



## Preprocessing



## Optimization



## Postprocessing

### Territory characterization

Geographic boundaries  
Weather data  
Building stock

### Clustering and data reduction

Typical days  
Buildings archetypes

### End-use demand profiles



### Equipment and resources

Building units  
District infrastructure  
Energy market prices

Parameters

### MILP Master problem

MP

District

*minimize*  $u_{D,p,t}$       **Objective function**  
  
*s.t.*      District model equations  
             Buildings design proposals selection

Optimal design proposals

SP

$B_1$

*minimize*  $u_{1,p,t}$       **Objective function**  
  
*s.t.*      Building model equations  
             End-use demand satisfied

SP

$B_2$

*minimize*  
 $u_{2,p,t}$

SP

$B_3$

*minimize*  
 $u_{3,p,t}$

$\vdots$

SP

$B_n$

*minimize*  
 $u_{n,p,t}$

MILP  
Sub-problems

District-level prices

### Energy system configurations

Design  
Operation

### Energy flows

Buildings interactions  
District imports/exports

### Decision variables

### Key Performance Indicators

Economical  
Environmental  
Efficiency