



# AGC's smart & sustainable solutions for buildings and cities

**AGC**

**Niels Schreuder**  
**Public Affairs & Communication**  
**AGC Glass Europe**



AGC Group

AGC

Your Dreams, Our Challenge



# AGC Group at a glance

- 3 main business segments:
  - Glass
  - Electronics
  - Chemicals
- Sales: € 13.068 billion\*
- Operating profit: € 1.587 billion\*
- 56,000 employees\*
- 206 companies in over 30 countries
- Headquarters and stock exchange listing: Tokyo

\* end 2021



# AGC Glass Europe in a nutshell



**100**

More than 100 sites  
throughout Europe



**15,200**

employees at the service  
of our customers

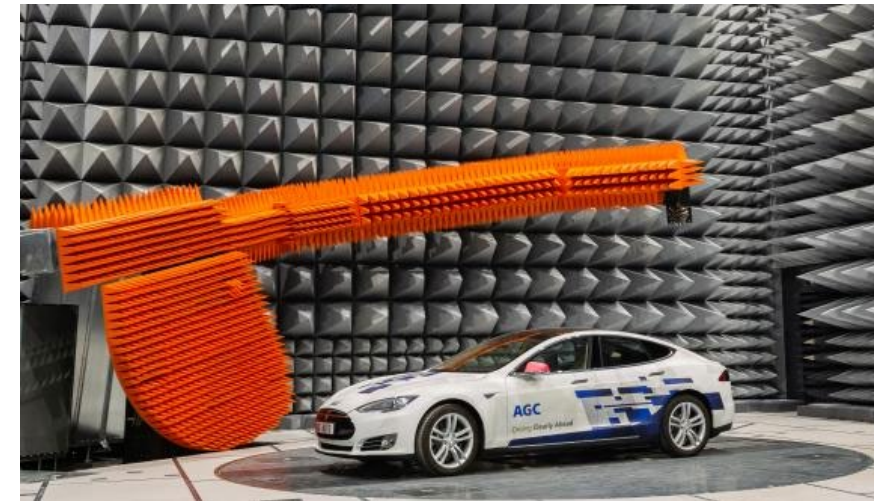


**Building and Automotive**

Glass supplier to the  
Building & Industry and  
to the Automotive sector



**1 building out of 4  
with AGC solutions**



**1 car out of 4  
with AGC solutions**

# AGC's smart & sustainable solutions

**SunEwat XL / Solar Mirror**

**RenoWindow**  
A service by AGC

**FINEO**  
by AGC

**Stratophone**

**Falcon™ glass**

**Wideye**  
GLASS WITH A VISION

**SHAPEYOURGLASS**  
a FeelInGlass service

**FEEL IN GLASS**  
meet new shapes

**jack**

**HALIO™**

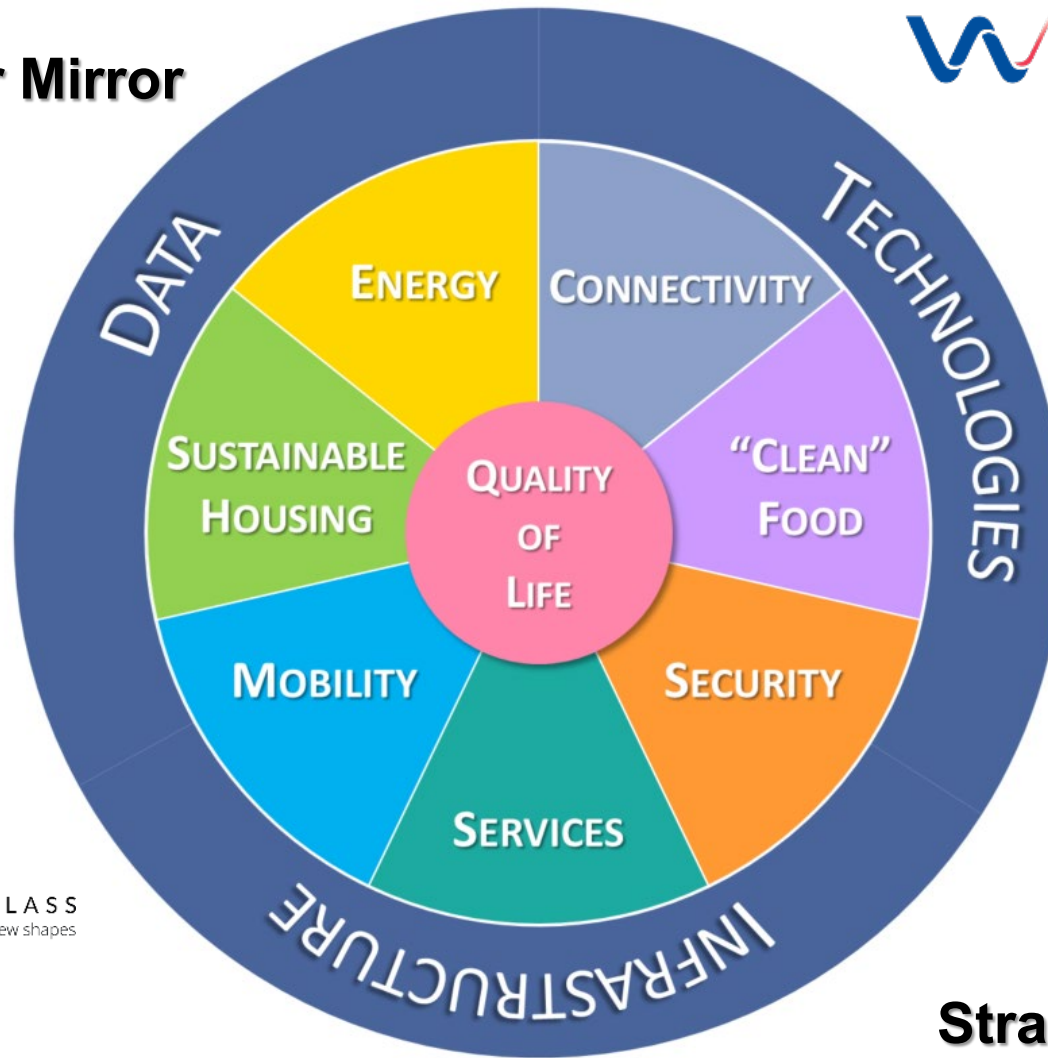
**WAVE THRU**  
by AGC

**WAVE ATTOCH**  
by AGC

**AGCULTURE**

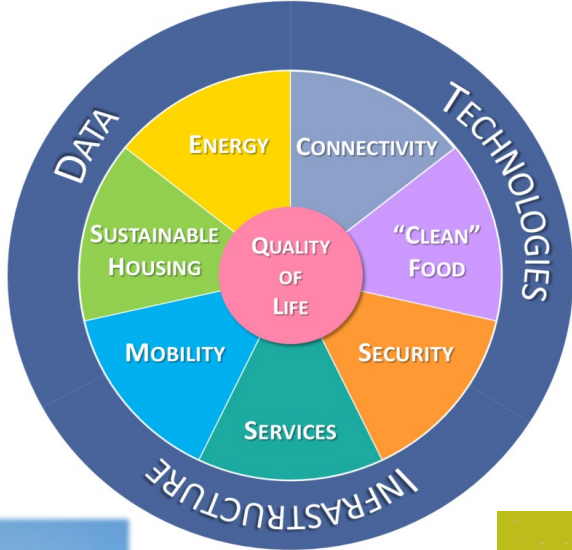
**PYROBEL**  
FIRE RESISTANT GLASS | BY AGC

**Stratobel Security**



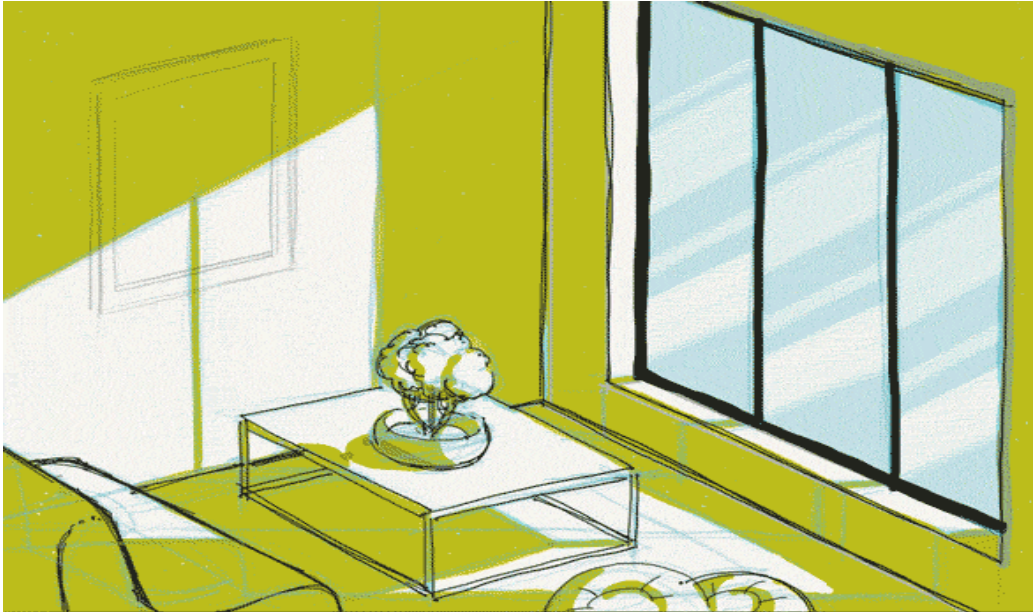


# Building skins for Smart & Sustainable Cities ...

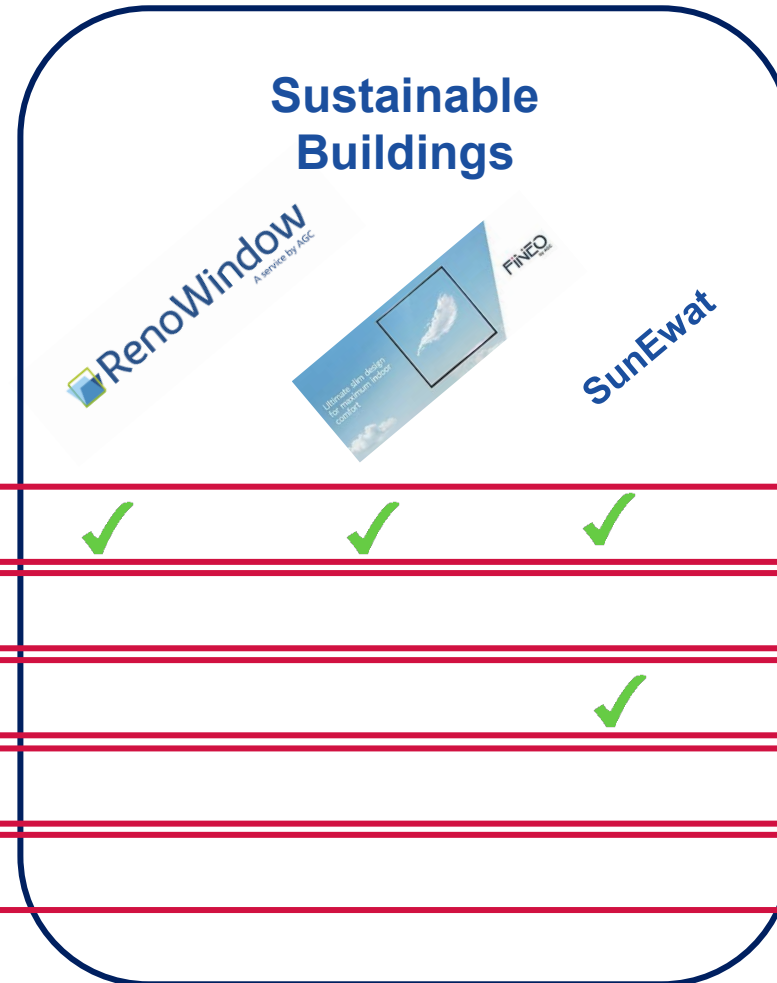


Energy generation

Energy savings



# Matching needs and solutions



Buildings

Transport and Mobility

Electricity

Public health and Safety

Government and Citizens

# RenoWindow – One-stop-shop customized re-glazing




## Challenge

Unstructured offer in case of re-glazing need (while keeping the existing frame)

## Solution

One-stop-shop re-glazing services to get your glazing future-proof

## Benefit

- 
 • Energy, CO2 savings
- Limited investment cost (only re-glazing)
- Reduced environmental impact (frame is kept, glass is recycled)
- 
 • Better comfort (thermal, safety, acoustic, connectivity)
- Speed of installation (1 day)
- Kept aesthetics of the building
- Local employment/training to execute re-glazing
- 
 • Website guidance of the customer

### Re-glazing Services



**Safety option**, protect people and belongings.



**Solar control option**, ensure freshss, even in sunny daysne.



**Thermal insulation**, increase your comfort and reduce your energy bill.



**Acoustic option**, ensure calm and serenity, even in a noisy environment.



**Connectivity option**, access communication network.



# Fineo – Ultimate slim design for maximum indoor comfort

## Challenge

Difficulty to integrate high quality insulating glass without increasing thickness and weight, and thus without replacing frame (e.g. classified building)

## Solution

Thin vacuum glazing matching triple-glazing performance (combined with RenoWindow for the re-glazing service)

## Benefit



- Energy, CO2 savings
- Limited investment cost (only re-glazing), higher return on investment
- Reduced environmental impact (frame is kept)



- Better comfort (thermal, acoustic, safety)
- Speed of installation (1 day)
- Kept aesthetics of the building

### Vacuum insulating glazing



### FINEO



Equivalent thermal insulation

4 to 5 times thinner

At least 33% lighter

More light penetration

Better acoustic insulation

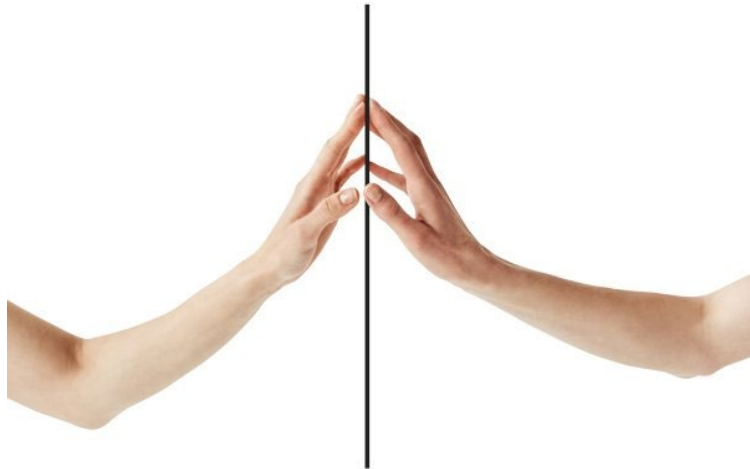
Improved aesthetics

100% Recyclable

### TRIPLE GLAZING



# with Fineo (vacuum insulating glazing) ...

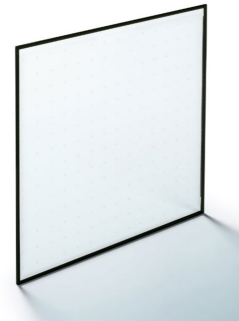


Less is more

<b>8x</b> more efficient than single glazing	<b>12.5%</b> more efficient than triple glazing	<b>1</b> Ultra-thin at just 6.7mm	 34% perceived noise reduction	 34% lighter than triple glazing
 Suitable for retrofitting	 No visible Vacuum cap	 Shorter Lead times	 15 Year guarantee	 Reduces your carbon footprint

- New built ✓
- Renovation ✓  
w/ or w/o sash replacement
- Heritage building ✓

**100%**  
RECYCLABLE  
without dismantling



**masterframe**<sup>®</sup>  
SASH WINDOWS

**FINEO**  
by AGC

# SunEwat – Energy generating façade without compromise

## Challenge

Generating energy to meet the most stringent Zero-Energy-Building requirements

## Solution

Transforming the glass façade or skylight into an aesthetically integrated smart energy source

## Benefit



- Incremental cost to transform a passive façade into an active façade < 1€/Wp
- Payback time similar (slightly higher) than for PV on rooftop → complementary solution to reach ZEB requirements



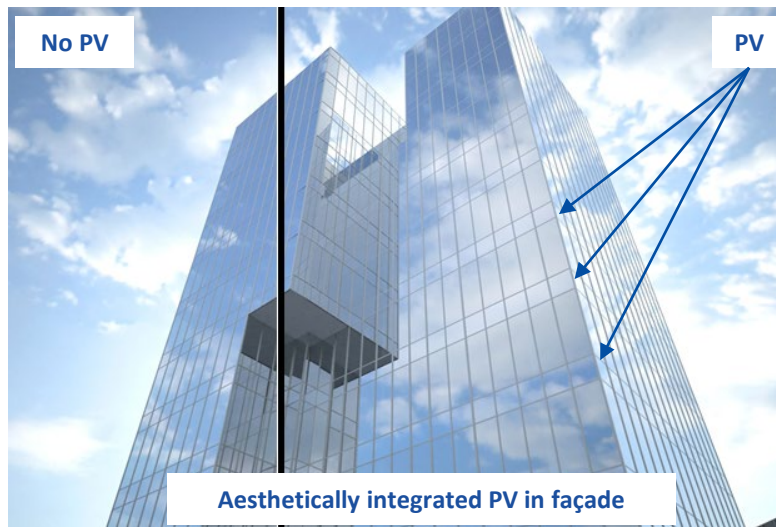
- No compromise with the aesthetics of the building
- No compromise with the properties of the glazing (comfort, safety, ...)

### Energy Generation Façade

### SunEwat

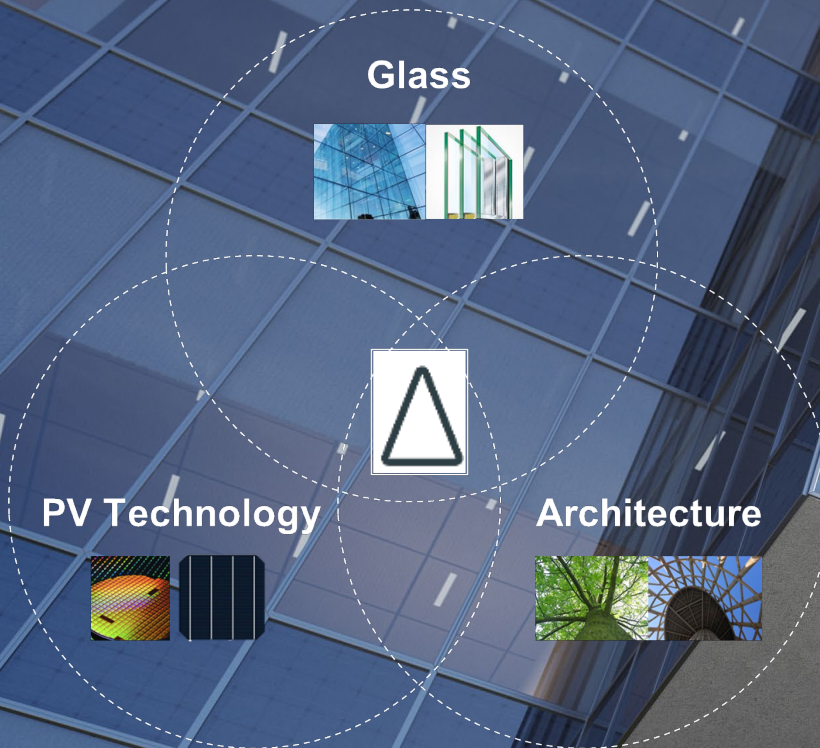


Monaco – 406 m² - 35 kWp





# SunEwat = building integrated PV



1.000 m<sup>2</sup> BIPV IS EQUIVALENT TO...



120 world tours on an electric scooter



Electricity supply for 40 inhabitants



Annual consumption of 23 electric cars



28,6 tonnes of CO<sub>2</sub> avoided per year



18.500 daily smartphone recharges



Revenues : 20 € - 24 £/m<sup>2</sup> per year

# Conclusion



# Energy savings – passive solutions ...

## BUILDINGS IN EU

40% of energy consumption

36% of total CO2 emissions

35% over 50 years old

75% energy inefficient



To be climate neutral in 2050 reducing the building consumption is a must

New buildings have to be NZEB-ZEB

Renovation must be fostered and performant

GLASS FOR EUROPE

LOW ENVOYE erg22

2020-2030

AVAILABLE AS OF NOW

Glazing	Glazing type	$U_g$	$g_g$
1	Double	1.1	0.62
2	Double+	1	0.5
3	Double SC	1.1	0.4
4	Double SC+	1	0.3
5	Triple	0.6	0.5
6	Triple+	0.5	0.5
7	Triple SC	0.6	0.25

2030-2050

COMING SOON

Glazing	Glazing type	$U_g$	$g_g$
1	Low-e ++A	0.35	0.65
2	Low-e ++B	0.25	0.55
3	Solar Control ++A	0.4	0.3
4	Solar Control ++B	0.5	0.2

GLAZING VALUES SET BY APPLYING THE ENERGY BALANCE

OUTDOOR  $g$ -value HEAT GAINS

INDOOR U-value HEAT LOSS

“Traditional” domain of innovation for the industry

High performance glazing development through

- Passive solutions (coatings, double, triple, VIG, films, ...)
- Active solutions (e.g. electrochromic) connected to BMS





# ... and active solutions

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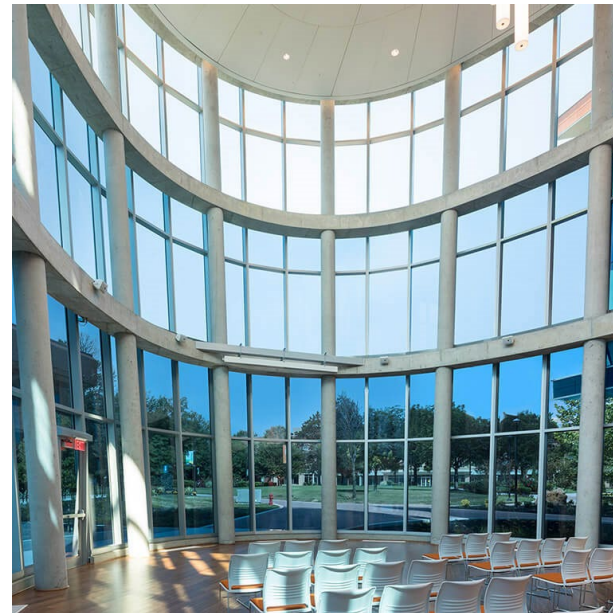
$g$ -value

HEAT GAINS

INDOOR

U-value

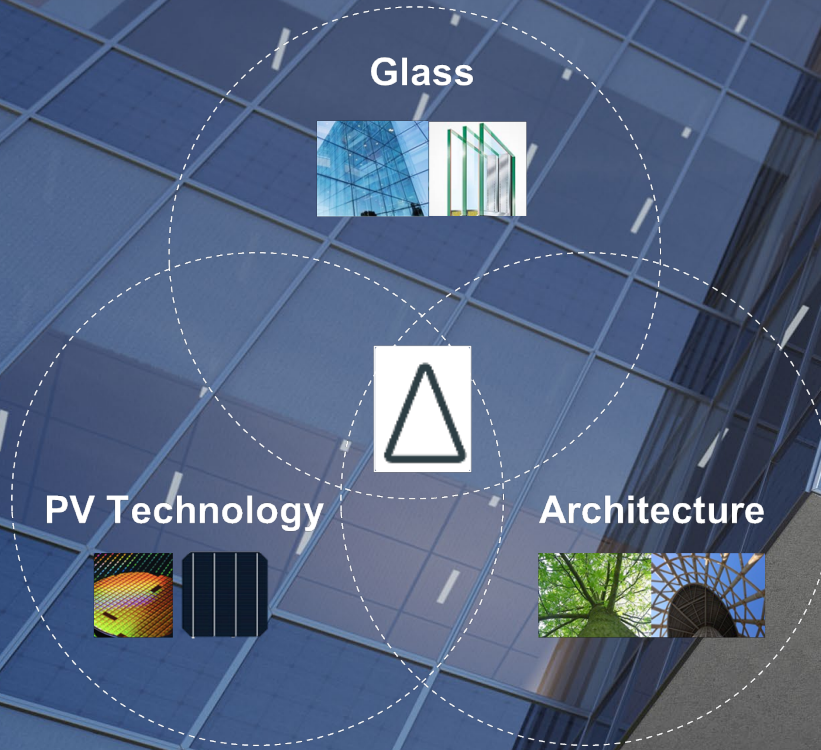
HEAT LOSS



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  - **Active solutions (e.g. electrochromic) connected to BMS**



# Energy Generation



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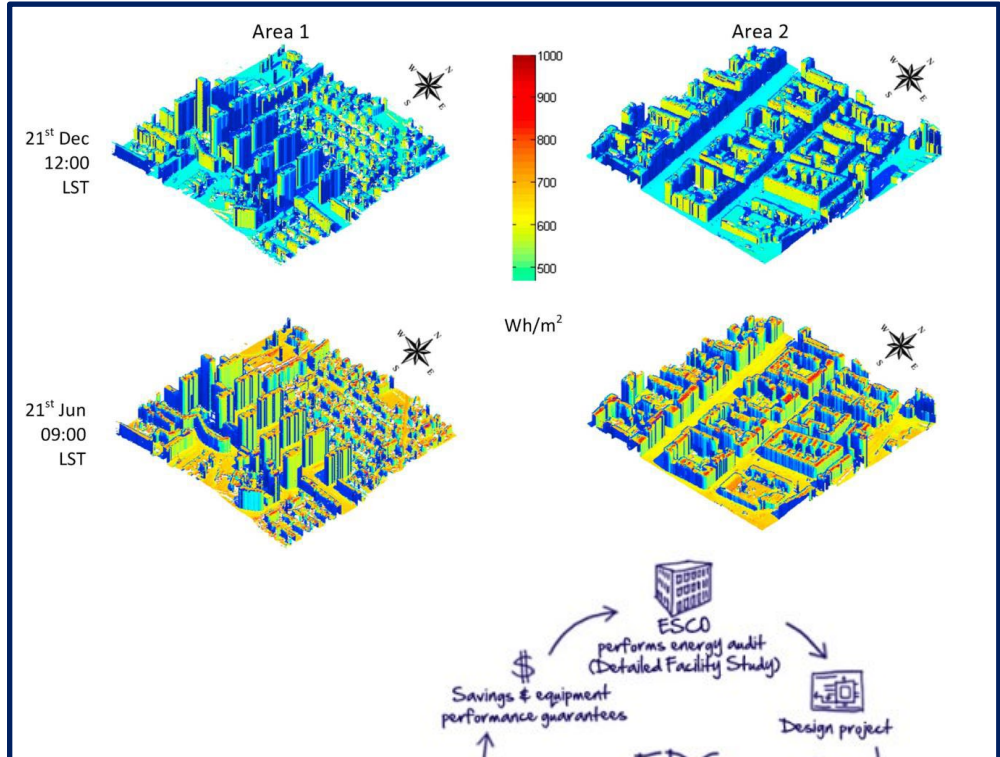
# Building level

# City / District Level

## New build



## Retrofit



# Energy Performance Contract







*Thank you, let's talk about*  
**Your Dreams, Our Challenge**