Welcome

Thomas Messervey

R2M Solution

R2M SOLUTION · PRINCE ALBERT II OF MONACO FOUNDATION · ENOLEO ÉNERGIE · AGRICORP · BRAINBOX AI · IES

SUSTAINABLE PLACES 2022

R2M SOLUTION | MÉTROPOLE NICE CÔTE D'AZUR | VILLE DE NICE | iae nice | UNIVERSITÉ CÔTE D'AZUR

Sep. 6 - Sep. 9, 2022 Nice, France |
Centre Universitaire Méditerranéen

@Photo Ville de Nice

150 EU Projects

€1 Billion of R&D

500 Participants

Overview of the programme

SUSTAINABLE PLACES 2022

Sep. 6 - Sep. 9, 2022 | Nice, France

SUSTAINABLE PLACES 2022

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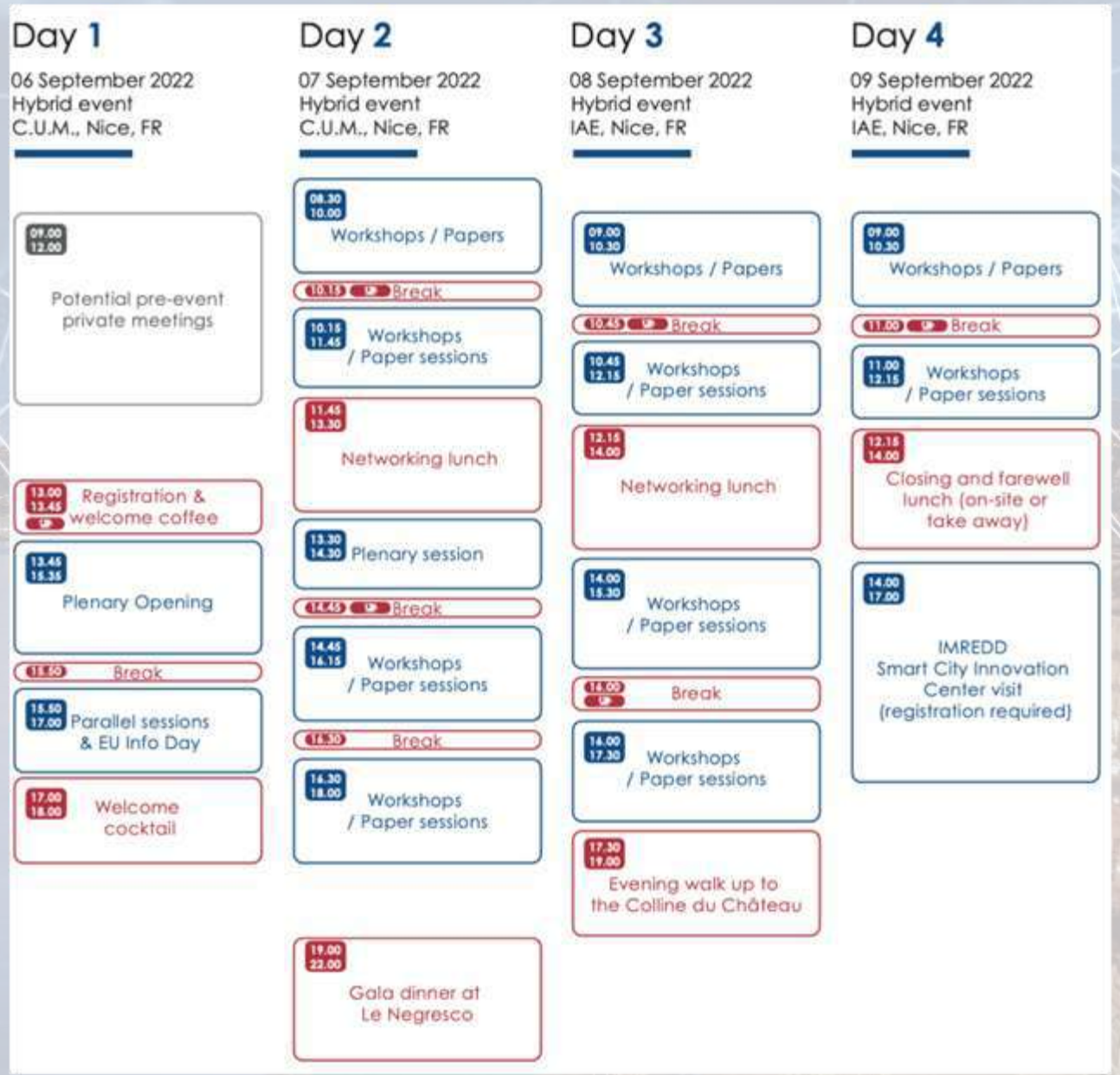

SUSTAINABLE PLACES 2022

Sep. 6 - Sep. 9, 2022 | Nice, France

Day 1
06 September 2022
Hybrid event
C.U.M., Nice, FR

- 09.00 – 12.00 Potential pre-event private meetings
- 13.00 – 13.45 Registration & welcome coffee
- 13.45 – 15.35 Plenary Opening
- 15.35 – 15.50 Break
- 15.50 – 17.00 Parallel sessions & EU Info Day
- 17.00 – 18.00 Welcome cocktail

Day 2
07 September 2022
Hybrid event
C.U.M., Nice, FR

- 08.30 – 10.00 Workshops / Papers
- 10.00 – 10.15 Break
- 10.15 – 11.45 Workshops / Paper sessions
- 11.45 – 13.30 Networking lunch
- 13.30 – 14.30 Plenary session
- 14.30 – 14.45 Break
- 14.45 – 16.15 Workshops / Paper sessions
- 16.15 – 16.30 Break
- 16.30 – 18.00 Workshops / Paper sessions
- 19.00 – 22.00 Gala dinner at Le Negresco

Day 3
08 September 2022
Hybrid event
IAE, Nice, FR

- 09.00 – 10.30 Workshops / Papers
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- 14.00 – 15.30 Workshops / Paper sessions
- 15.30 – 16.00 Break
- 16.00 – 17.30 Workshops / Paper sessions
- 17.30 – 19.00 Evening walk up to the Colline du Château

Day 4
09 September 2022
Hybrid event
IAE, Nice, FR

- 09.00 – 10.30 Workshops / Papers
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- 12.15 – 14.00 Closing and farewell lunch (on-site or take away)
- 14.00 – 17.00 IMREDD Smart City Innovation Center visit (registration required)

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From Research to Market

R2M Solution

Founded	People	Research	Funds raised	Funds raised	First time EU
2012	**90** 5 branches	**82** R&D projects	**423 M** Total R&D Portfolio	**25.8 M** Client technology Development	**39** Organizations

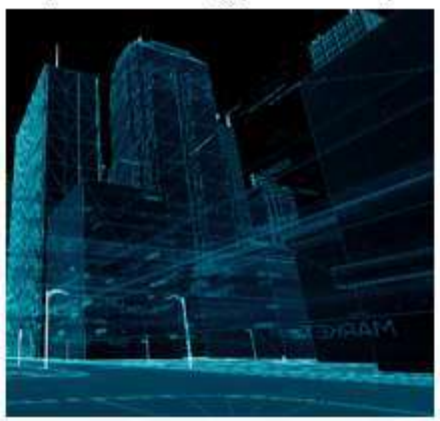
Our Journey

Innovation

Commissione Europea

Innovative Products & Services

Real Estate
Digitalization
Sustainability
Smart Grid and Local Energy Communities
(R2M Energy - ESCO)



Sustainability Consulting

GREEN BUILDING COUNCIL ITALIA
LEED AP BD+C
LEED AP O+M
LEED AP ID+C
WELL AP
BREEAM
CEPAS
WIRED SCORE
FIRE
GBC HOME
COPILOT
EUROVENT

The R2M Solution

Matterport:
3D/BIM Scanning of interiors and exteriors

IES ICL: Intelligent Communities Lifecycle

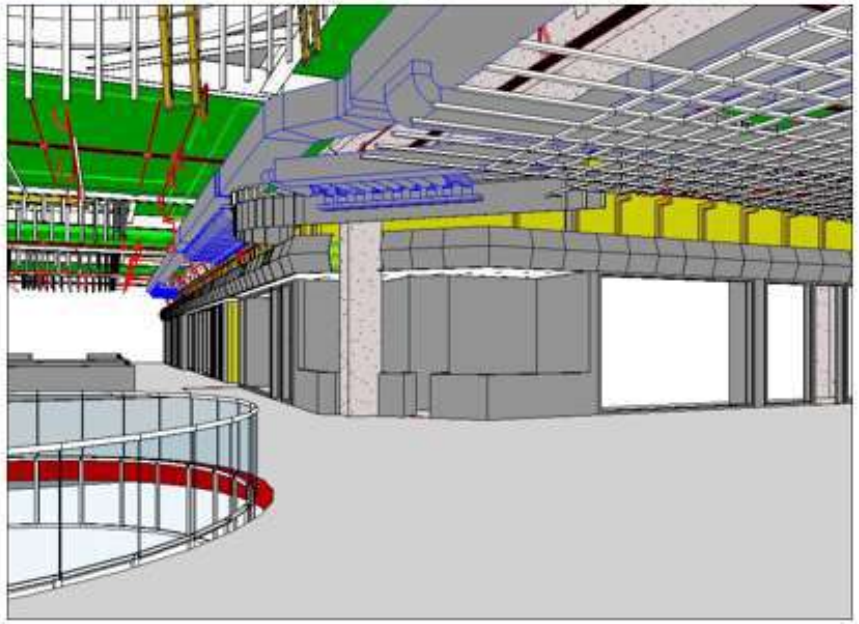
GREENPASS:
Measuring the impact of vegetation

ZUTEC:
Real estate management platform

BrainBox AI:
Autonomous AI HVAC technology

ONYX Solar:
Photovoltaic glass for buildings

1 - rapid digitalization of the built environment

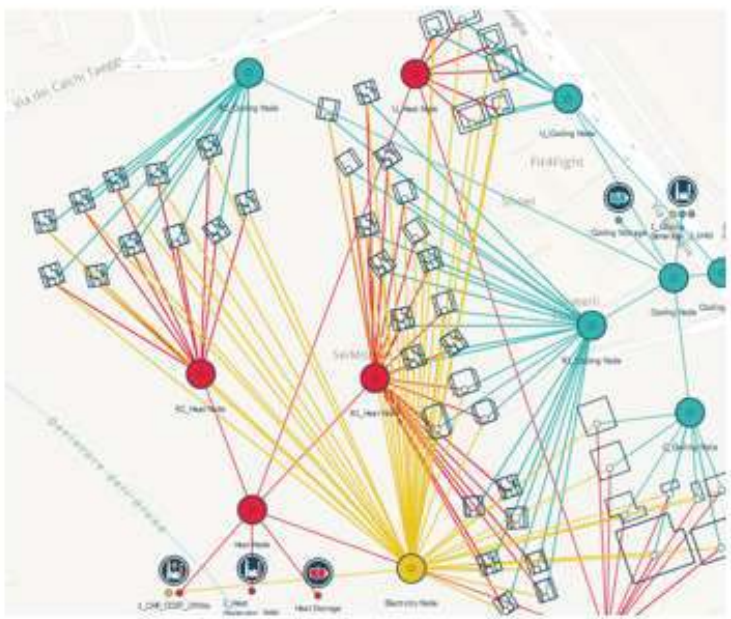


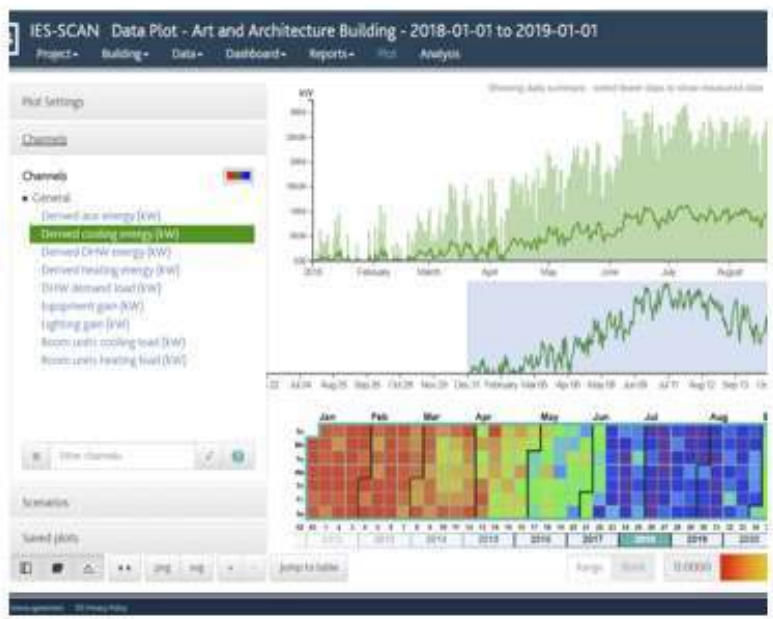
SCAN 2 BIM
POINT CLOUD
VIRTUAL TOURS
PERCENTAGE OF COMPLETION OF THE WORKS
DIGITAL TWIN

Matterport™

Matterport: 3D/BIM Scanning of interiors and exteriors

2 - dynamic simulations of buildings' ESG parameters





LOCAL ENERGY COMMUNITIES
PORTFOLIO MANAGEMENT
ESG CONSUMPTION MONITORING
SCENARIO SIMULATIONS

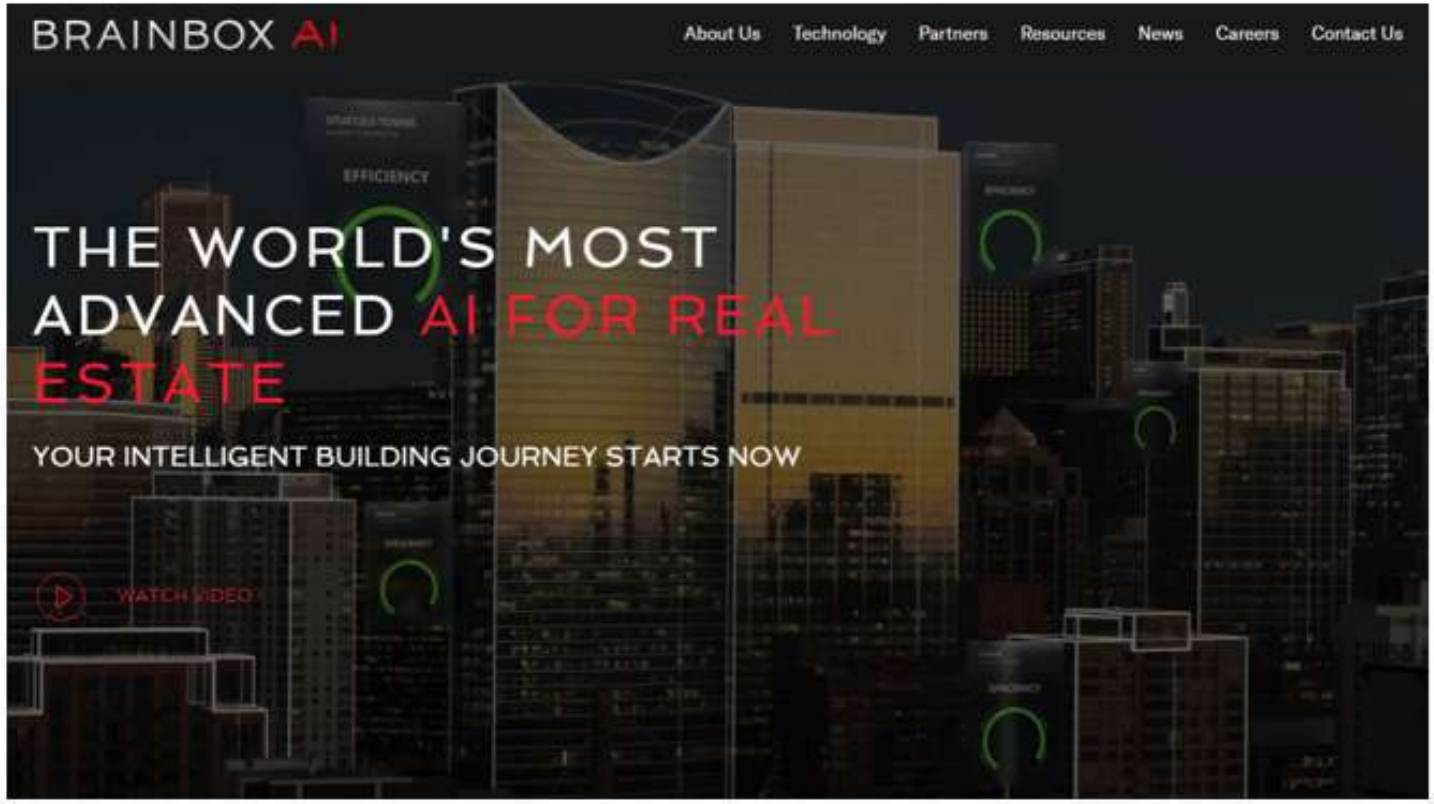
IES

IES ICL: Intelligent Communities Lifecycle

3 – Put great technologies on buildings

We have always aspired to be a company that makes real world impact, does good business and that treats people right.

Today – and everyday – is a step forward in that journey.



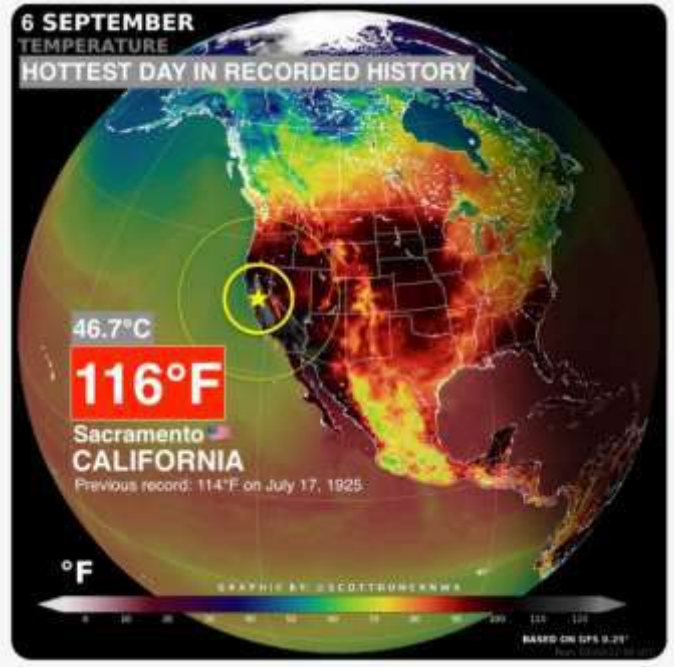
Sustainable Places History & Identity

SP2021

ALBERTO
SASSO
Presidente EUR Spa
C'è bisogno di un patto
strategico per l'EUR
per trasformarlo
in una nuova Défense.
SUSTAINABLE
PLACES2021

EVR
PALAZZO DEI CONGRESSI

SUSTAINABLE
PLACES 2021
Sep. 28 - Oct. 1, 2021 | Rome, Italy
Agenda
SP2021
Let's go!



BBC NEWS

Pakistan floods: Officials struggle to stop biggest lake overflowing

Peter McGahan @peter_mcgahan · Sep 5

Prague, Czech Republic

Mass protest against **energy prices** and the cost of living crisis.

#CostOfLivingCrisis

Oleksandra Matviichuk @avalaina · 23h

Gazprom published video "Winter will be long", in which Kremlin shuts off the gas and in Europe comes the "ice age". Russia blackmails Europe to push to lift sanctions for bloody war&destructions. How people in Europe will respond? Will they allowed Putin to do whatever he wants?

Let's Go

INNOVATE WITH MONACO

Sustainable Places 2022 Plenary Session

Centre Universitaire Méditerranéen (CUM), Nice, 7 September 2022

SUSTAINABLE PLACES 2022

INNOVATE WITH MONACO

- **Olivier Wenden**, Vice-President and CEO, The Prince Albert II of Monaco Foundation | Protecting & progressing Planetary Health for the present and future generations
- ***Pascal Torres**, CEO of Enoleo S.A.M.: Energy Optimisation Solutions for Buildings and the Industry: the age of Hypervision, for an efficient built environment.*

- **Frédéric Dalmasie**, CEO of Agricorp S.A.M., a part of Monaco Resources Group: the agroindustry, a driver of sustainable development
- **Sam Ramadori**, CEO of Brainbox AI, how AI is being used to make buildings smarter and greener in over 70 cities worldwide
- **Valeria Ferrando**, Associate Director - ICL at IES Ltd., how digital twin technologies are being used as a tool to develop urban-scale decarbonisation roadmaps

SUSTAINABLE PLACES 2022

INNOVATE WITH MONACO

Protecting & progressing Planetary Health for the present and future generations

Olivier Wenden
Vice-President and CEO, The Prince Albert II of Monaco Foundation

SUSTAINABLE PLACES 2022

INNOVATE WITH MONACO

Energy Optimisation Solutions for Buildings and the Industry: the age of Hypervision

Pascal Torres
CEO of Enoleo S.A.M

SUSTAINABLE PLACES 2022

Simplify and Improve lives of our customers

ENOLEO

OPTIMIZATION OF YOUR EXISTING ASSETS

ENOLEO -

From

2008

SAM

Team

21 persons

(R&D team)

Activity area

Industry, Laboratories, Buildings

winner of the “business creation” in Monaco 2007

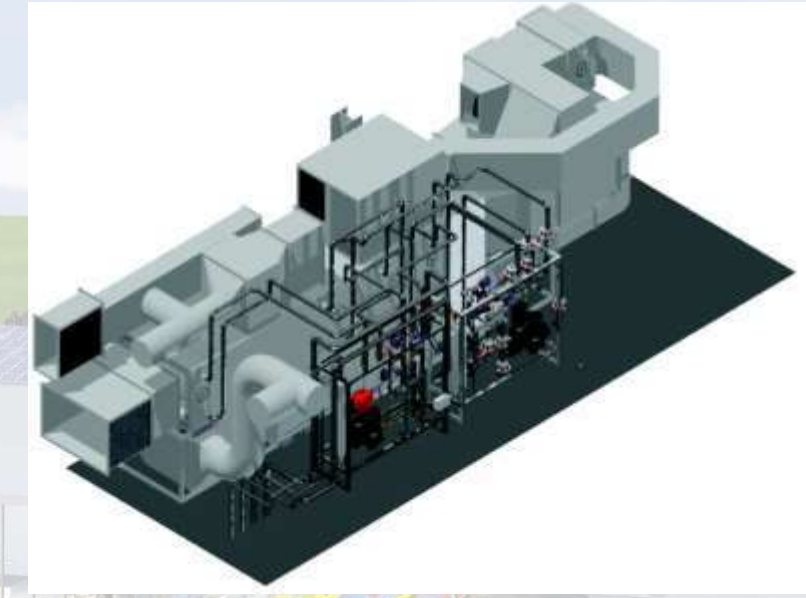
ENOLEO – Clients

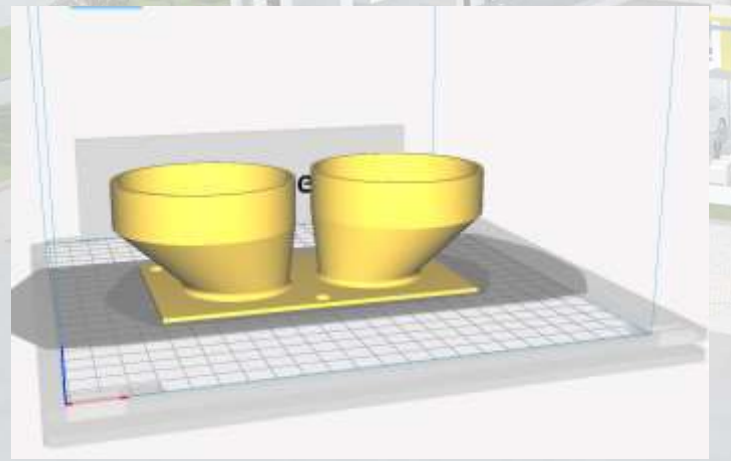
MANE
L'ORÉAL
BAYER
Virbac
TOURNAIRE
Produit le meilleur, protège l'excellence
AIRBUS
Firmenich
IFF
charabot
GALDERMA
Ch. Morel
www.cyclamen.com
ThalesAlenia Space
argeville
l'essence des sens
arianeGROUP
TechnicoFlor
Creating is our nature
CHANEL
BERNARDI
GROUP
EXPRESSION
yours flavour
THALES
Phytosynthese
GROUPE LEHNING
ROBERTET
Schneider Electric
EXSYMOL
MONACO
capsum
Laboratoires TECHNI-PHARMA
TAKASAGO
symrise
EA PHARMA
VISHAY
S.E.R.P.
Société d'Etude et de Recherche Pharmaceutique
KERRY
ENGIE
Cofely
SMEG

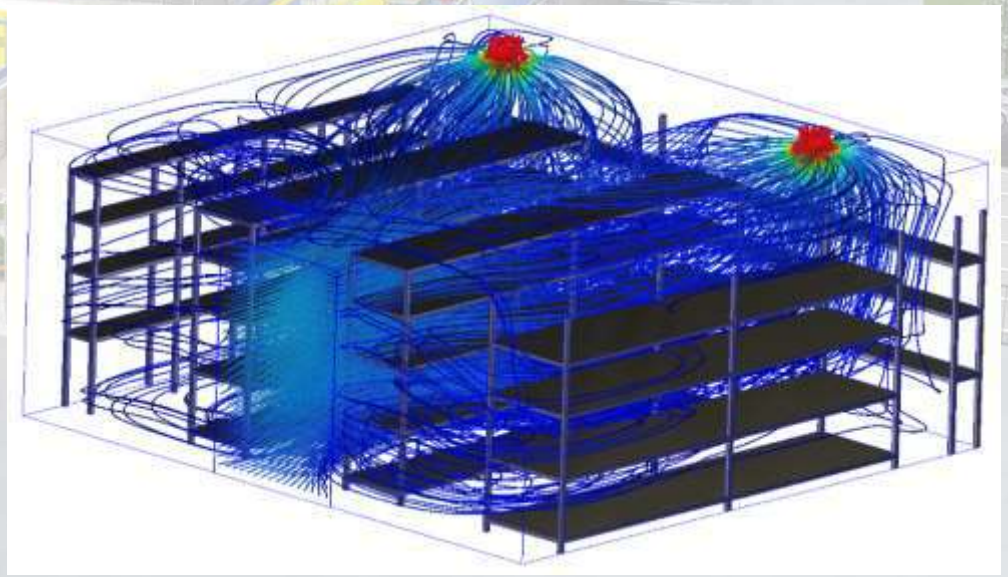
HVAC : from engineering to commissioning

ENOLEO

Engineering
- 3D drawings
- Simulation CFD
- Prototyping
- 3D printing





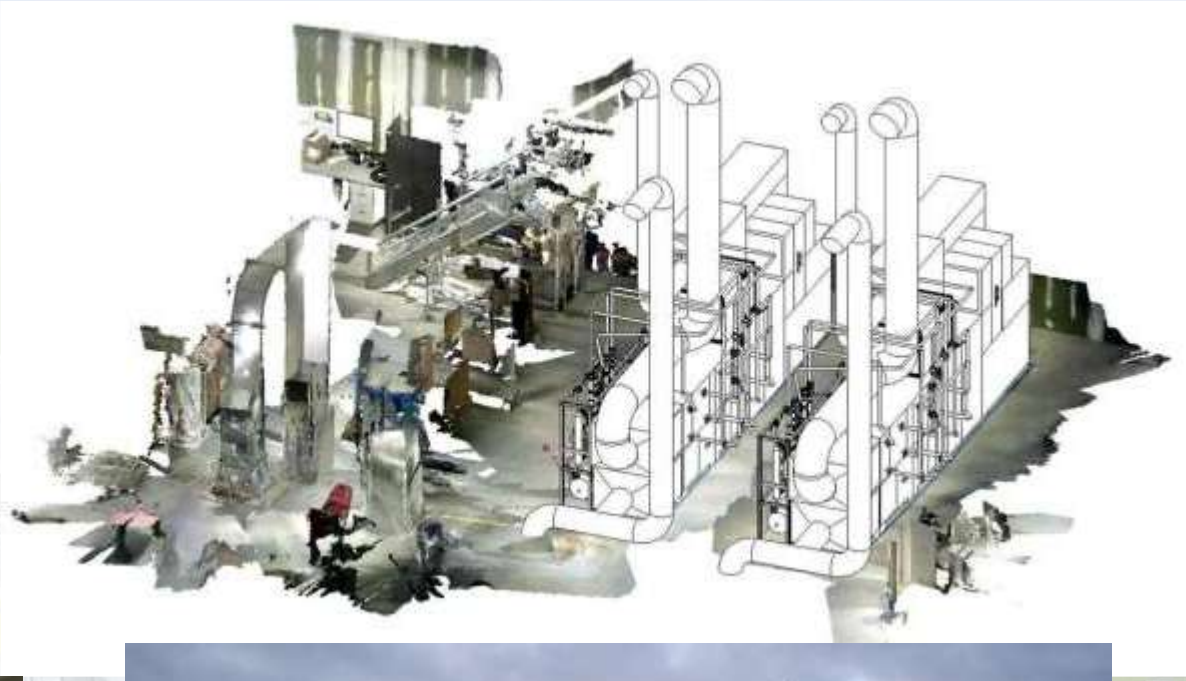


HVAC : from engineering to commissioning

ENOLEO

HVAC system

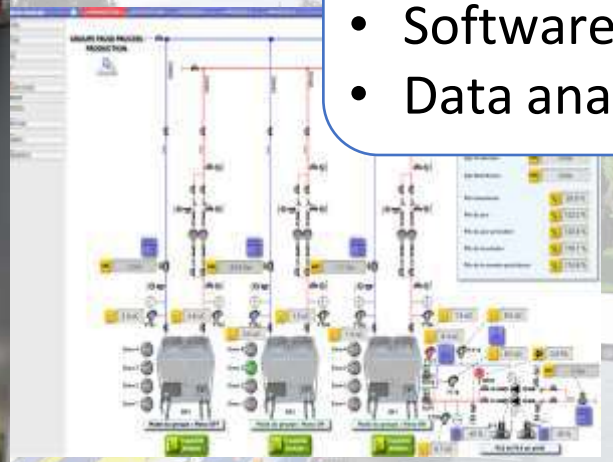
- Turnkey solution
- Manufacturing
- Prefabrication
- Installation on site



HVAC : from engineering to commissioning

ENOLEO

Automation
- Functional analysis
- Electrical drawings
- Programming
- Interoperability
- Commissioning



Software
- BMS
- Software dev
- Data analysis

EcoXpert™ Certified by Schneider Electric

PHOENIX CONTACT

DISTECH CONTROLS

TREND

SAUTER Pour l'environnement durable.

niagara framework®

OMRON

EATON

WAGO®

BECKHOFF

Honeywell

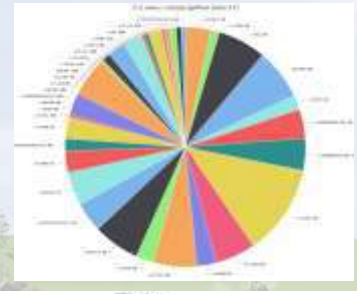
SIEMENS

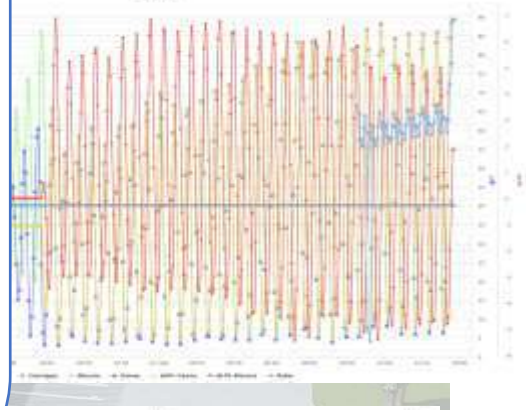
KAIZIS : hypervision

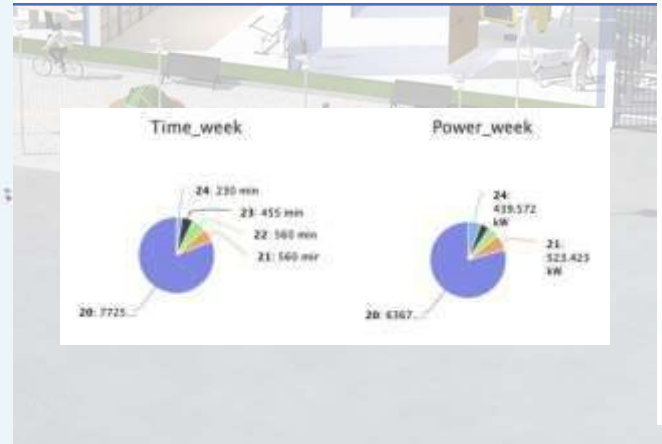
ENOLEO

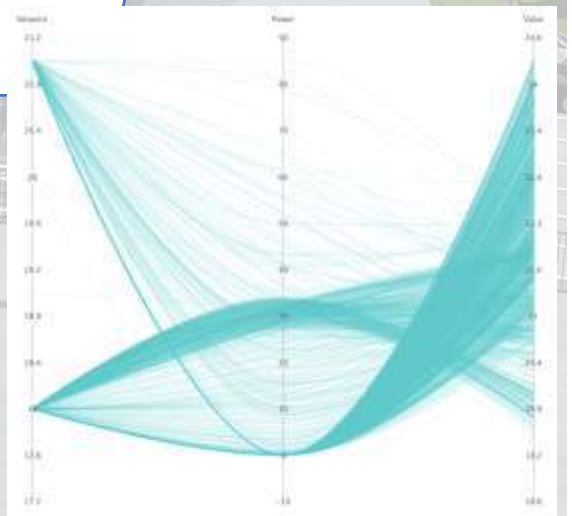
Kaizis : predictive maintenance & continuous improvement

- Systemic view, allows for more in-depth analysis of performance indicators.
- This saves precious time, allows operators to better understand and process data, and to be proactive in avoiding malfunctions that could have serious impacts.
- Easy identification of changes to be made to the system to make it more efficient.









INNOVATE WITH MONACO

The agroindustry, a driver of sustainable development

Frédéric Dalmasie CEO of Agricorp S.A.M.

Frédéric Dalmasie has extensive experience in finance, advisory and management accumulated in HSBC, Deloitte and Del Monte. His group is now focusing on the development of sustainable agricultural value chains, with an emphasis on local production and transformation, implementation of agricultural practices respectful to the environment and creation of positive socio-economic impact.

SUSTAINABLE PLACES 2022

AGRICORP
THE AGRO-INDUSTRY
A DRIVER OF SUSTAINABLE
DEVELOPMENT
MONACO
RESOURCES
SUSTAINABLE
PLACES 2022

AGRICORP

WHO WE ARE

Agriculture

Food Processing

Vanilla & Spices

- International Group
- Operating in **Europe, Africa and the Indian Ocean**
- **Agricultural** and **agro-industrial activities** with strong emphasis upon **social inclusivity** and **respect of the environment**

2011
Created in 2011

Monaco
Headquarters

11
Countries

680 +
Employees

130k +
Hectares
under management

5
Processing /
Transformation Facilities

OUR OPERATIONS

AGRICULTURE

- ✓ We cultivate **staple crops** for **emerging markets**
- ✓ We work with local communities to:
  - ✓ promote the **use of Good Agricultural Practices**
  - ✓ facilitate the **access to quality agricultural inputs**
  - ✓ secure the **access to market for individual producers**
- ✓ We invest in local **processing, storage** and **logistics capabilities**
- ✓ **Land under management:**

80k +
Ha of concessions
for agriculture

50k +
Ha of concession
for agro-forestry activities

Locations: *Benin, Ghana, Republic of Guinea, Republic of Congo*
Products: *Cereals, Roots and tubers, Protein Crops, Nuts & Seeds, Vegetable Crops, Specialty Crops*

OUR OPERATIONS

PROCESSING

- ✓ We add value to our products by **processing raw materials**, with focus on safety, quality and **efficiency**
- ✓ We manage **two canning factories based in Eastern Europe**, with combined capacity of 10 million units per year
- ✓ The support of European Union Programme for Investments in processing & marketing of agricultural products has enabled us to scale up our operations

ISO 22000 · IFS Food · CERTIFIED HACCP FOOD SAFETY · BSCI An initiative of the Foreign Trade Association (FTA) Business Social Compliance Initiative · EU organic products

Locations: *Bulgaria, Republic of North Macedonia*
Products: *Canned vegetables, Vegetable-based food*

OUR OPERATIONS

VANILLA & SPICES

- ✓ We produce and supply **vanilla, spices** and other **high-value niche products**
- ✓ We export to international **customers from the food and cosmetics industries** in **Europe, Asia, North America**
- ✓ We take pride in **managing our fields and processing facilities in a sustainable manner**
- ✓ In order to guarantee **traceability, quality and fair remuneration for farmers**, we work closely with the association **"Inside Madagascar"** and the APVAM which currently brings together more than 900 producers

Locations: *Madagascar, Mauritius, Comoros*
Products: *Vanilla, Spices, Essential Oils*

AGRICORP

OUR MISSION

“Our mission to bring consumers closer to producers, creating more value and opportunities for our local partners and securing better quality products, while minimising our footprint on the environment.”

AGRICORP

ENABLING SUSTAINABLE PLACES

ELIGIBLE PROJECTS CATEGORY:
PROJECTS FOR ENVIRONMENTALLY SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES AND LAND USE

- Sustainable Agriculture
- Land restoration, agroforestry & biodiversity

ELIGIBLE PROJECTS CATEGORY:
PROJECTS FOR SOCIOECONOMIC ADVANCEMENT AND EMPOWERMENT

- Creating employment opportunities
- Training on sustainable practices
- Support to local economic development of communities

17 PARTNERSHIPS FOR THE GOALS

AGRICORP
CONTACT

HEADQUARTERS
AGRICORP S.A.M.
Gildo Pastor Center
7, rue du Gabian
98 000 Monaco

www.agri-corp.com
+377 97 98 43 00
info@agri-corp.com

INNOVATE WITH MONACO

How AI is being used to make buildings smarter and greener in over 70 cities worldwide

Sam Ramadori
CEO of Brainbox AI

SUSTAINABLE PLACES 2022

INNOVATE WITH MONACO

How digital twin technologies are being used as a tool to develop urban-scale decarbonisation roadmaps

Valeria Ferrando
Associate Director - ICL at IES Ltd

SUSTAINABLE PLACES 2022

Digital Twins to decarbonise cities and communities

Dr. Valeria Ferrando
Associate Director, ICL Consultancy

SUSTAINABLE PLACES

The Vision

IES believe that every building of every city in the world can be decarbonized. Our purpose is developing the technology to make that happen. Our ultimate aim is to create a built environment that is resource and energy efficient. Eliminating global reliance on fossil fuels while promoting comfort, health and wellbeing, and fairer access to energy for every citizen in the world.

About IES

Home to the largest building physics analytics team in the world

28
Years of building analysis

Apache
World renowned simulation engine

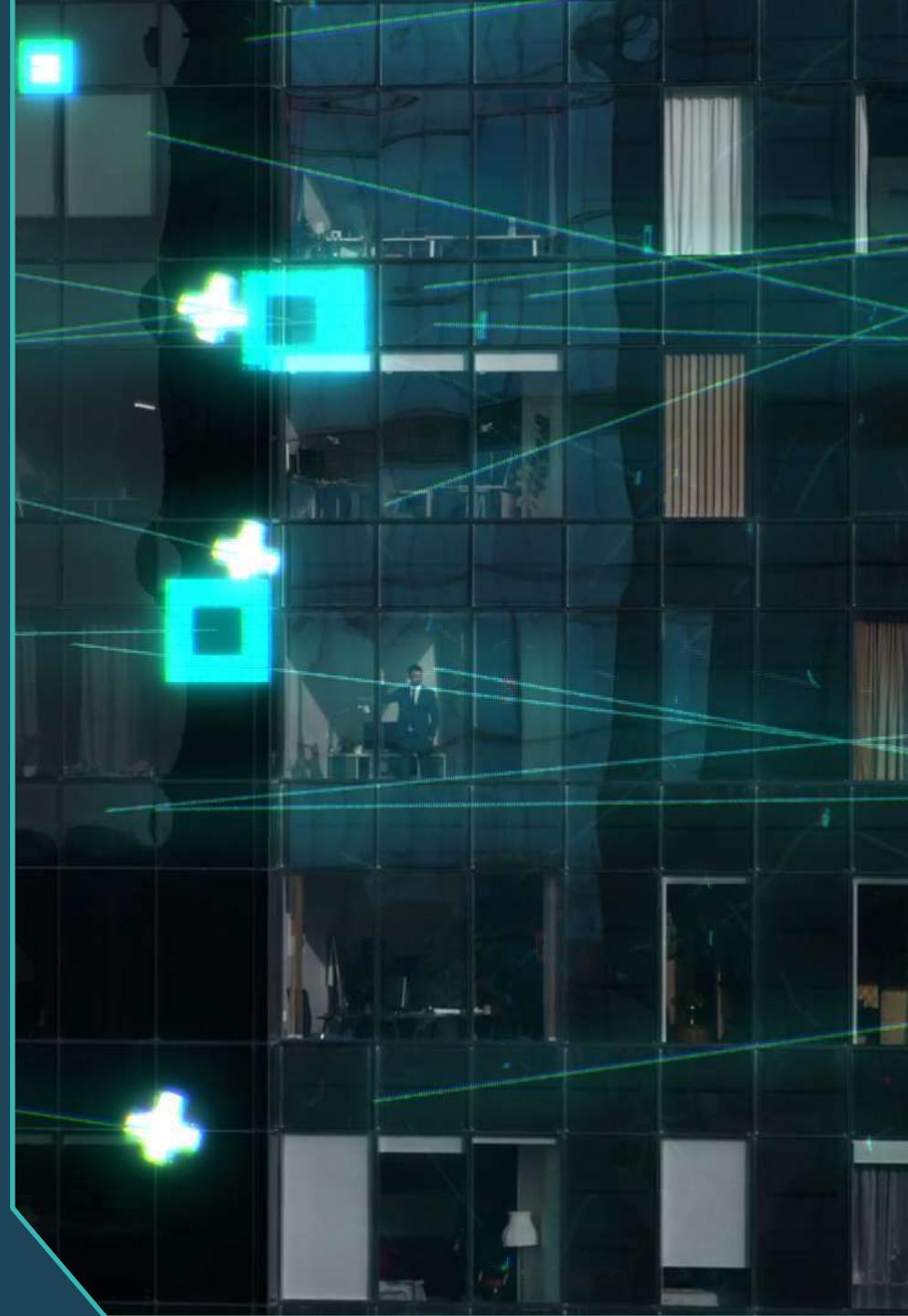
75,000+
Projects per year

>1,000,000
Buildings

37
Power stations prevented

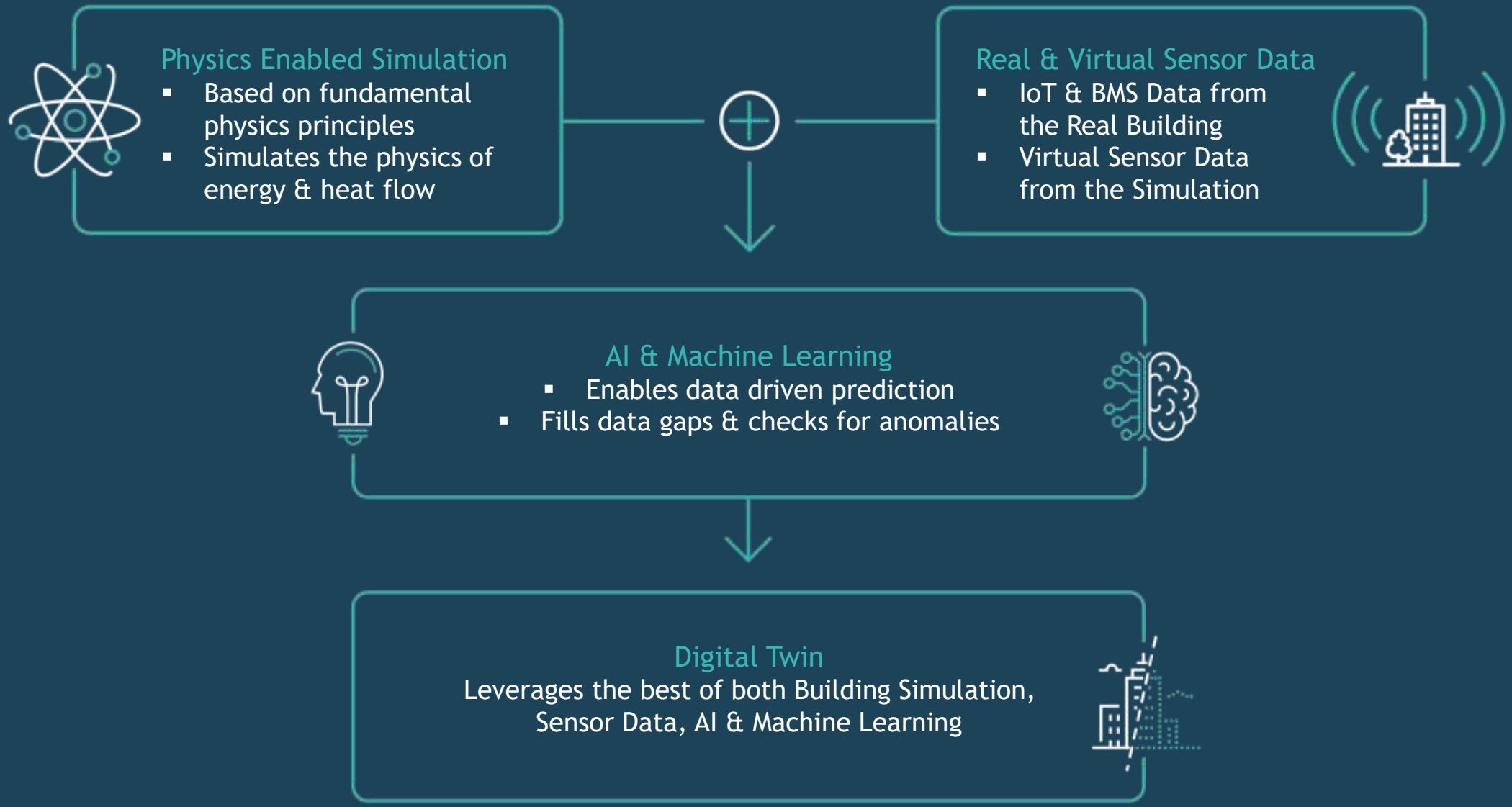
From buildings to cities: Making Good Decisions

- Decarbonisation is a too big challenge to be tackled building by building
- Need to look at communities and how buildings interact and exchange resources
- Identify opportunities for large scale retrofits
- Enabling renewable integration to increase production from clean sources- match supply and demand
- De-risking investments

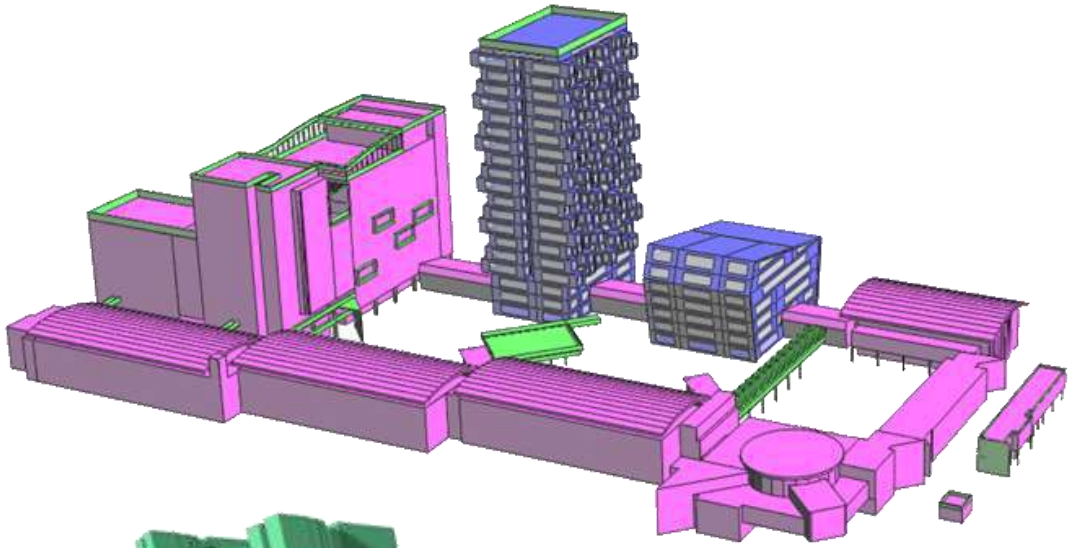


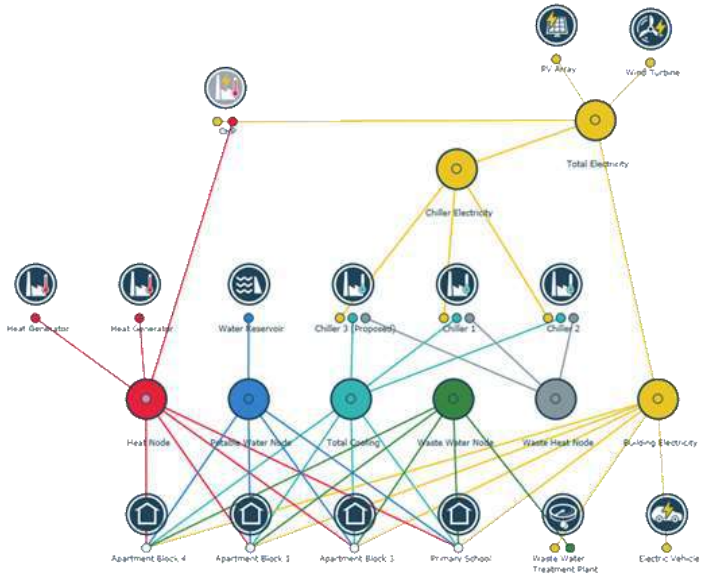
IES Concept of a Digital Twin

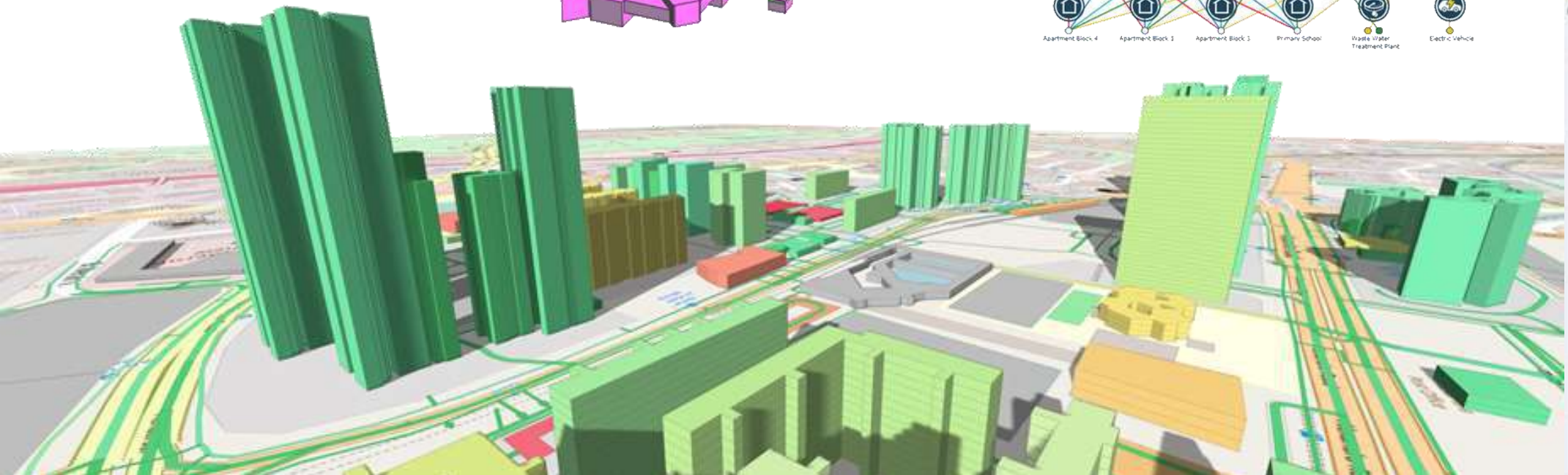
The Best of Physics, Data and AI/ML



What do Digital Twins look like?





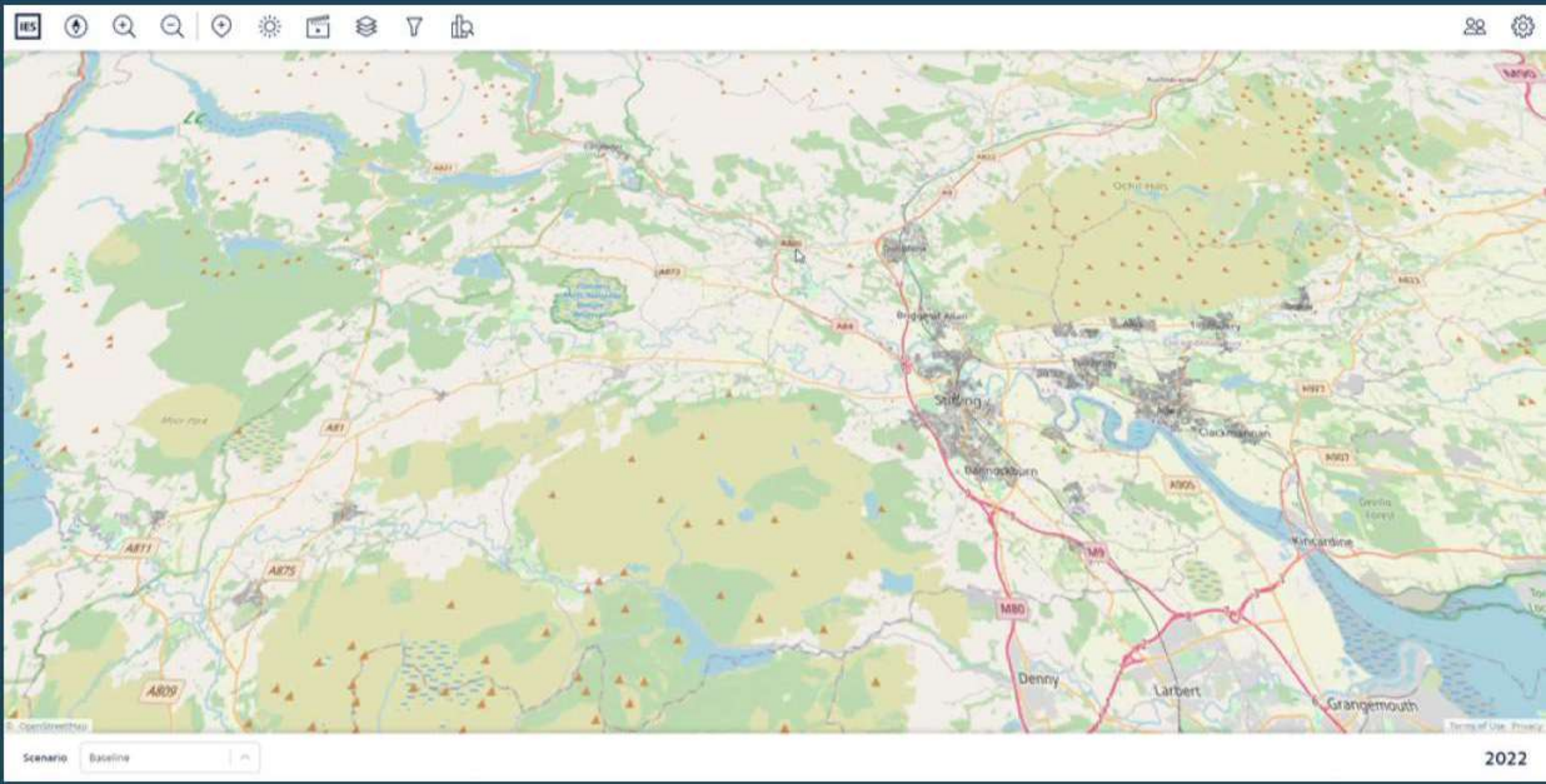


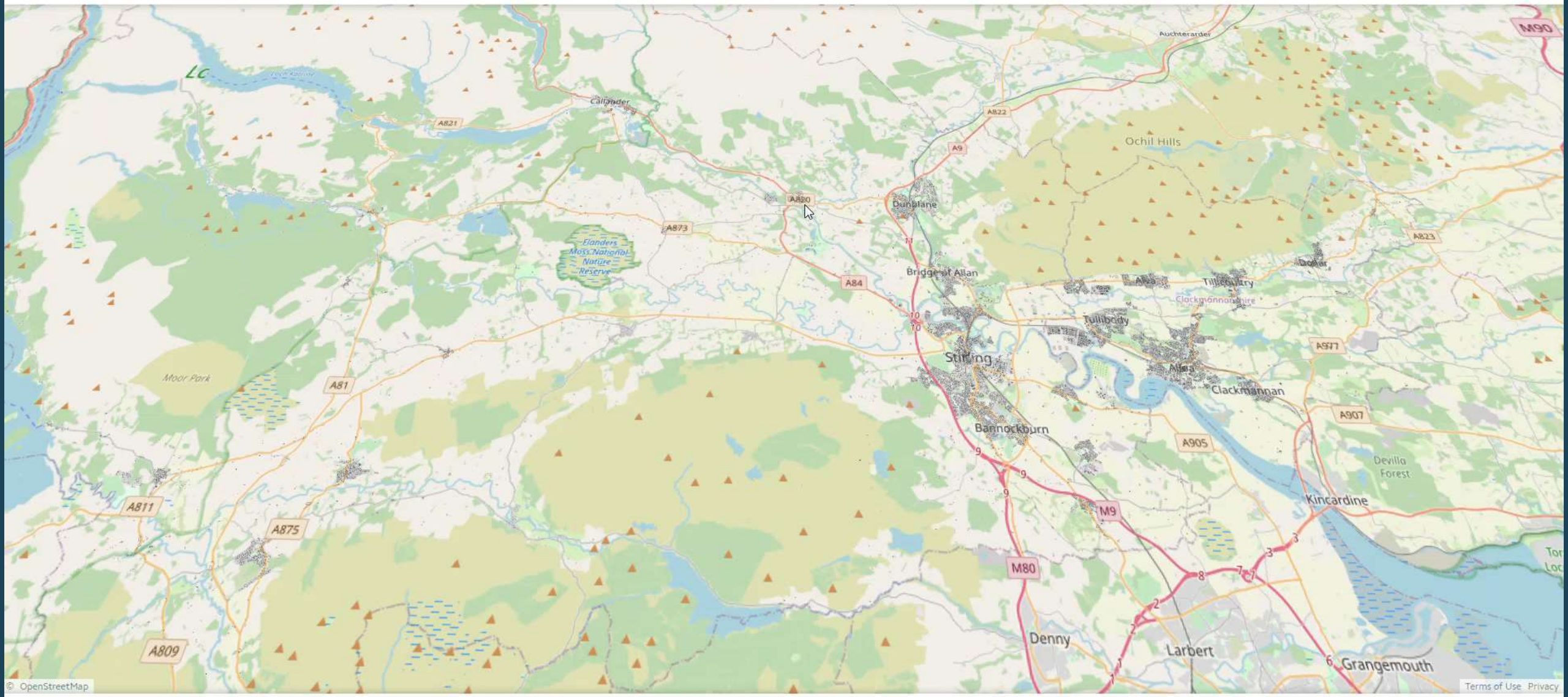
Digital Twins for large scale Net-Zero Road Mapping

- De-risk capital investments virtually comparing different scenarios
- Communicate your net-zero plan using visually engaging 3D models
- Decarbonisation of your heating and cooling needs
- Reduce reliance on the grid and improve energy resilience
- Improve renewable energy generation and storage
- Reduce energy costs by sharing heating, cooling and power
- Integrate Electric Vehicle (EV) charging and demand optimisation
- Understand the complex interactions between buildings and energy networks

Cities we've been working with

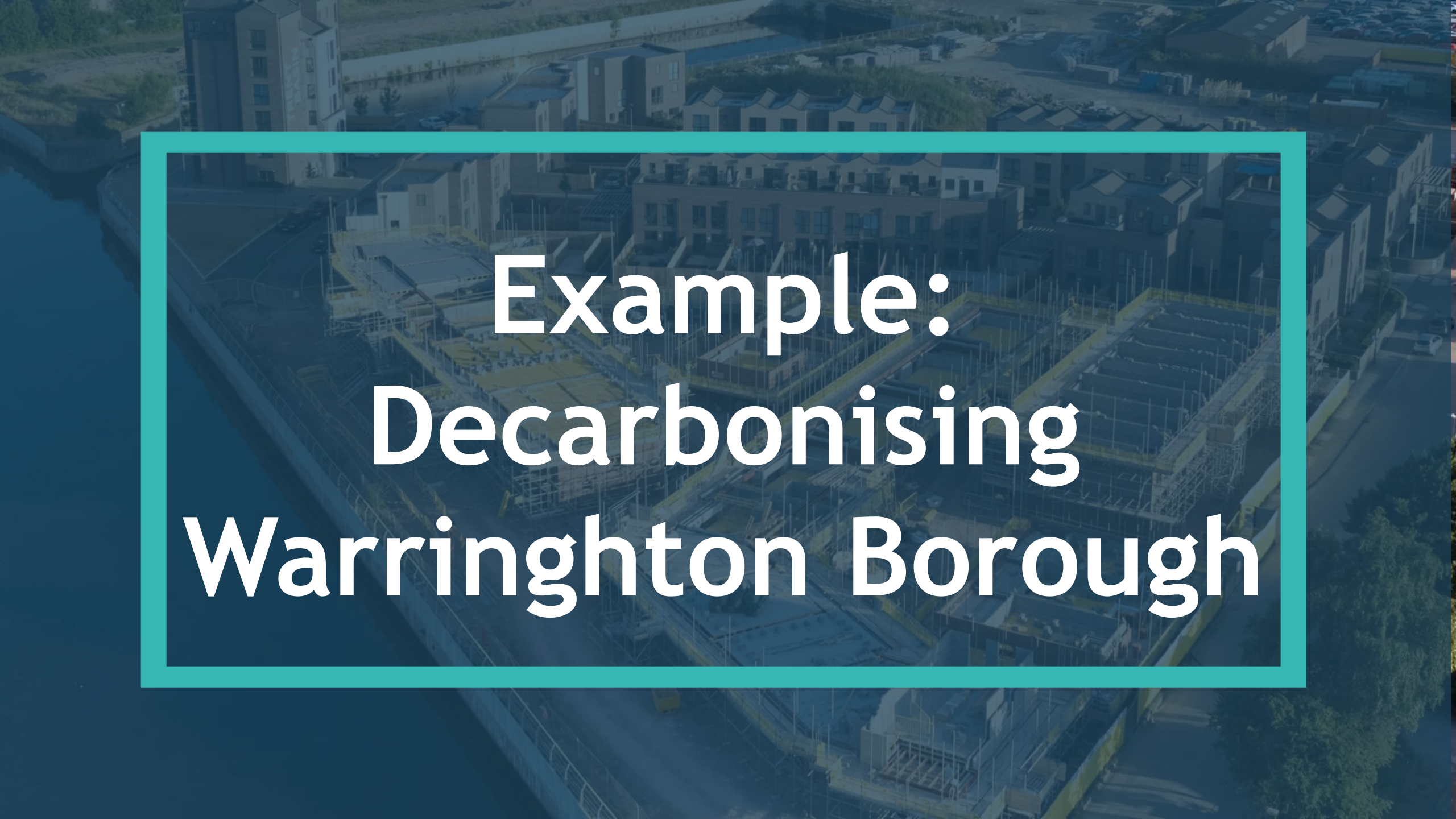
Example: Regional DT to test decarb options


Scenario
Baseline
2022



Scenario Baseline

2022



Example: Decarbonising Warrington Borough

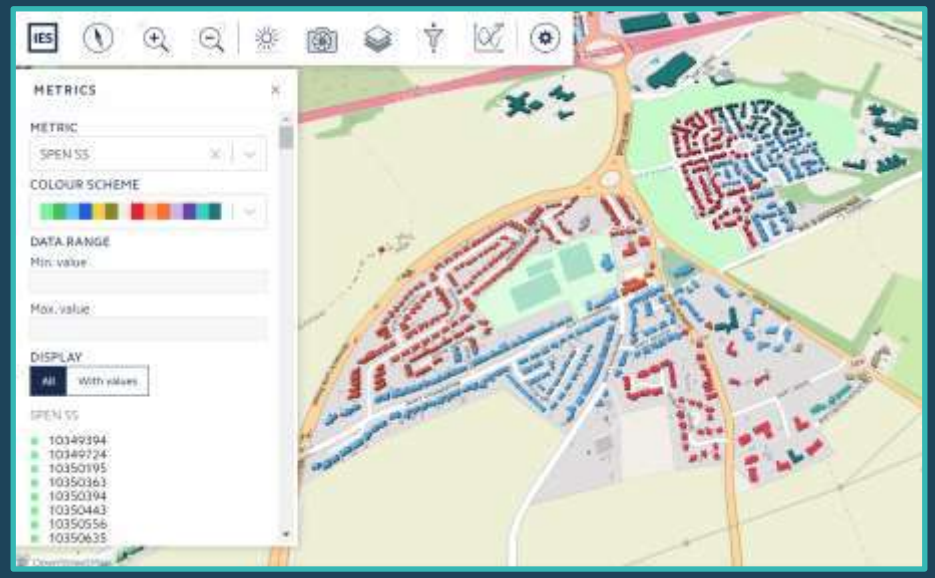
The Locality: The Warrington Borough

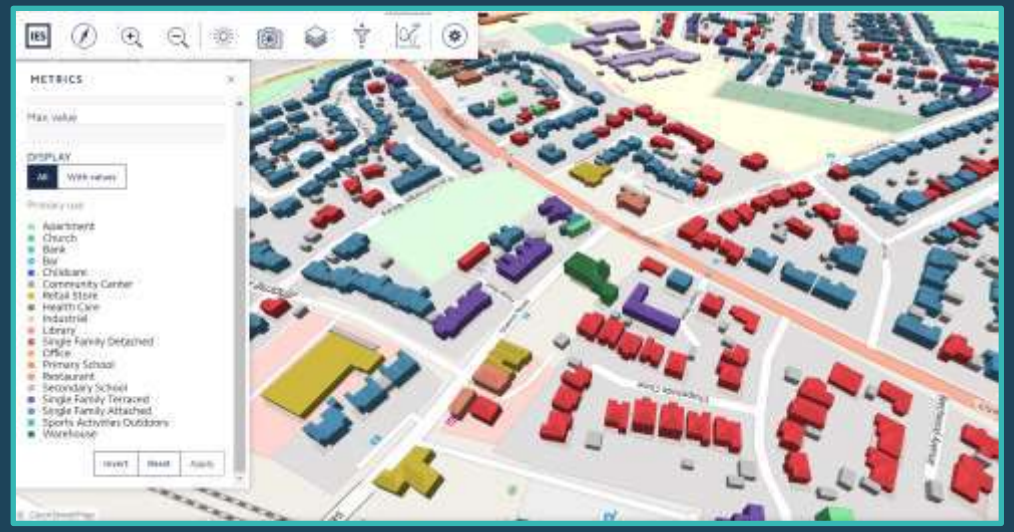
- North West England
- Total Area: 182km2
- Total Population: 210 000 inhabitants
- Approx. 90 000 Built structures

Digital Twin: Collected Data

Example:

- Building use (bottom left)
- Electrical Network (top right)
- Roof insulation (bottom right)

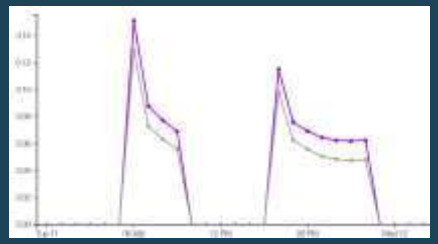




Project funded by Innovate UK, grant number 105846

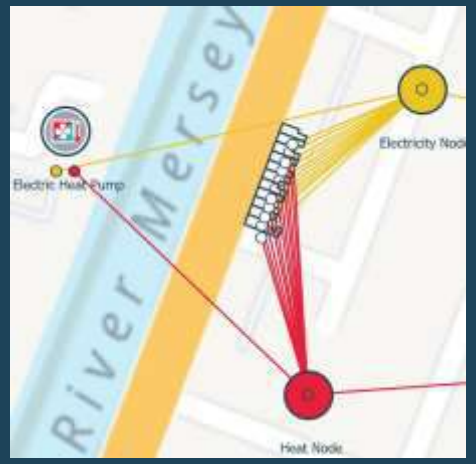
Scenario approach: Strategies

1. Energy demand & Retrofit: Baseline and retrofit scenario energy demand?

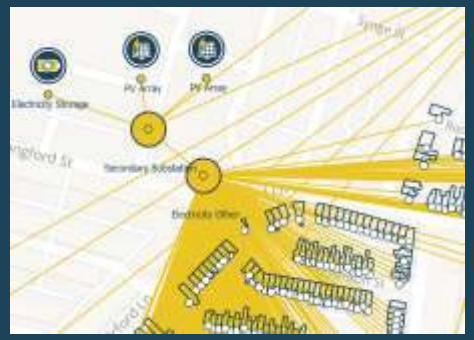


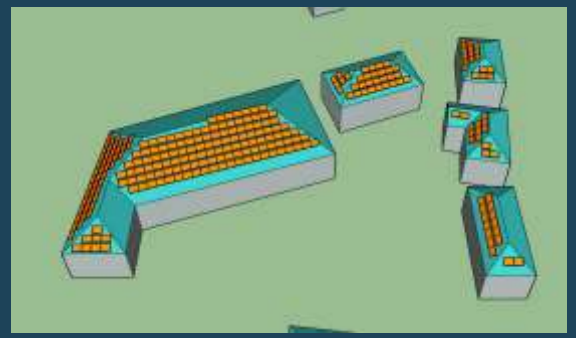
Targetting homes with:	Number of Homes retrofitted	% of homes retrofitted	Total Gas Before(kWh)	Total Gas after (kWh)	Gas reduction (kWh)	% difference
Uninsulated Cavity Walls	890	20.88	71082986.77	66767603.67	4315383.106	6.07
Solid Wall	1056	24.77	71082986.77	61199592.8	9883393.975	13.90
Single Glazing	52	1.22	71082986.77	69881890.37	1201096.405	1.69
Single Glazing + before 2002	2800	65.68	71082986.77	63009422.03	8073564.747	11.36
No Roof Insulation	555	13.02	71082986.77	63972596.88	7110389.894	10.00
Roof Insulation <150mm	2759	64.72	71082986.77	62114090.99	8968895.778	12.62

2. Heat demand decarbonisation: Which technology can help decarbonise the heat demand? Performance? Availability ? Impact on grid?



3. DER & Storage: What is the max PV deployment ? Its decarbonisation potential? Necessary storage? Impact on grid ?





4. EV chargers: Max EV deployment ? Impact on grid ?

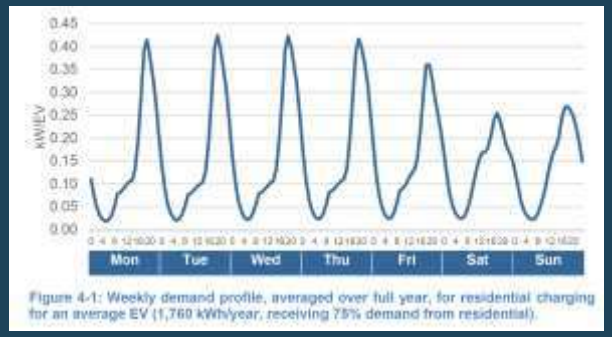
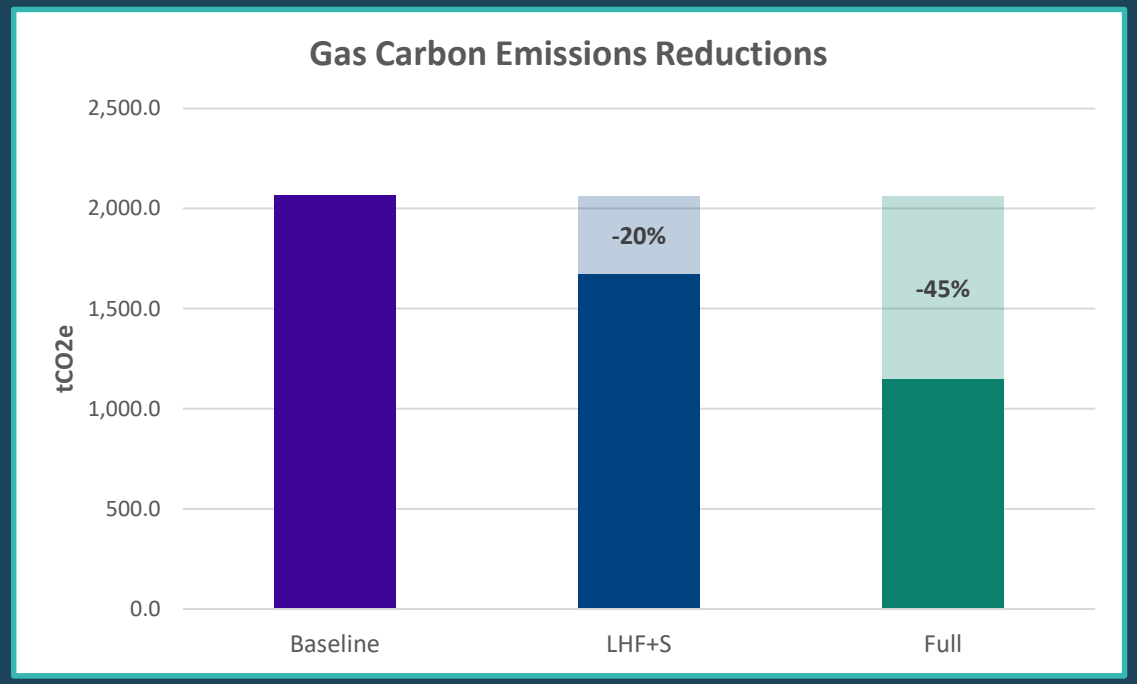


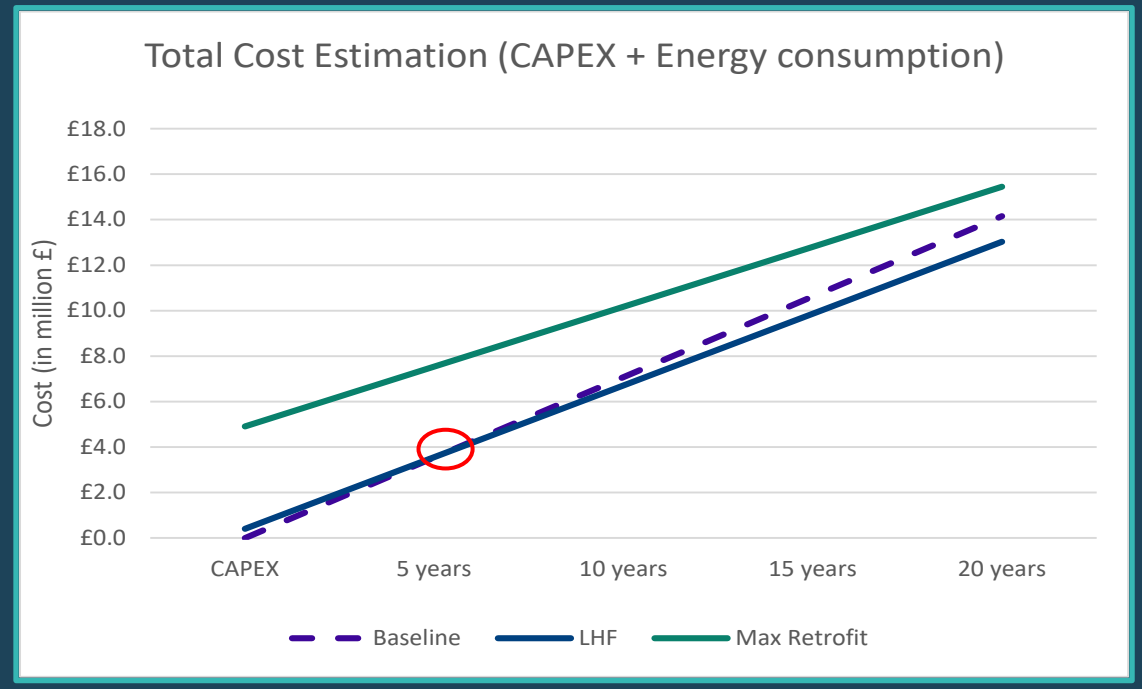
Figure 4-1: Weekly demand profile, averaged over full year, for residential charging for an average EV (1,760 kWh/year, receiving 75% demand from residential).

Retrofit potential Elgin Street

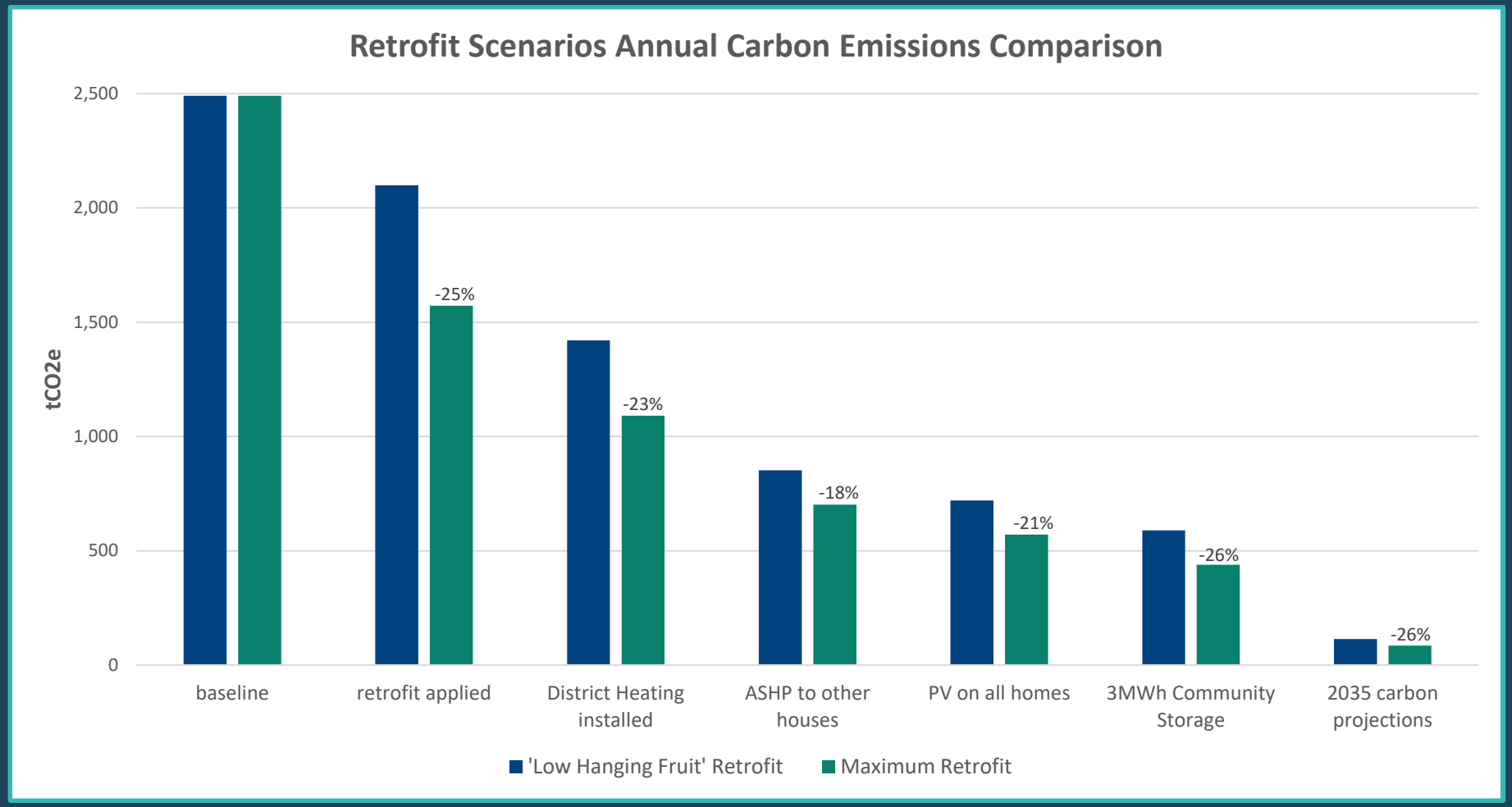
Retrofit Scenarios

- LHF provides substantial Carbon reduction
- Full retrofit: much higher carbon emissions savings but for an additional investment

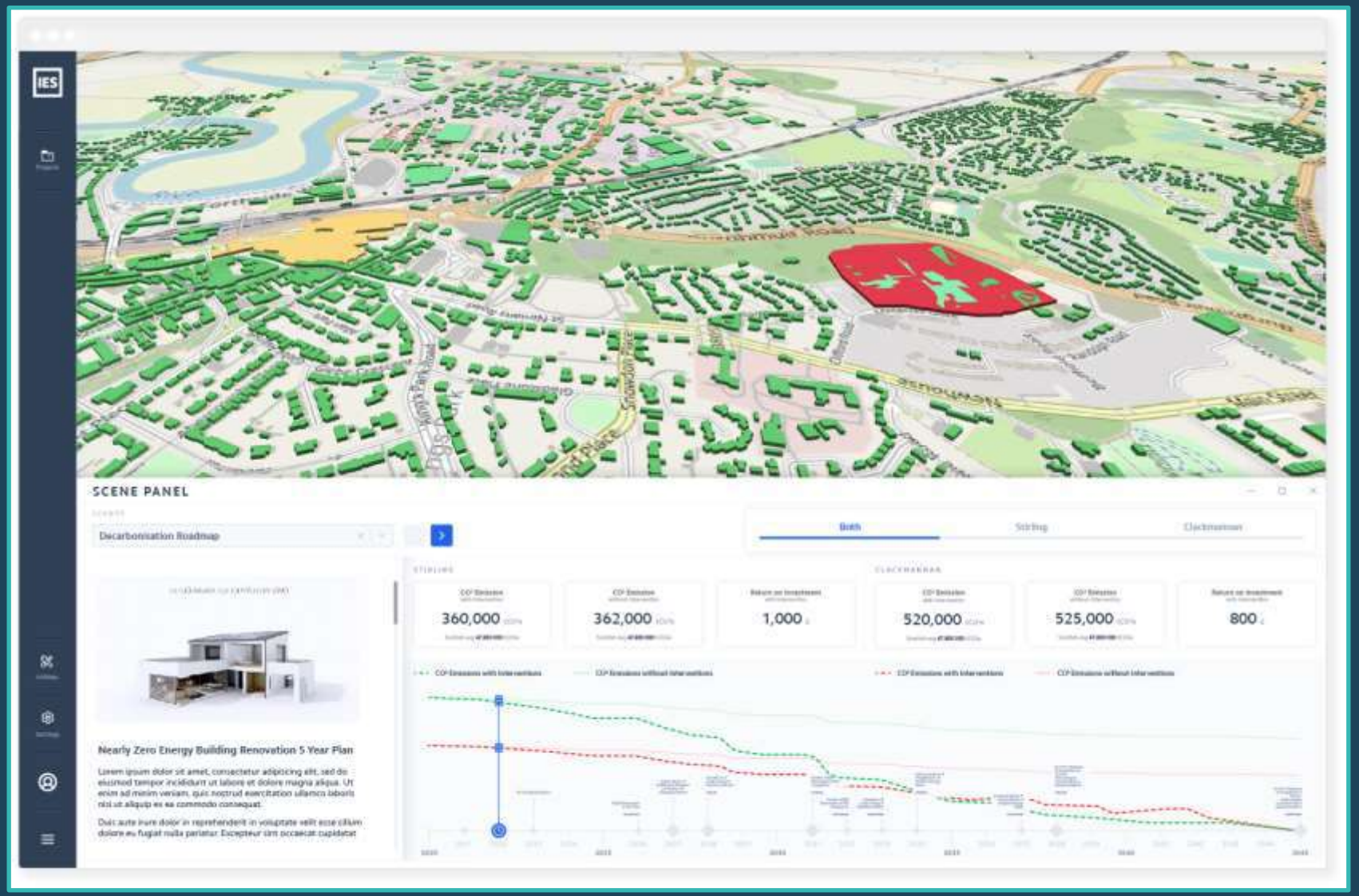




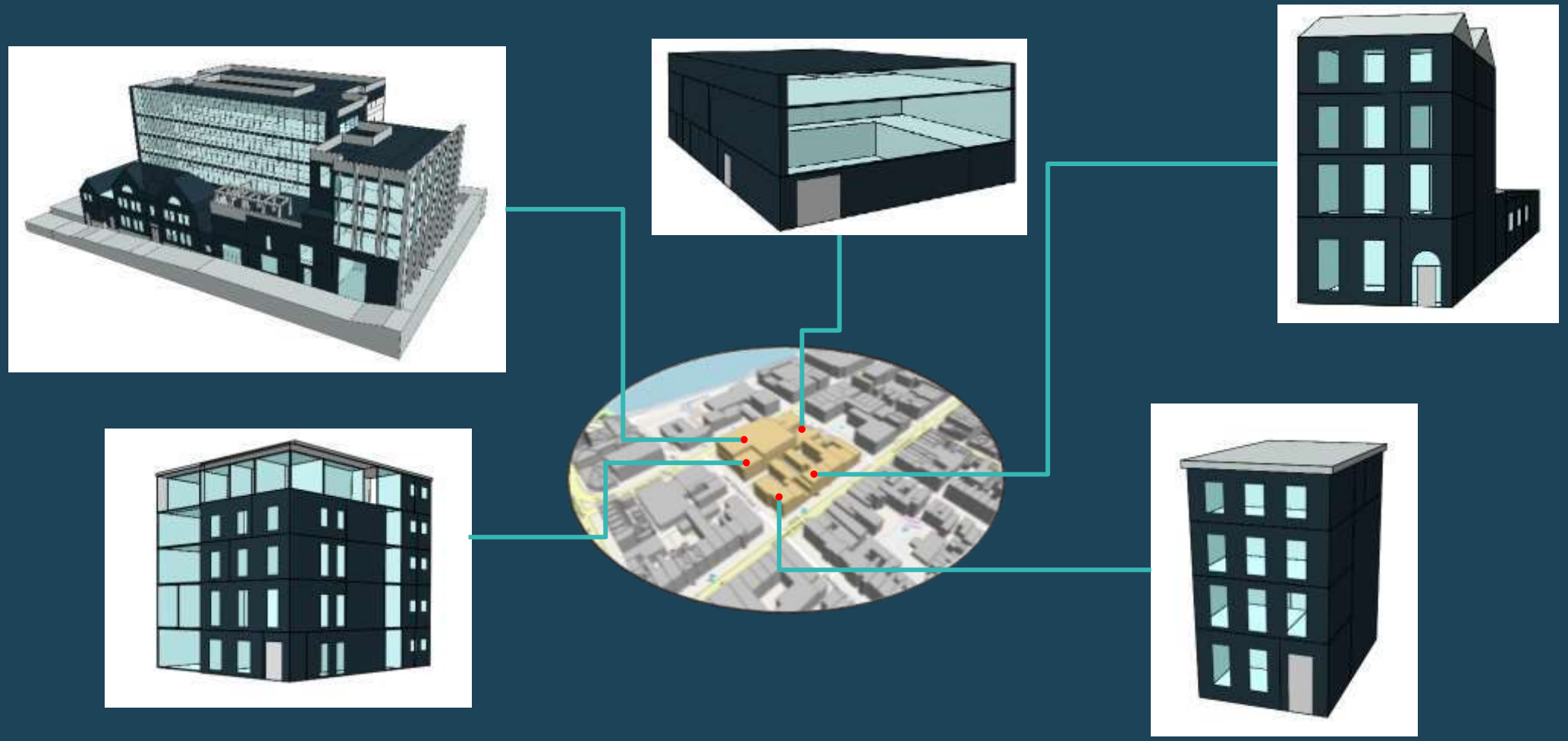
Optimal Decarbonisation Roadmap: Elgin Street



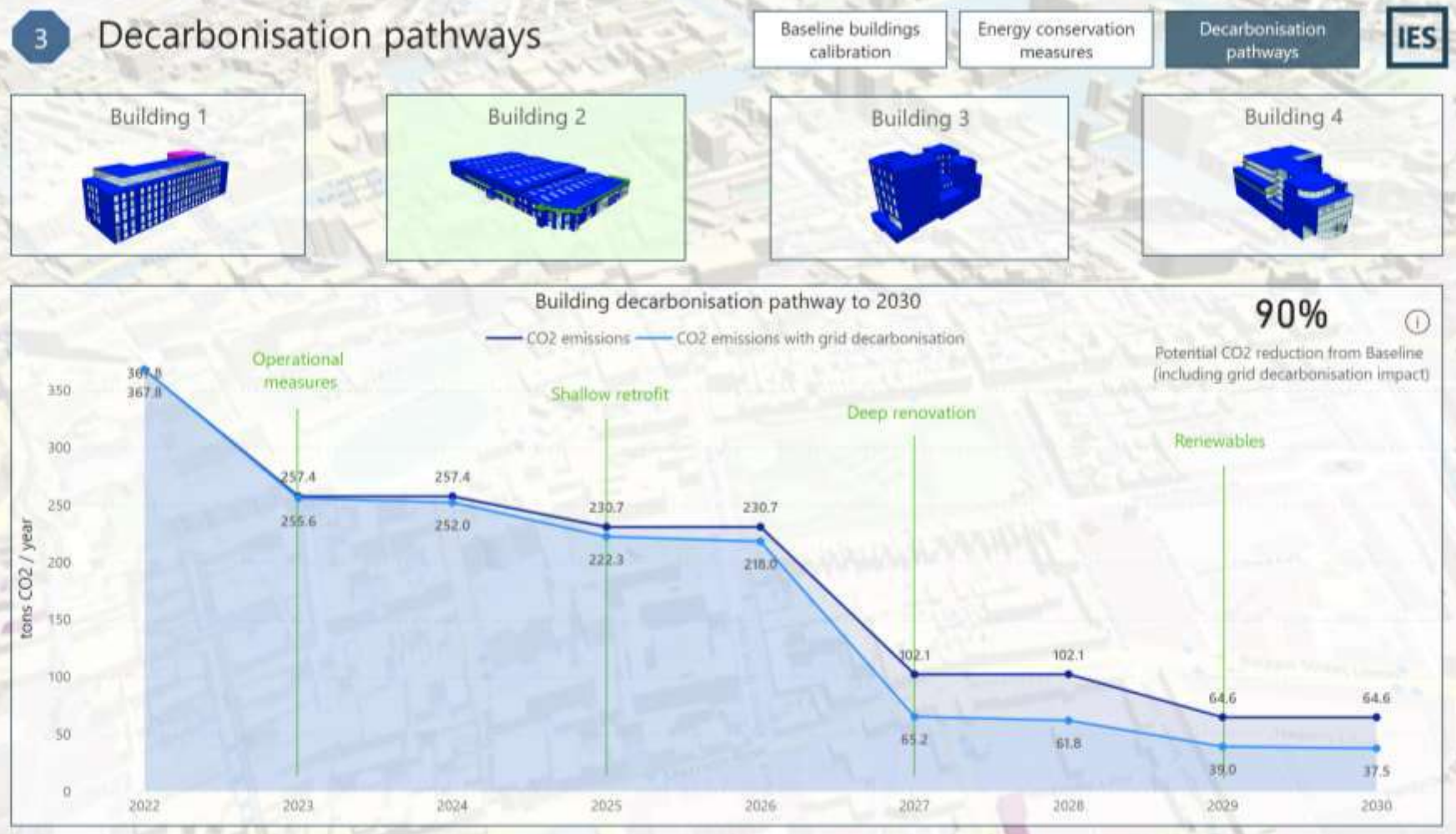
Net Zero Road Mapping



Zooming in from city scale to building Level Digital Twins



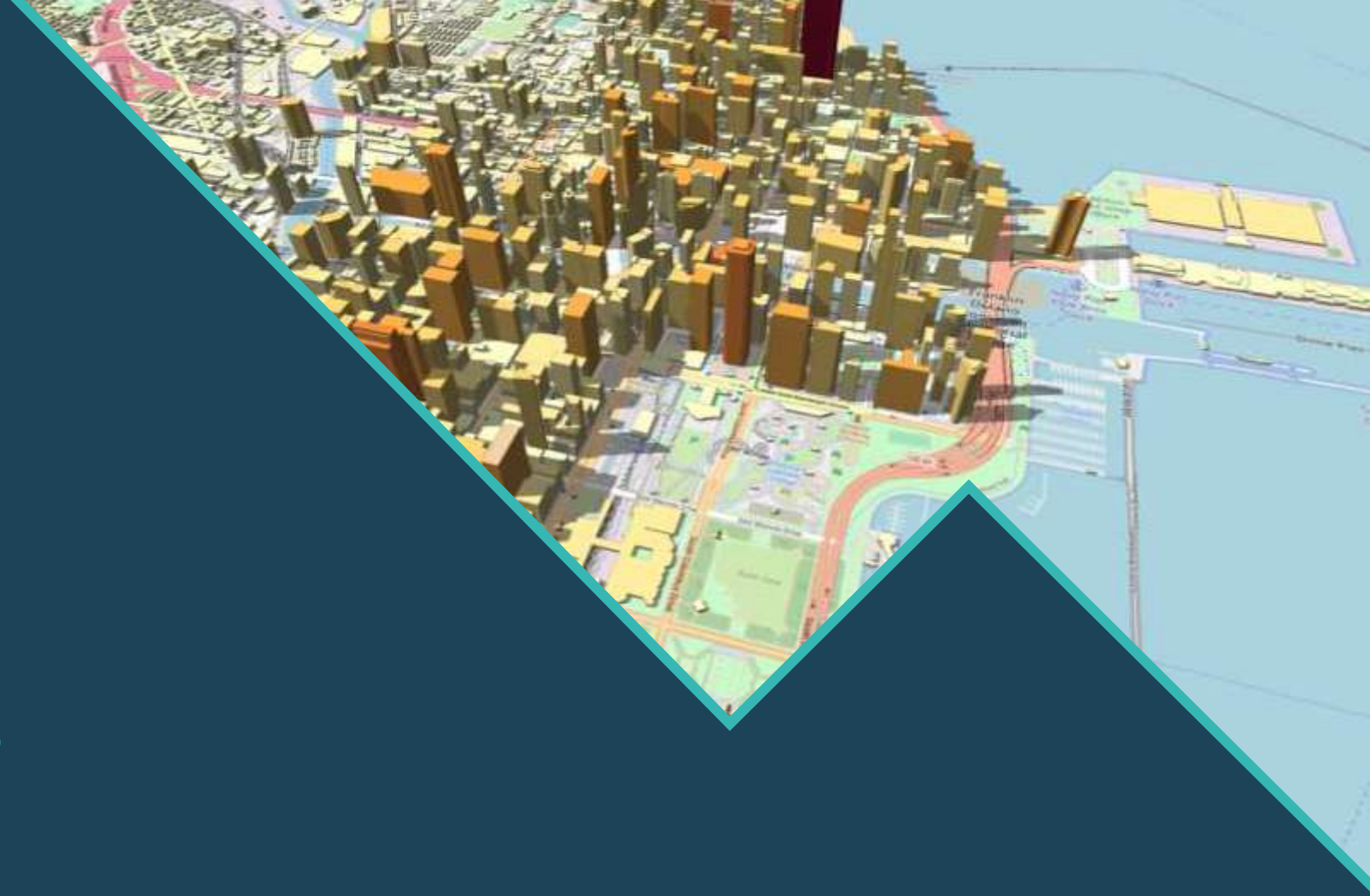
Testing decarbonisation scenarios at building level



72%

Now and next

- Better design for both buildings and communities, making better decisions from the outset
- Better control for both buildings and communities, optimising energy use, while maintaining health and well-being
- Optimisation and control of individual buildings, within a portfolio, campus, community or city - intelligent Building Controller
- Optimisation of the buildings and the assets working together as groups of buildings or communities – intelligent Community Controller
- Optimisation of communities working together, sharing resources as and when needed – intelligent Community Grid



Thank you

Any questions?

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www.iesve.com/icl

Transition to Workshops

See you at the Negresco!

SUSTAINABLE PLACES 2022

Sep. 6 - Sep. 9, 2022 | Nice, France