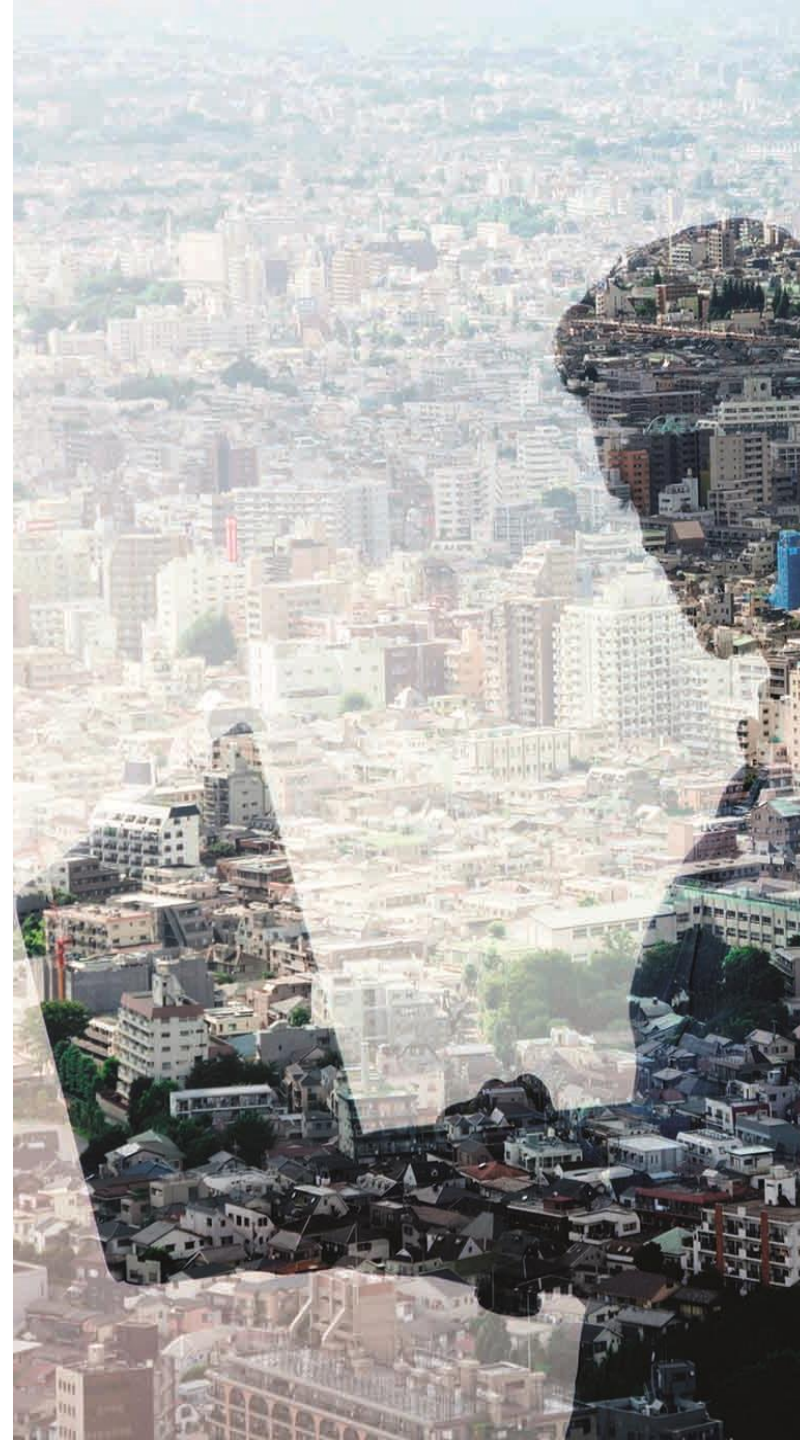


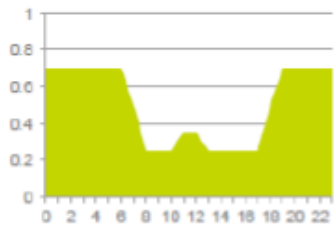
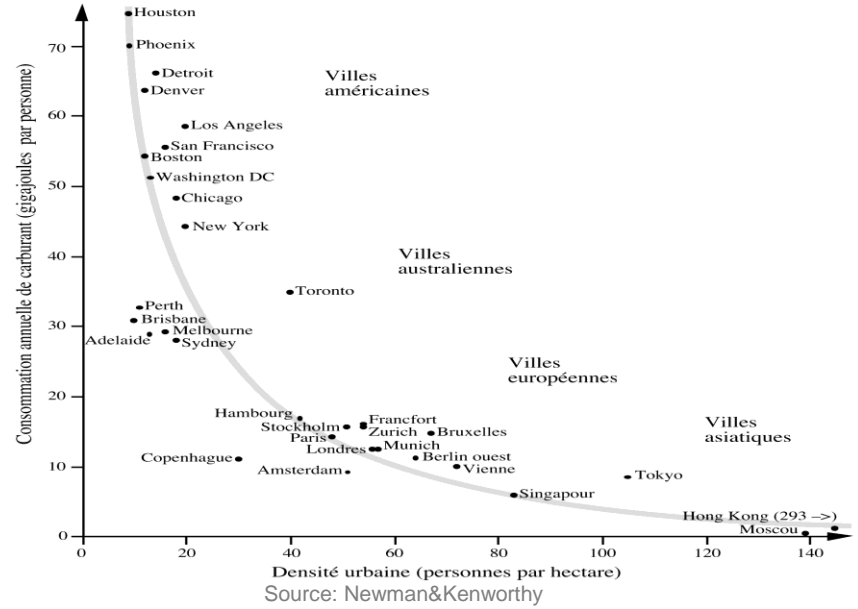
# LA PLANIFICATION ÉNERGÉTIQUE URBAINE

Journée Information et  
Réseautage Energie-Sécurité

Fabrice Casciani (EDF R&D)

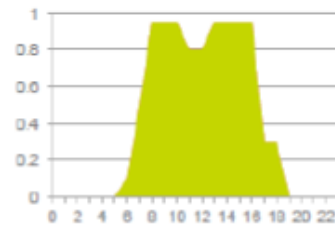


# ÉNERGIE ET URBANISME



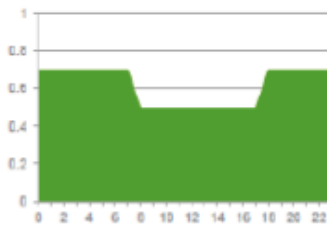
RESIDENTIAL

+



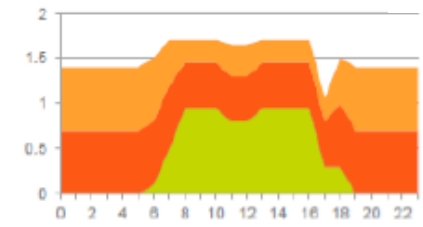
TERTIARY

+



HOTEL

=



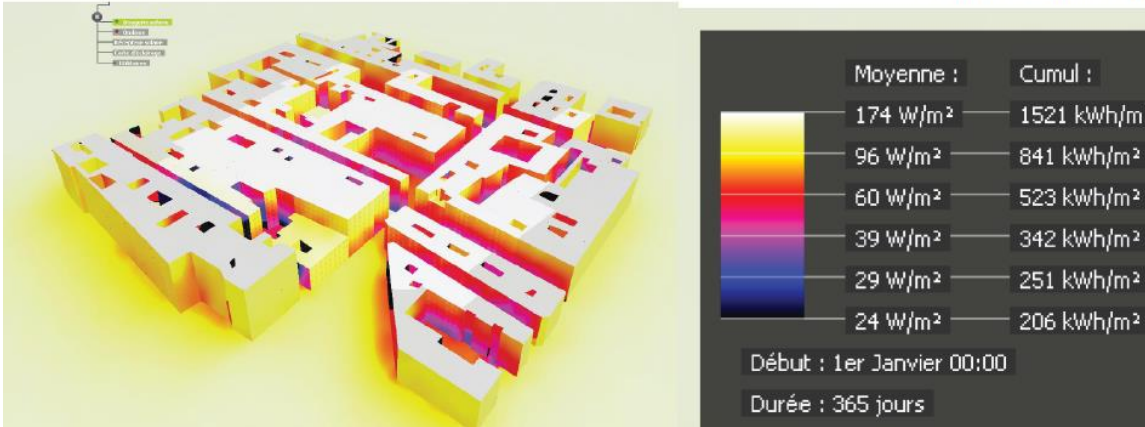
UNIFORM LOAD



# ÉNERGIE ET CONFORT

- Morphology also influences shading effects and takes into account topology

©EIFER – DAVID & GA



## Air pollution

## Noise

## Urban heat Island

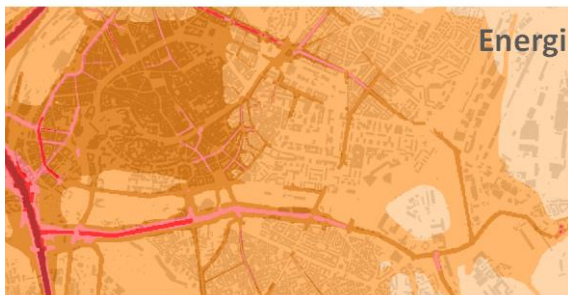
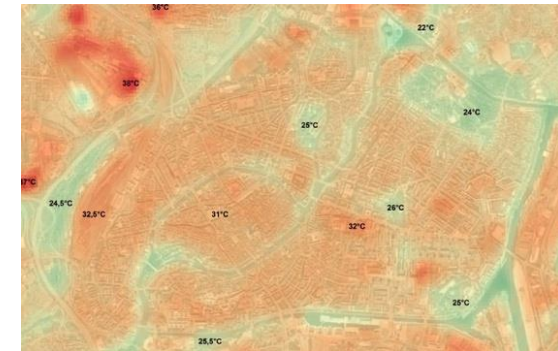


Illustration 2: CBS en LAeq Jour par NoiseM@p

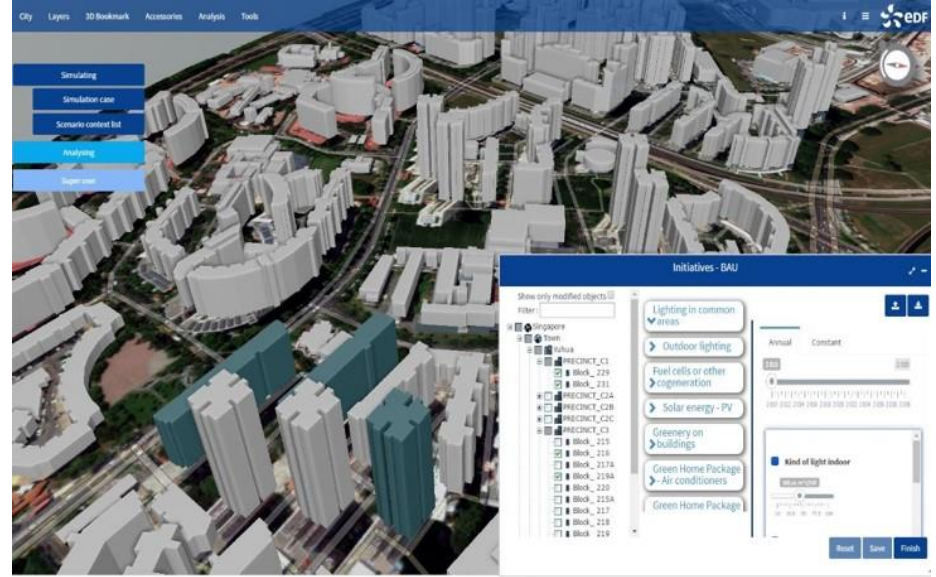
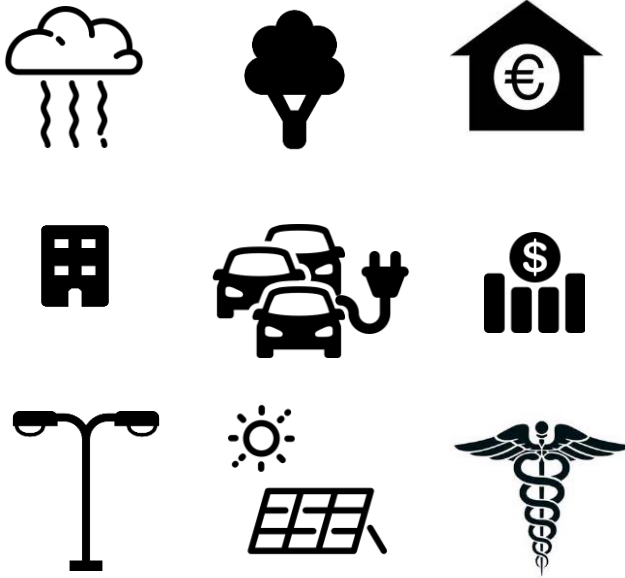


Results from Centrale Lyon, Study for EIFER & EDF, 2015

Results from CEREMA, Study for EIFER & EDF, 2015

Image LANDSAT des températures à Strasbourg, le 14 juillet 2013. - Capture d'écran ADEUS

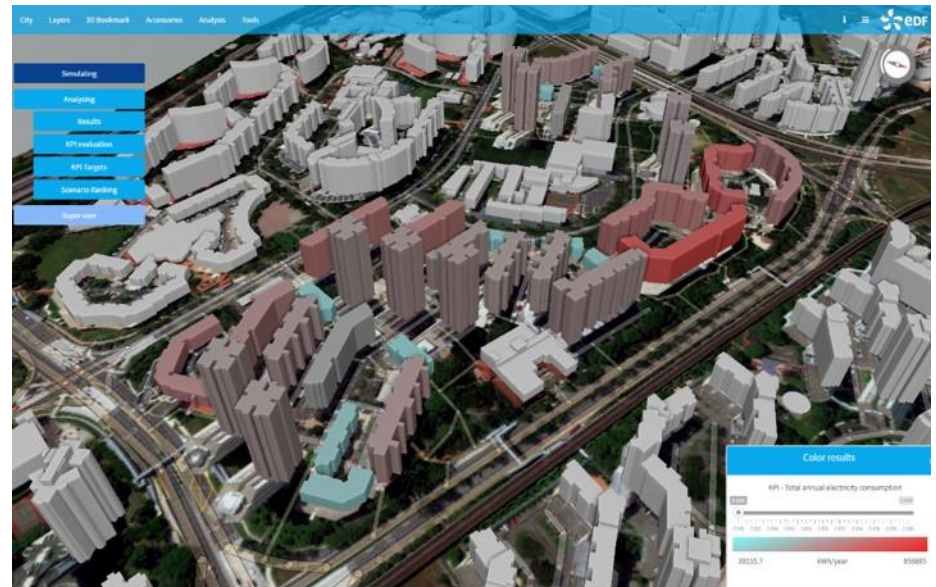
# PLATEFORMES



Model: AGS.2 - Simulation: BAU

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Version: 1.7.2

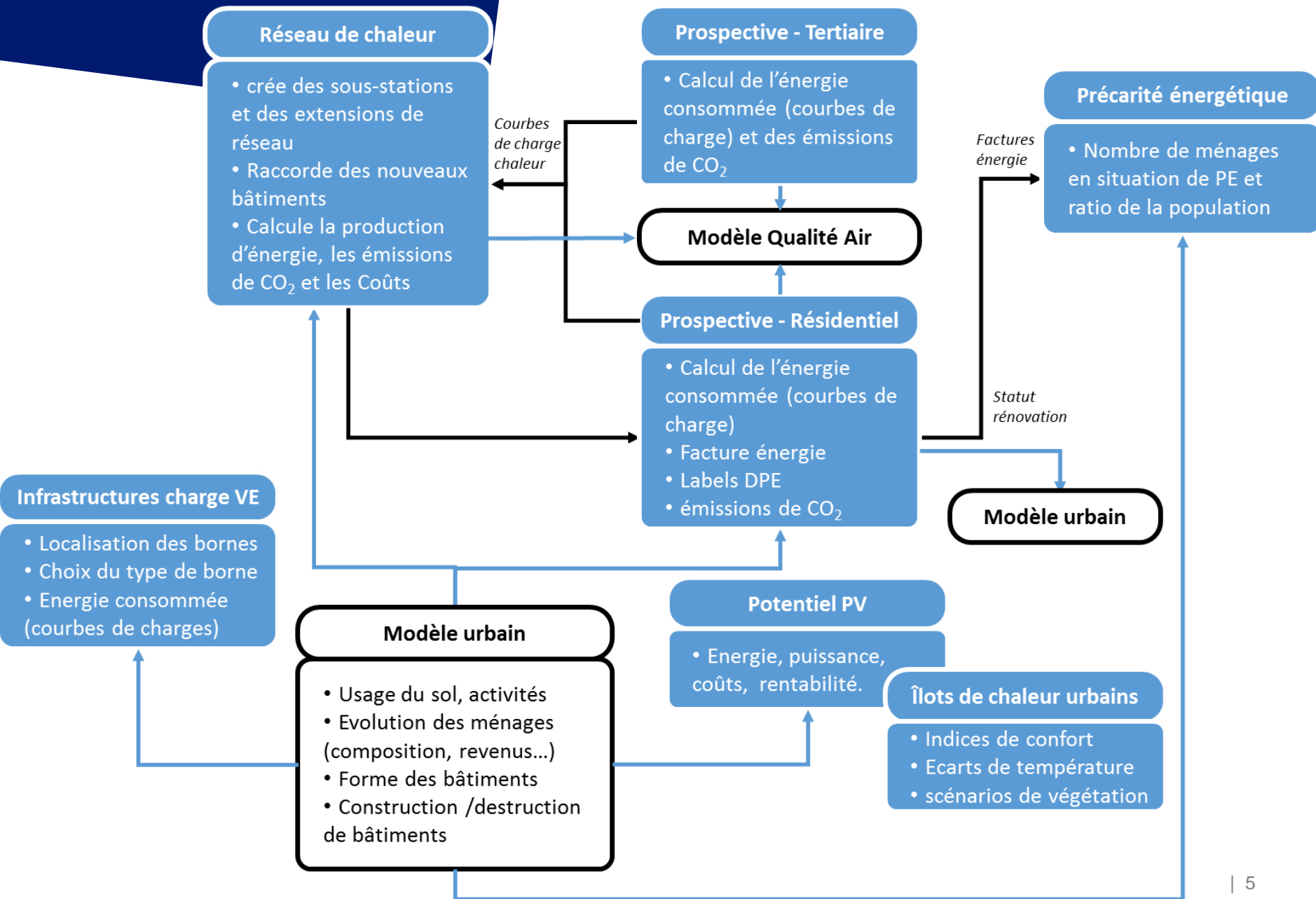


Model: AGS.2 - Simulation: BAU

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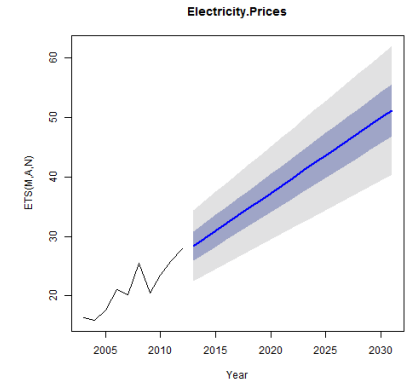
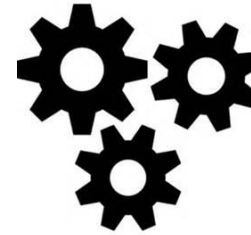
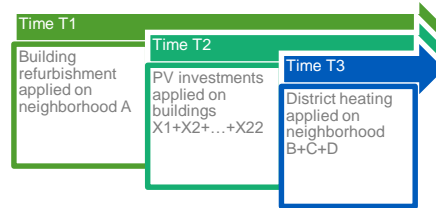
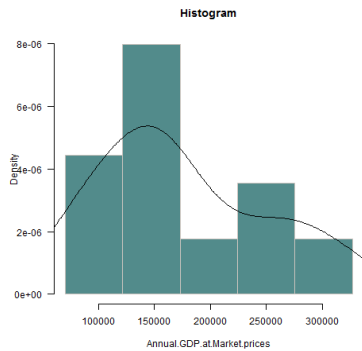
Version: 1.8.0/Project

# SYSTEMIQUE





# PROSPECTIF



Exogenous scenarios



User scenarios



Simulation =

Prospective for urban development

Evolution of oil price, population, interest rates, temperatures

Initiatives: parameters, time, location, describing investments, incentives, or urban policies

Integrated model with multiple interactions at each time step

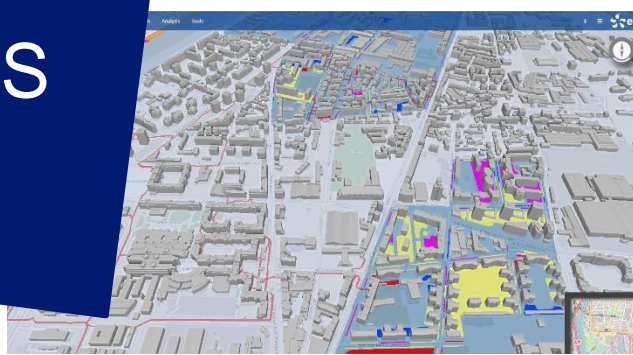
Results corresponding to each scenario: Decision support

# COLLABORATIF

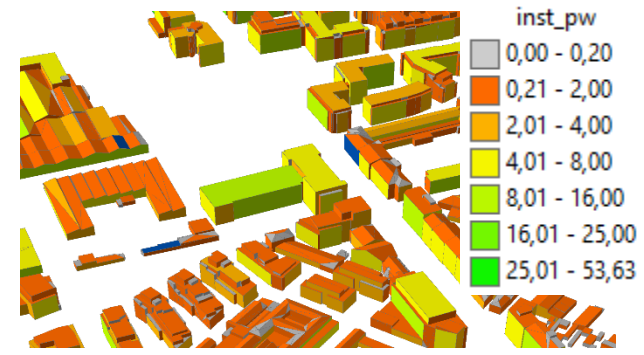




# THÉMATIQUES DE BASE



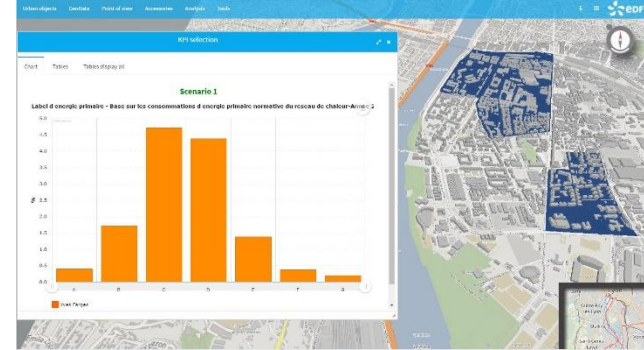
E-mobility - infrastructure



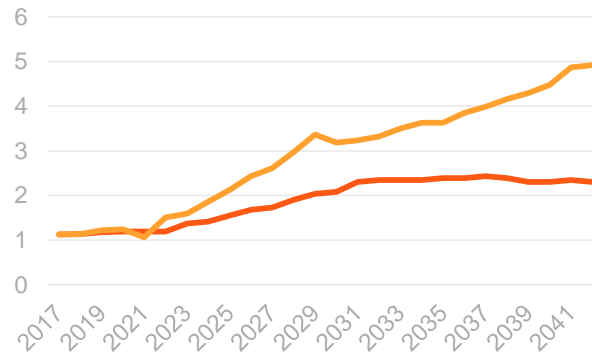
Photovoltaic



District Heating Network



Energy Prospective



Energy Poverty



Urban Heat Islands



# QUELQUES CAS D'ÉTUDE

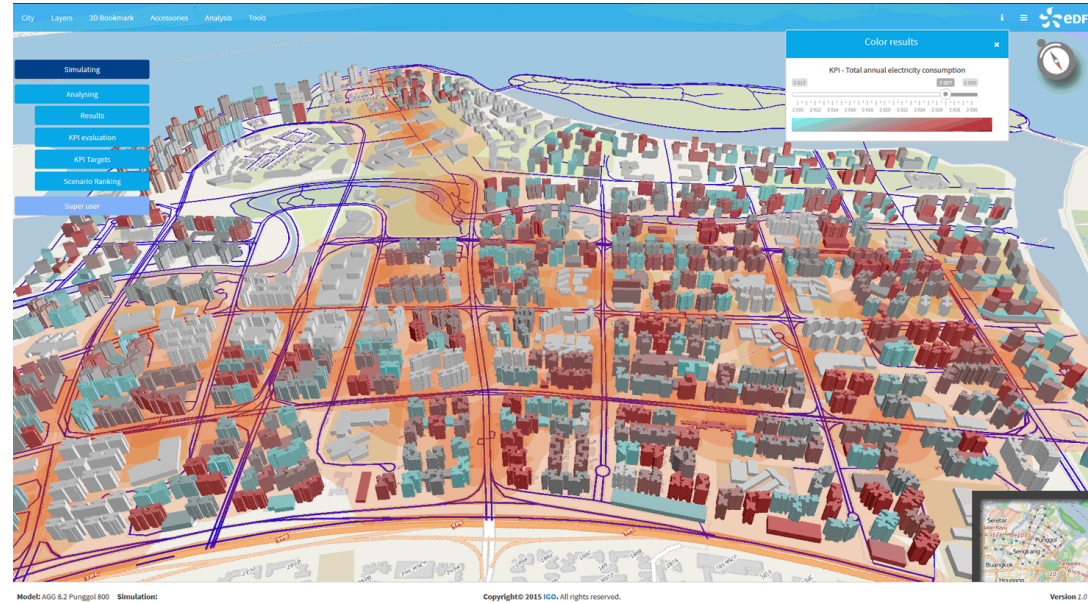


# SINGAPOUR





Yuhua (refurbish.)– 38 buildings  
..... (new) – 800 buildings



- Client: Housing and Development Board (HDB)
- Besoin: aide à la décision pour la planification d'un quartier
- Phase: Pré-design – Moyen/Long terme – Rénovation/neuf
- Secteur: Logement résidentiel
- Question: Quel est l'impact à moyen/long terme d'investissements dans les infrastructure et de mesures incitatives pour un quartier

# BERLIN



## MODÉLISATION MULTI-ÉNERGIE D'UN PROJET URBAIN



© BERLIN TXL THE URBAN TECH REPUBLIC

Visualisierung © Andreas Schiebel

©Tegel Projekt GmbH

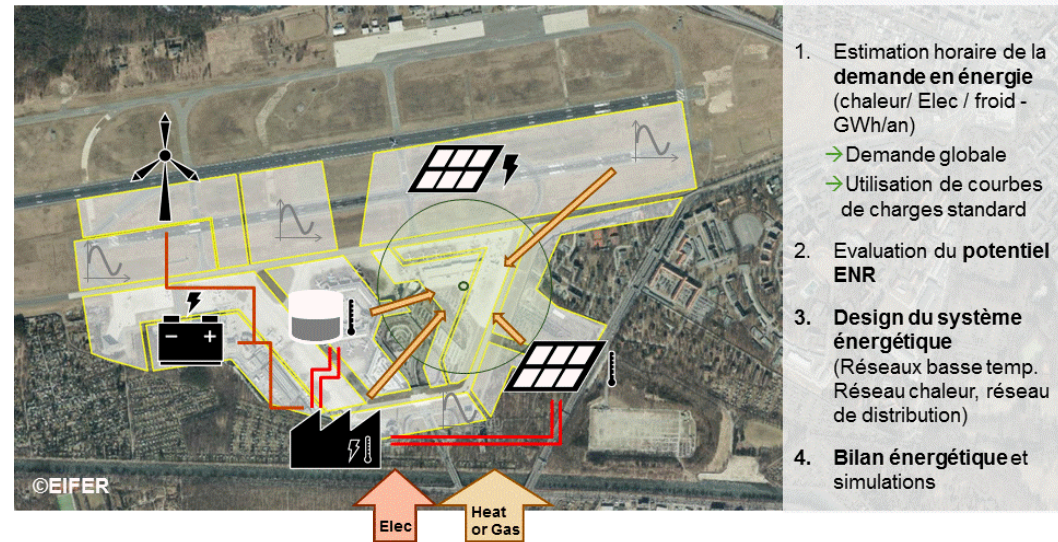




# BERLIN

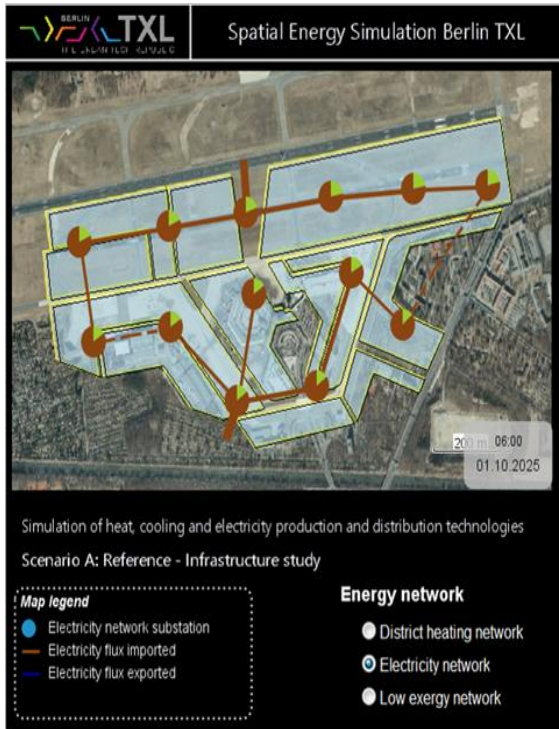
## VIRTUAL PROTOTYPING OF TEGEL'S NEW ENERGY SYSTEM

Berlin TXL – The Urban Tech Republic (5km<sup>2</sup>)  
15.000 jobs, 800 companies, 10 000 Inhabitants



- Client: Développeur public type SPL (Tegel Projekt GmbH)
- Besoin: AMOA pour planification énergétique et communication
- Phase: Planning / Pré-design – Long terme – rénovation zone urbaine
- Secteur: Parc High-Tech – Industrie, Tertiaire et R&D
- Question: Evaluer l'impact de décisions de planification sur le système énergétique dans le cadre d'un processus collaboratif.

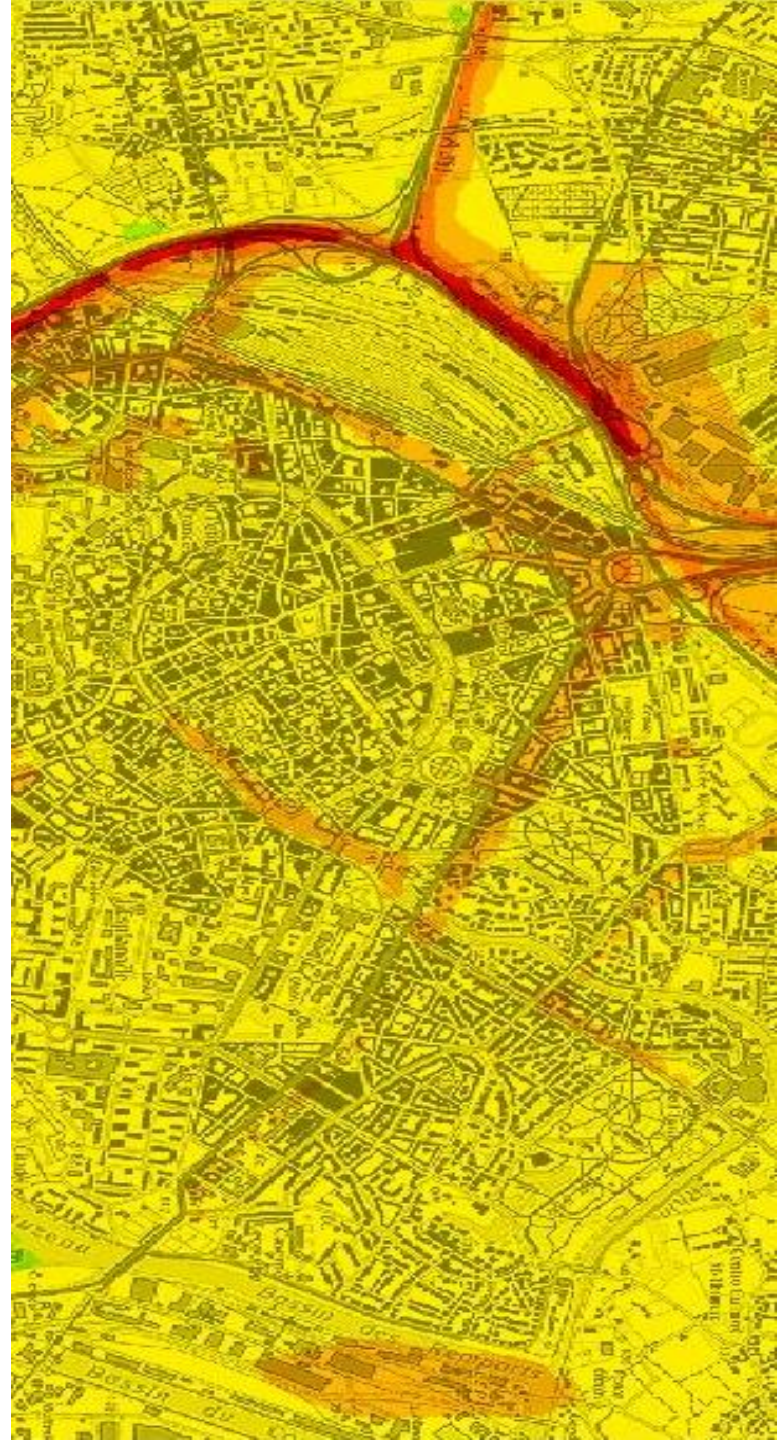
# DESIGN COLLABORATIF



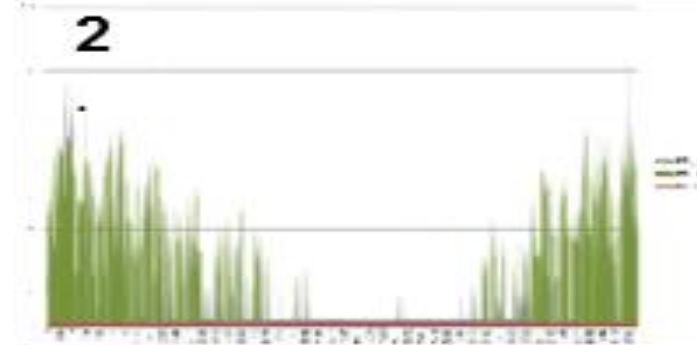
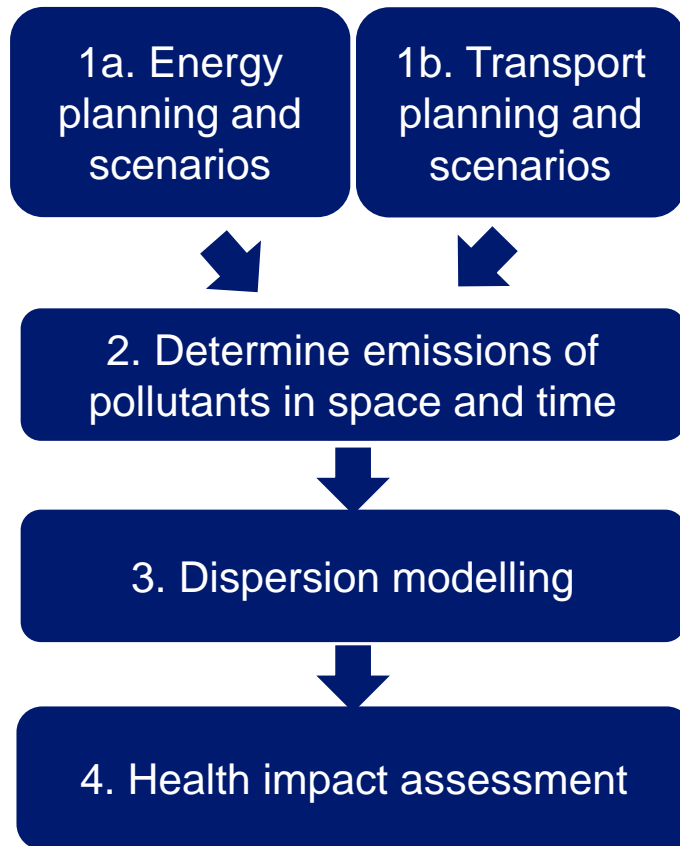


# STRASBOURG

IMPACTS SUR LA SANTE  
DU TRAFIC ET DES  
SYSTÈMES  
ÉNERGÉTIQUES LOCAUX

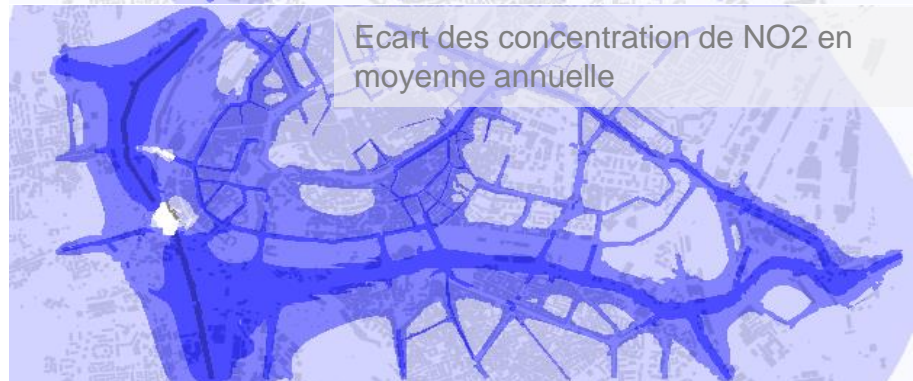


# STRASBOURG

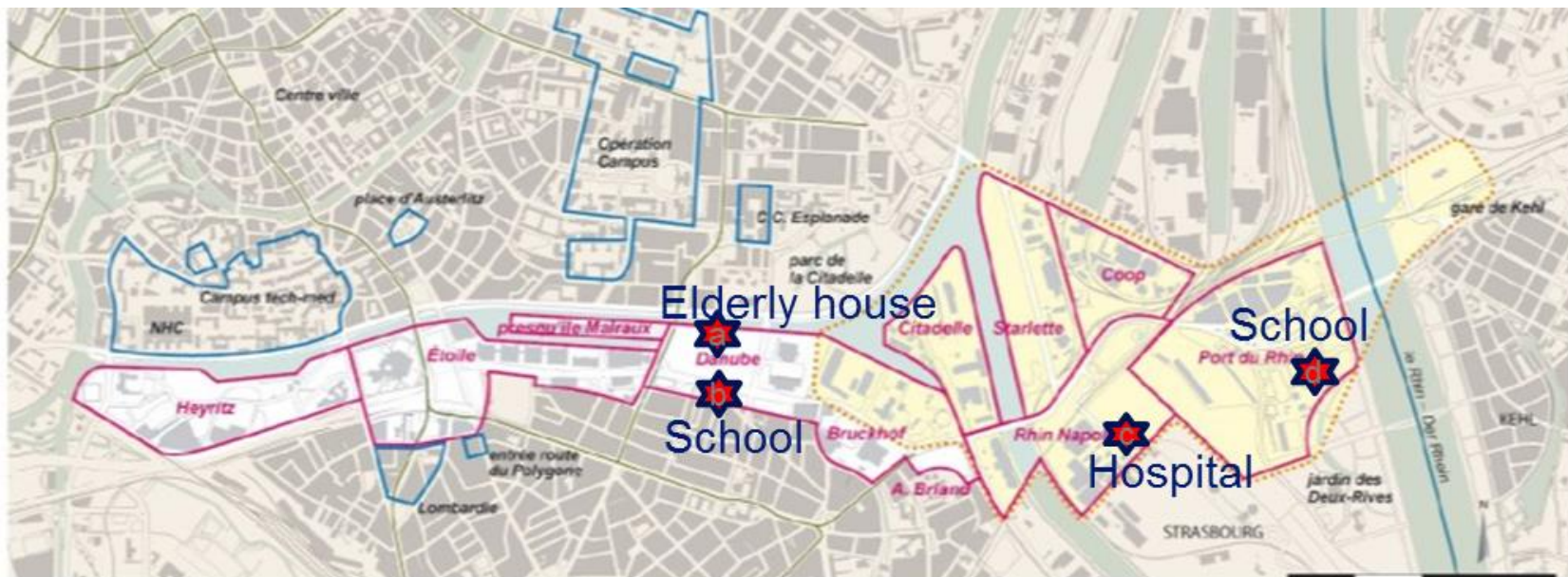




# STRASBOURG



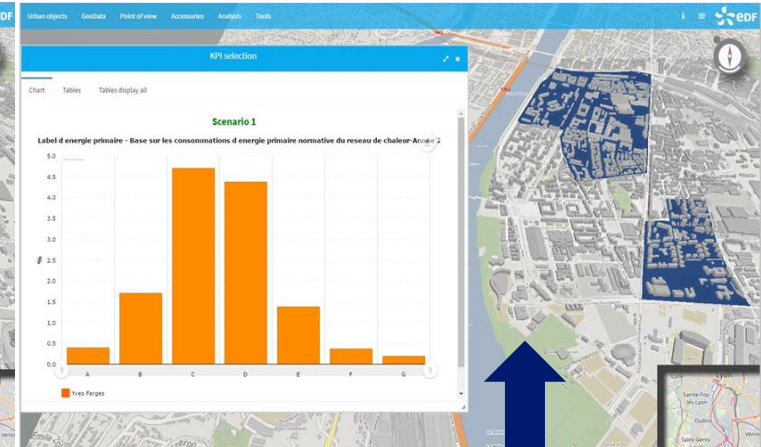
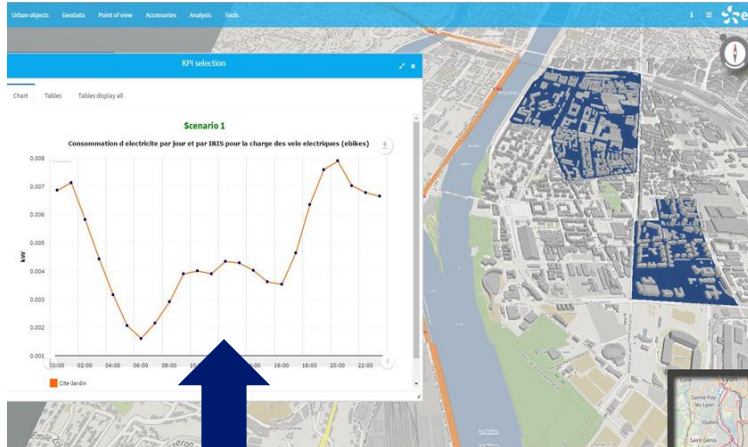
✳️ Présence d'un risque potentiel pour les personnes sensibles scénario 2030 volontariste Exposition chronique au PM2.5



# DE LA PLANIFICATION AU MONITORING

## Localisation de services énergétiques

## Impact santé



## Mise à disposition de données de capteurs

## Tableaux de bords