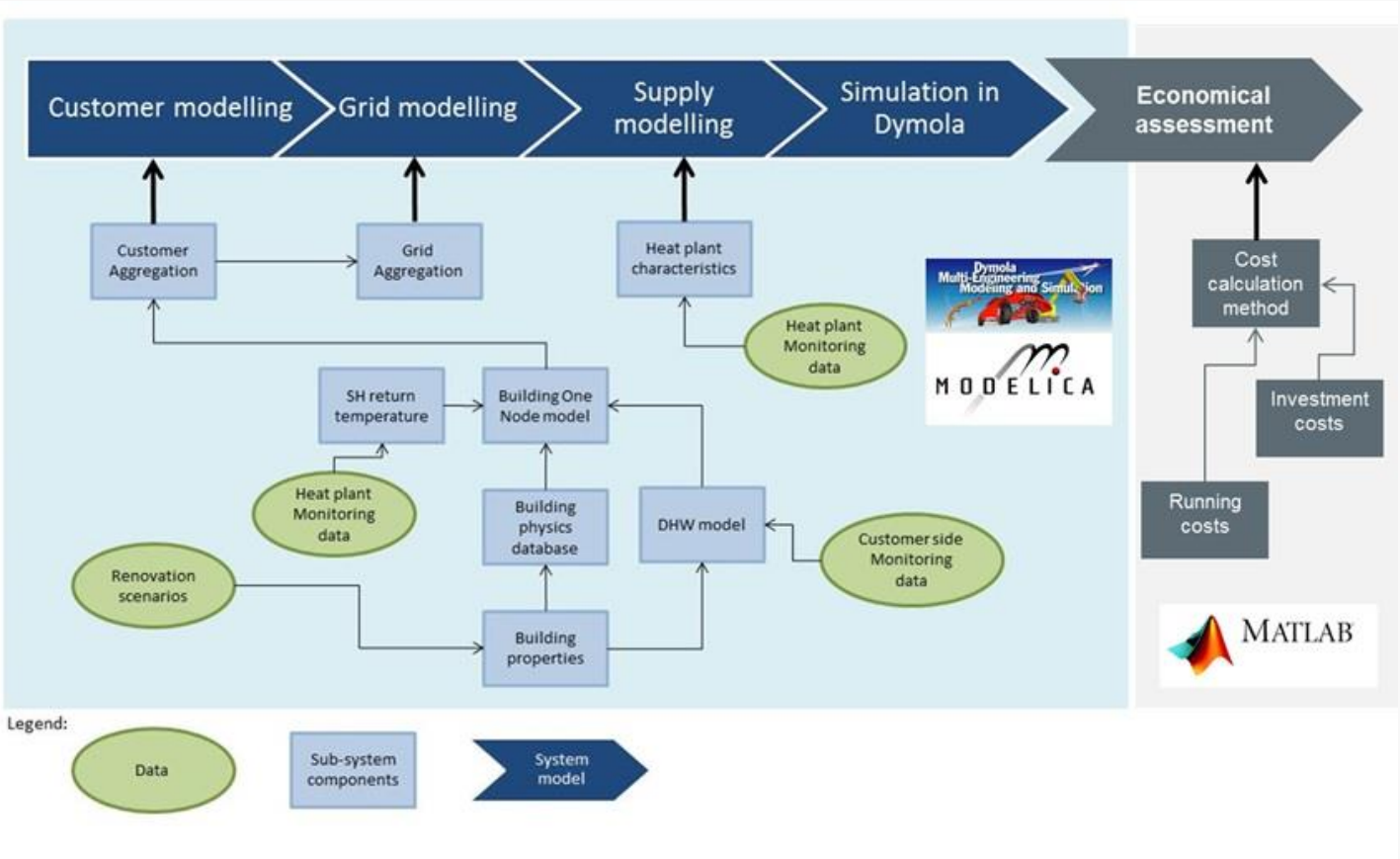
Objectives

INTEGRATION OF LARGE SCALE (>1MW) CENTRALISED HEAT PUMPS IN DISTRICT HEATING NETWORKS

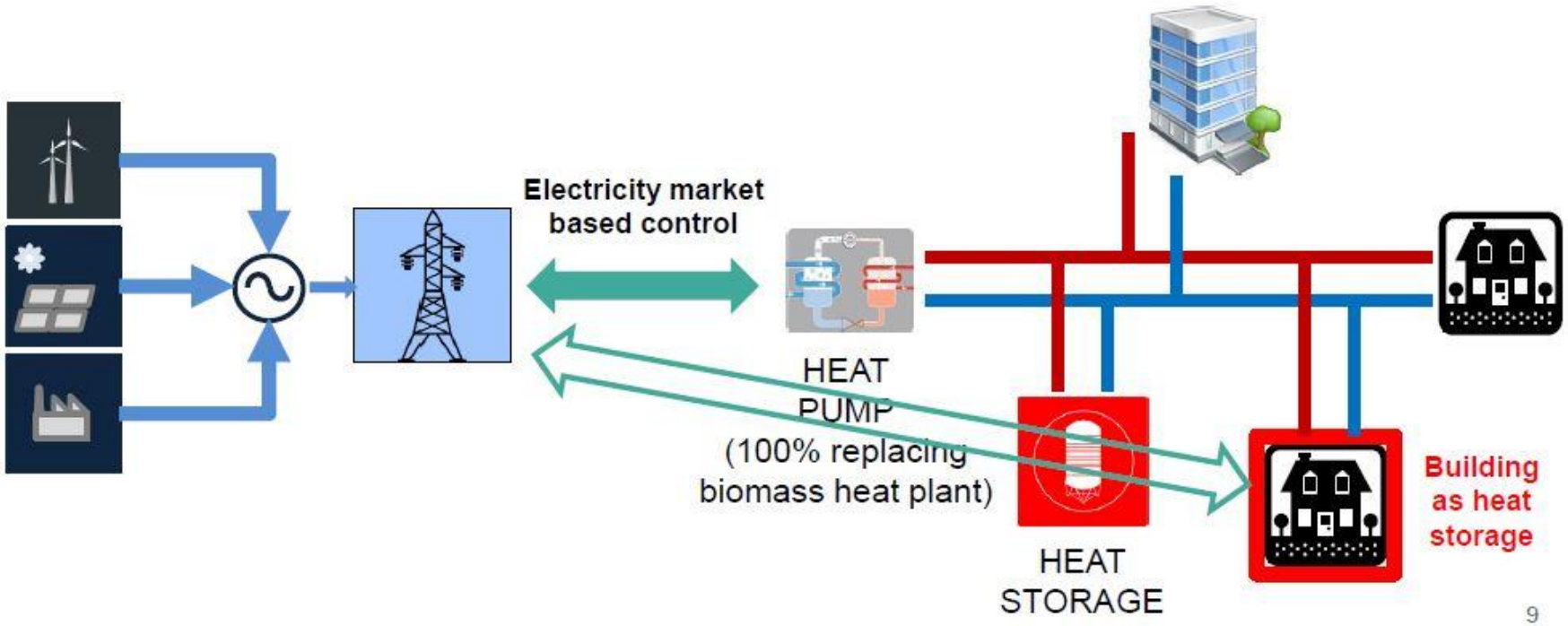
DYNAMIC PRICING (THERMAL STORAGE OPTIMISATION)

DEMAND SIDE MANAGEMENT (DSM)

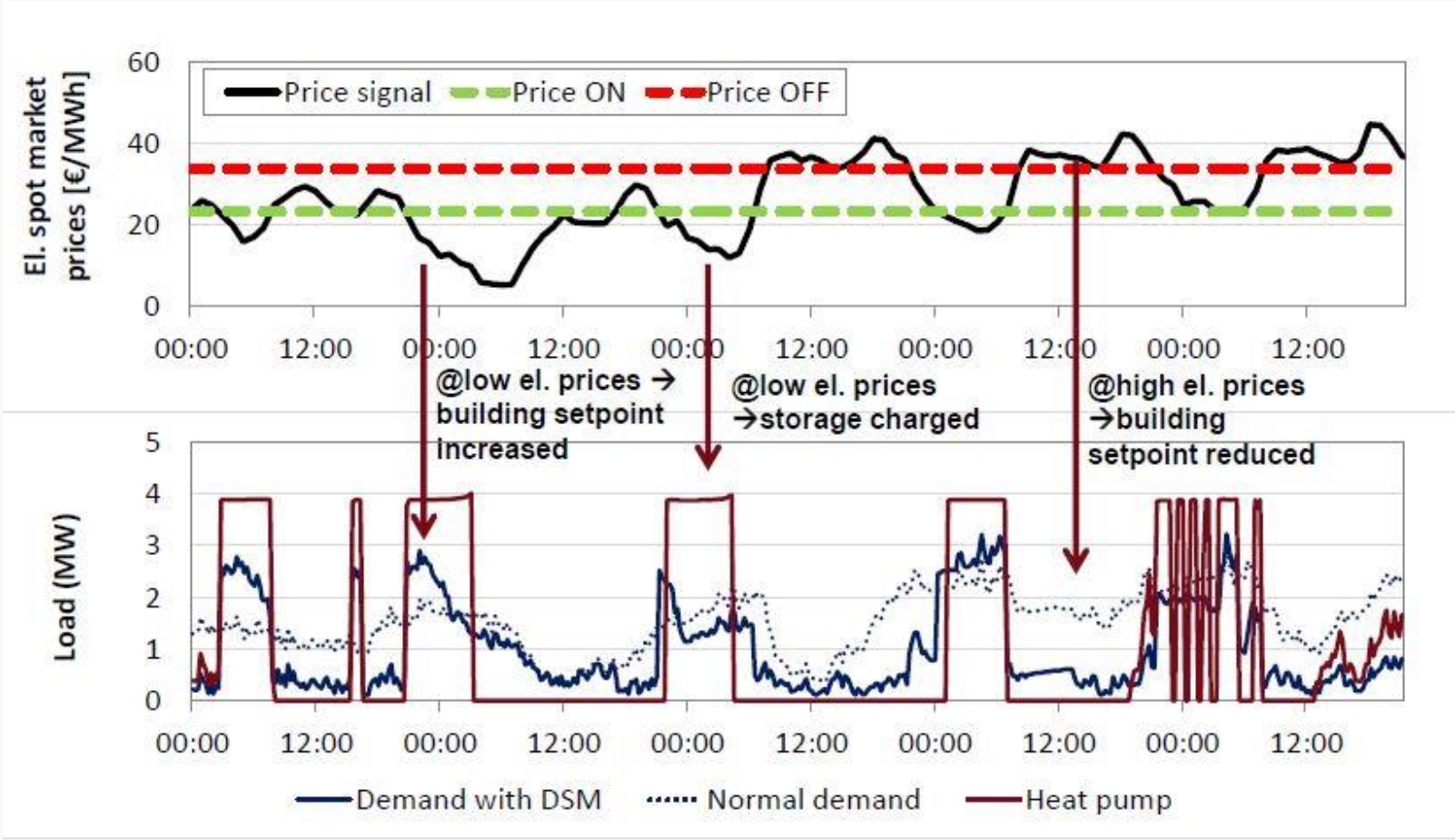
System simulation



Simulation scenarios



Load shifting using DSM and storage

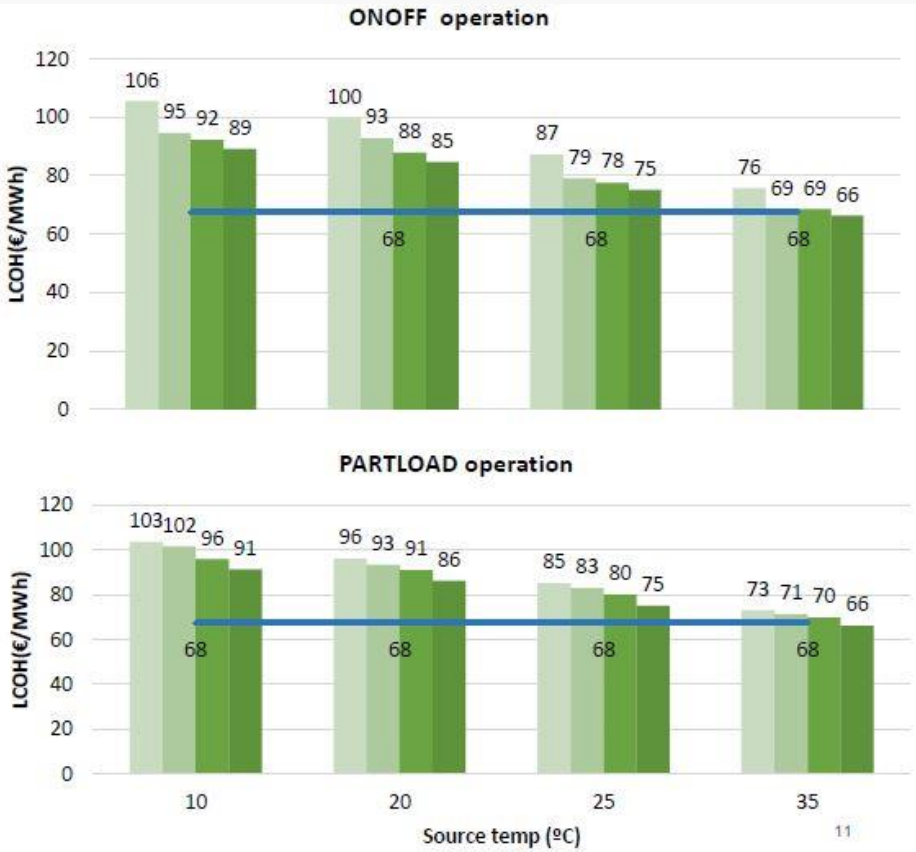


Results: Energy cost

~14 % reduction by DSM If HP runs on ONOFF operation

Standard controller
Dynamic pricing (DP)
DP + DSM apartment block
DP + DSM entire network
Biomass heat plant

~11 % reduction by DSM If HP runs on PARTLOAD operation



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