Built Environment & Energy Advisory Committee

Metropolitan Washington Council of Governments
Department of Environmental Programs

November 2014

IES

Todd C. Lukesh, LEED AP, Assoc. AIA, CGBP, GPR
Vice President, IES West Coast

Our History

IES

Global thought leaders in **quantifying and qualifying sustainability and efficiency through measurement, simulation and analytics.** We enhance our customers' triple bottom line by reducing energy costs and carbon emissions of their buildings and helping them record their achievements. Our unique HUB process is transforming building operation by providing the best decision-support information for our clients.
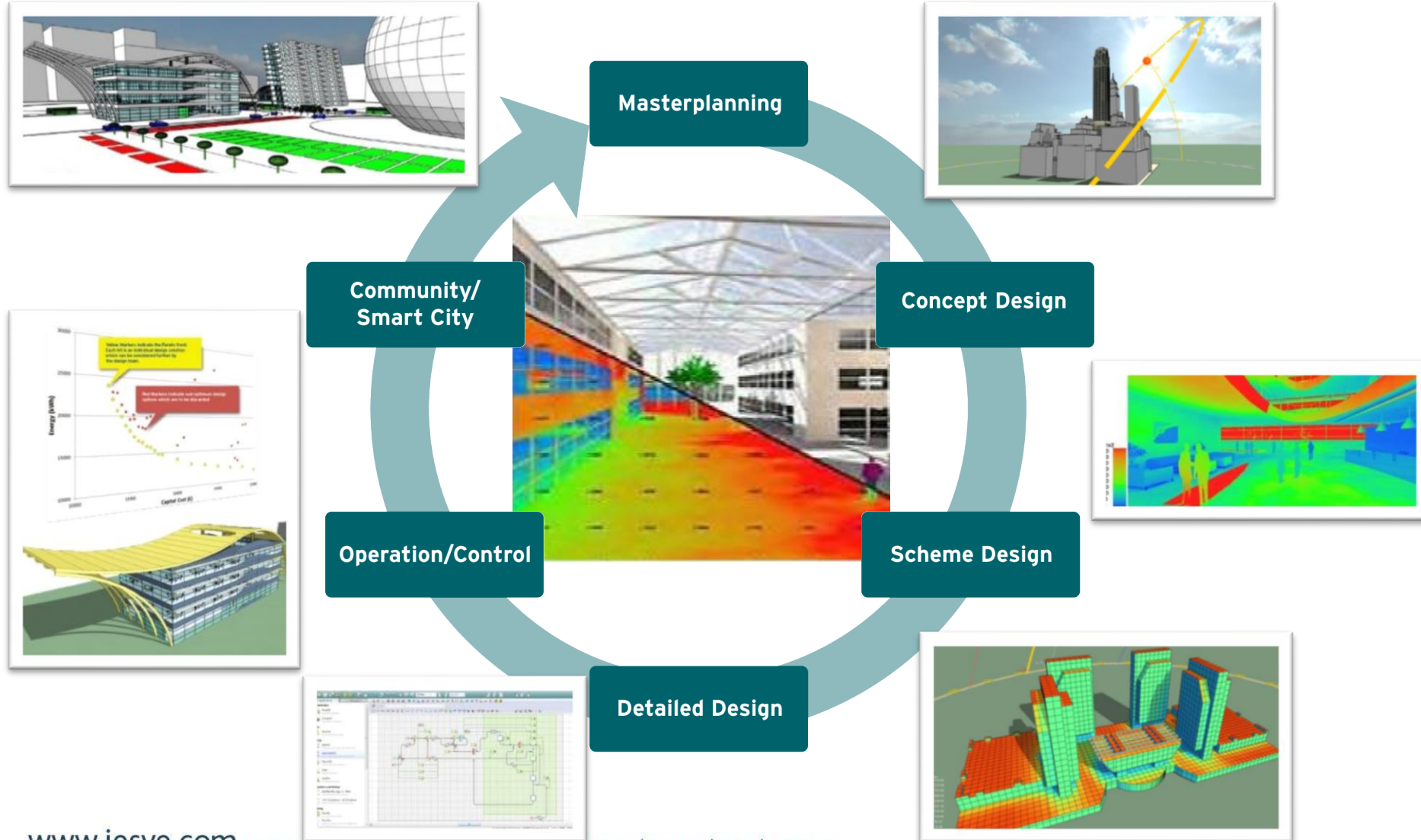
- IES founded in 1994 (20-year old firm)
- Headquarter office in Glasgow, Scotland
- Global offices: **Dublin, Boston, Atlanta, Pune, Melbourne & Vancouver**
- Global Business Development teams: **San Francisco, Malaysia & Minneapolis**
- International Sustainability Consultancy Services including **LEED, BREEAM, GSAS & Estidama**
- Our simulation technology is used throughout the world by many of the leading Architects, Engineers and Contractors to **quantify, optimize and verify** low energy and sustainable buildings.
- VE software used in over **140 countries**

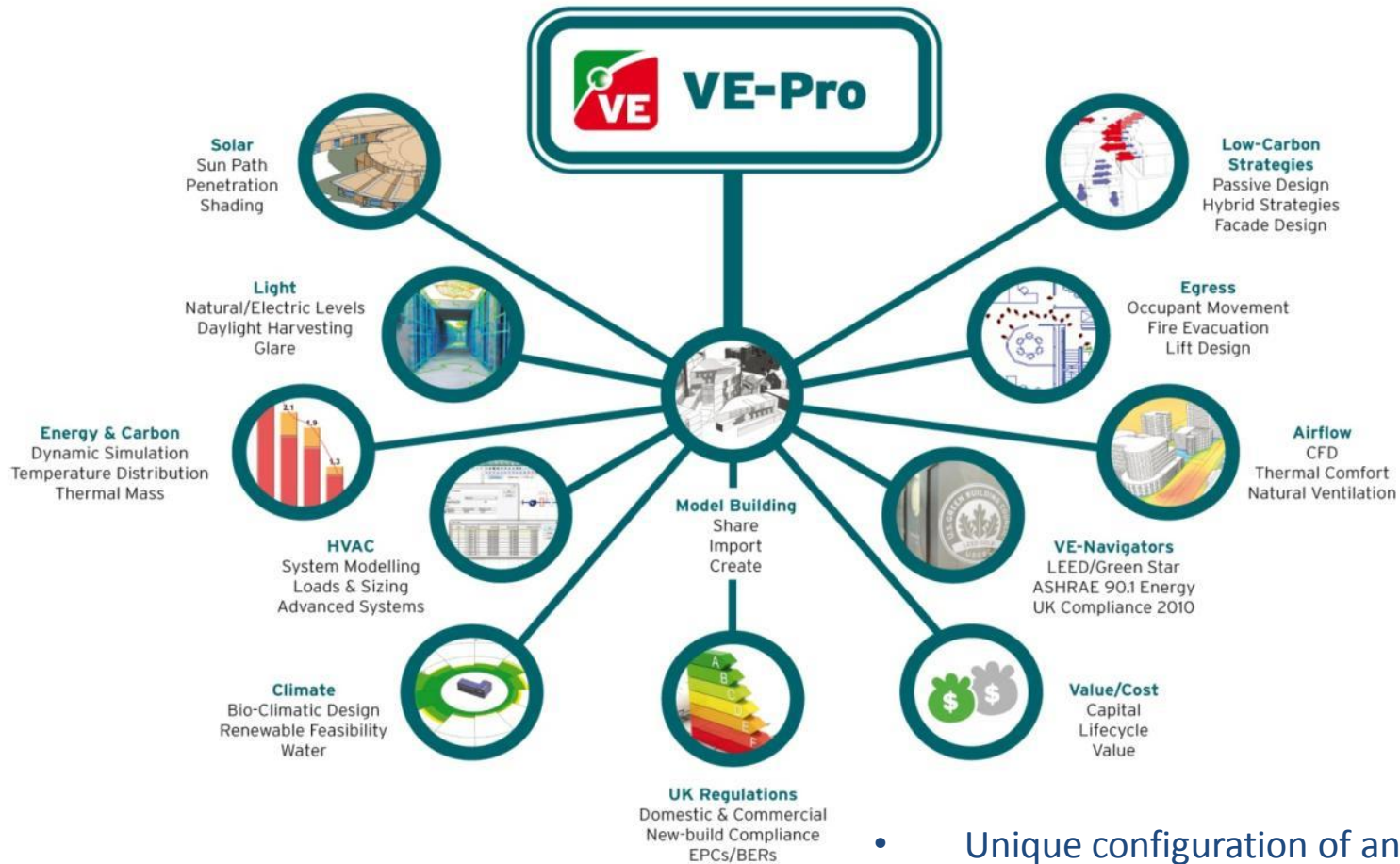**A Global IES Network**

The Smart Community Lifecycle (SCL)
The IES Process

Masterplanning

Concept Design

Scheme Design

Detailed Design

Operation/Control

Community/Smart City

Sustainability for the Building Lifecycle

IES

EARLY STAGE ➡ **DETAILED DESIGN**

VE-Pro

Solar
Sun Path
Penetration
Shading

Low-Carbon Strategies
Passive Design
Hybrid Strategies
Facade Design

Light
Natural/Electric Levels
Daylight Harvesting
Glare

Egress
Occupant Movement
Fire Evacuation
Lift Design

Energy & Carbon
Dynamic Simulation
Temperature Distribution
Thermal Mass

Airflow
CFD
Thermal Comfort
Natural Ventilation

HVAC
System Modelling
Loads & Sizing
Advanced Systems

Model Building
Share
Import
Create

VE-Navigators
LEED/Green Star
ASHRAE 90.1 Energy
UK Compliance 2010

Climate
Bio-Climatic Design
Renewable Feasibility
Water

Value/Cost
Capital
Lifecycle
Value

UK Regulations
Domestic & Commercial
New-build Compliance
EPCs/BERs
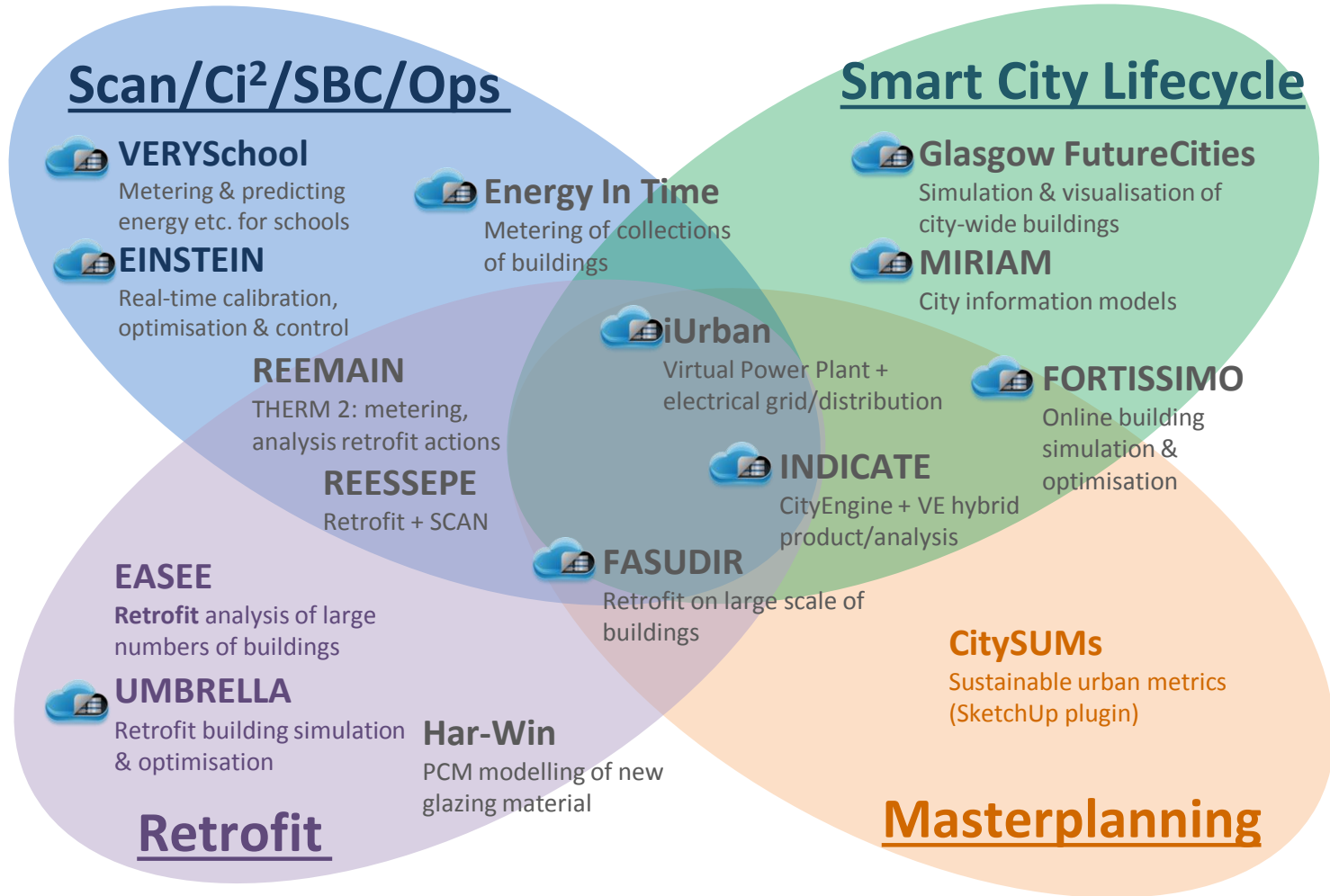
- Unique configuration of analysis tools
- Technology proven worldwide
- Single 3D model approach

Research & Development
Projects Overview

**IES**

Scan/Ci²/SBC/Ops

VERYSchool
Metering & predicting energy etc. for schools

EINSTEIN
Real-time calibration, optimisation & control

REEMAIN
THERM 2: metering, analysis retrofit actions

REESSEPE
Retrofit + SCAN

Energy In Time
Metering of collections of buildings

Smart City Lifecycle

Glasgow FutureCities
Simulation & visualisation of city-wide buildings

MIRIAM
City information models

iUrban
Virtual Power Plant + electrical grid/distribution

FORTISSIMO
Online building simulation & optimisation

INDICATE
CityEngine + VE hybrid product/analysis

EASEE
Retrofit analysis of large numbers of buildings

UMBRELLA
Retrofit building simulation & optimisation

FASUDIR
Retrofit on large scale of buildings

Har-Win
PCM modelling of new glazing material

CitySUMs
Sustainable urban metrics (SketchUp plugin)

Retrofit

Masterplanning

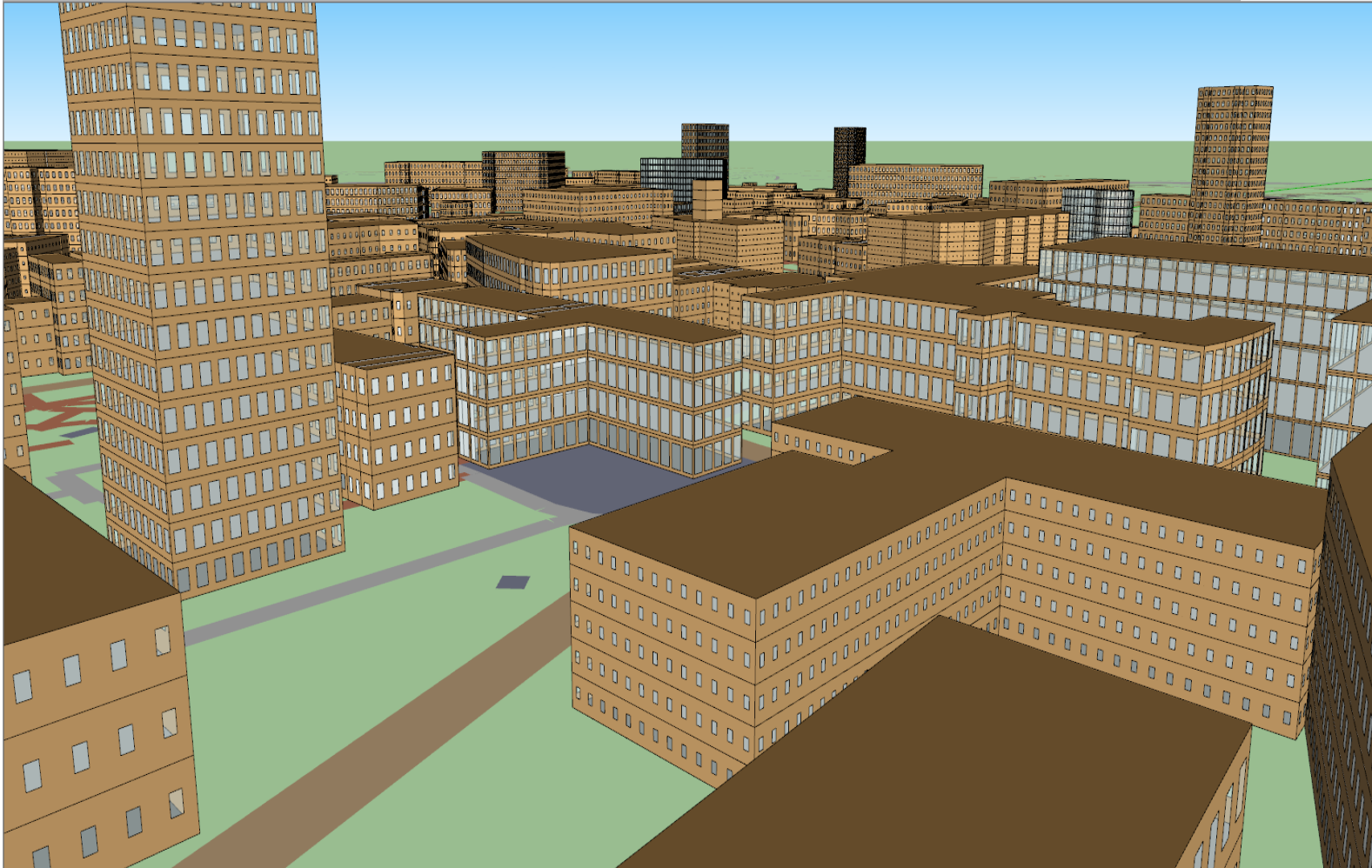= uses Web-based sim/calcs

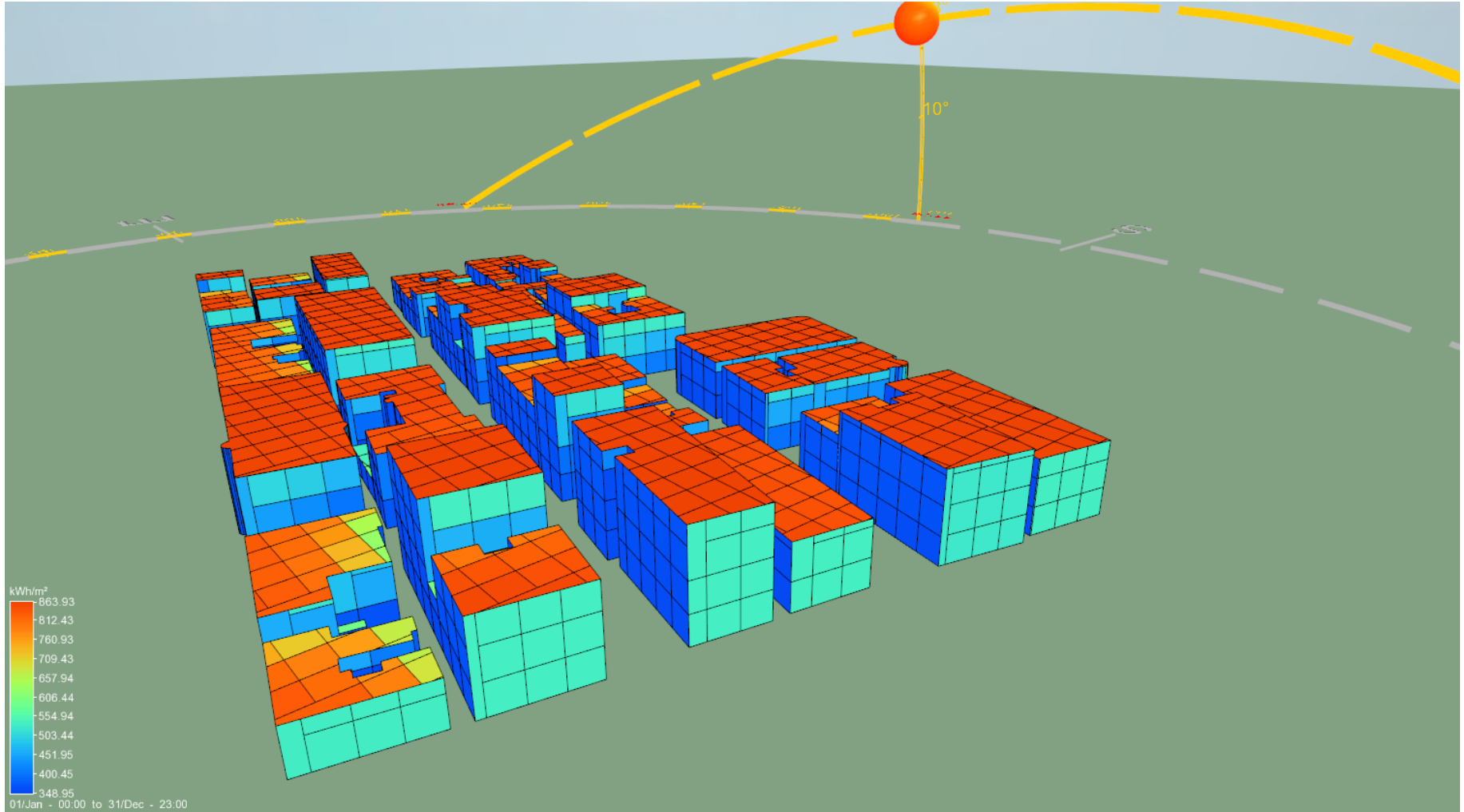# Smart Community Lifecycle (SCL)
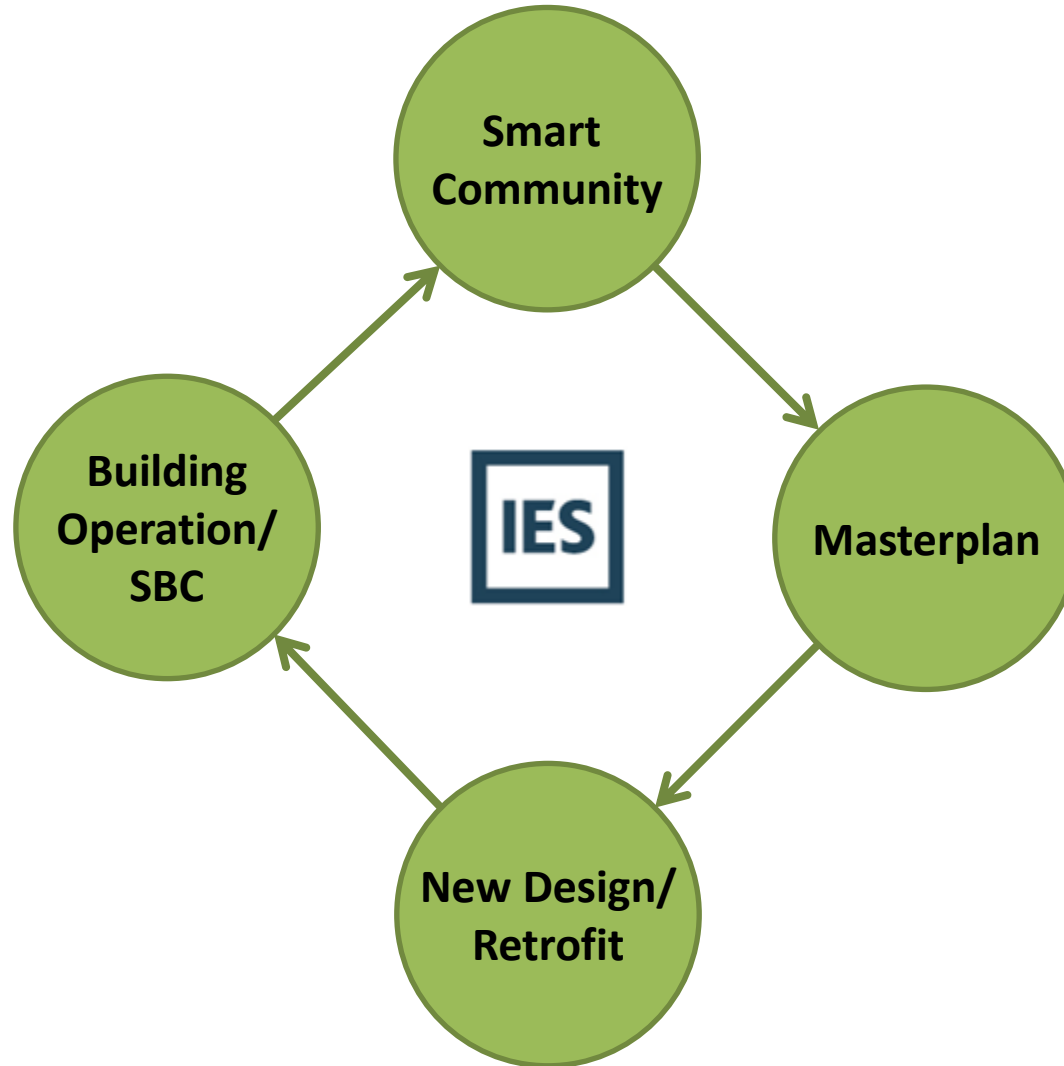
Masterplanning & EcoDistricts
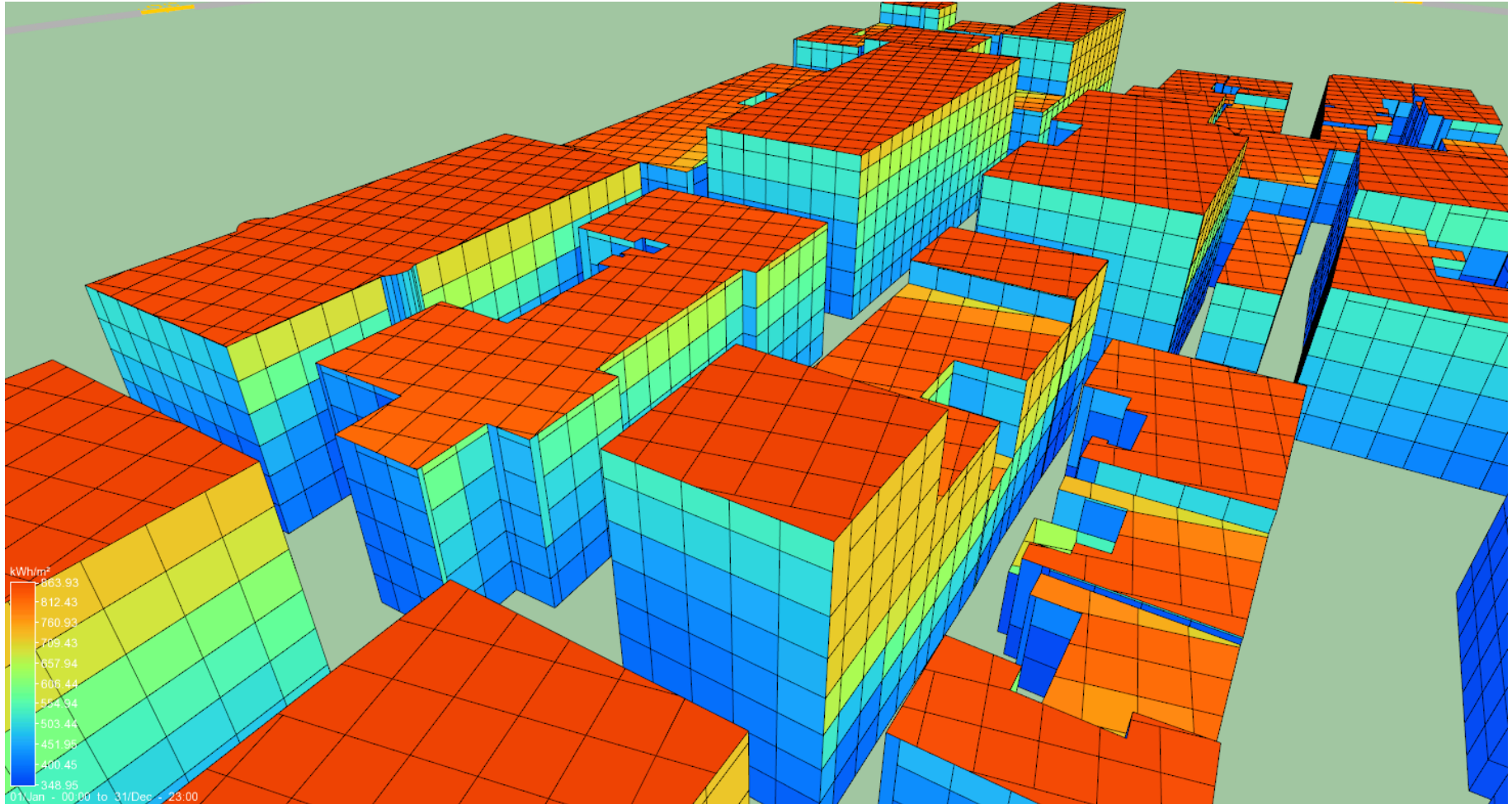## Model Build
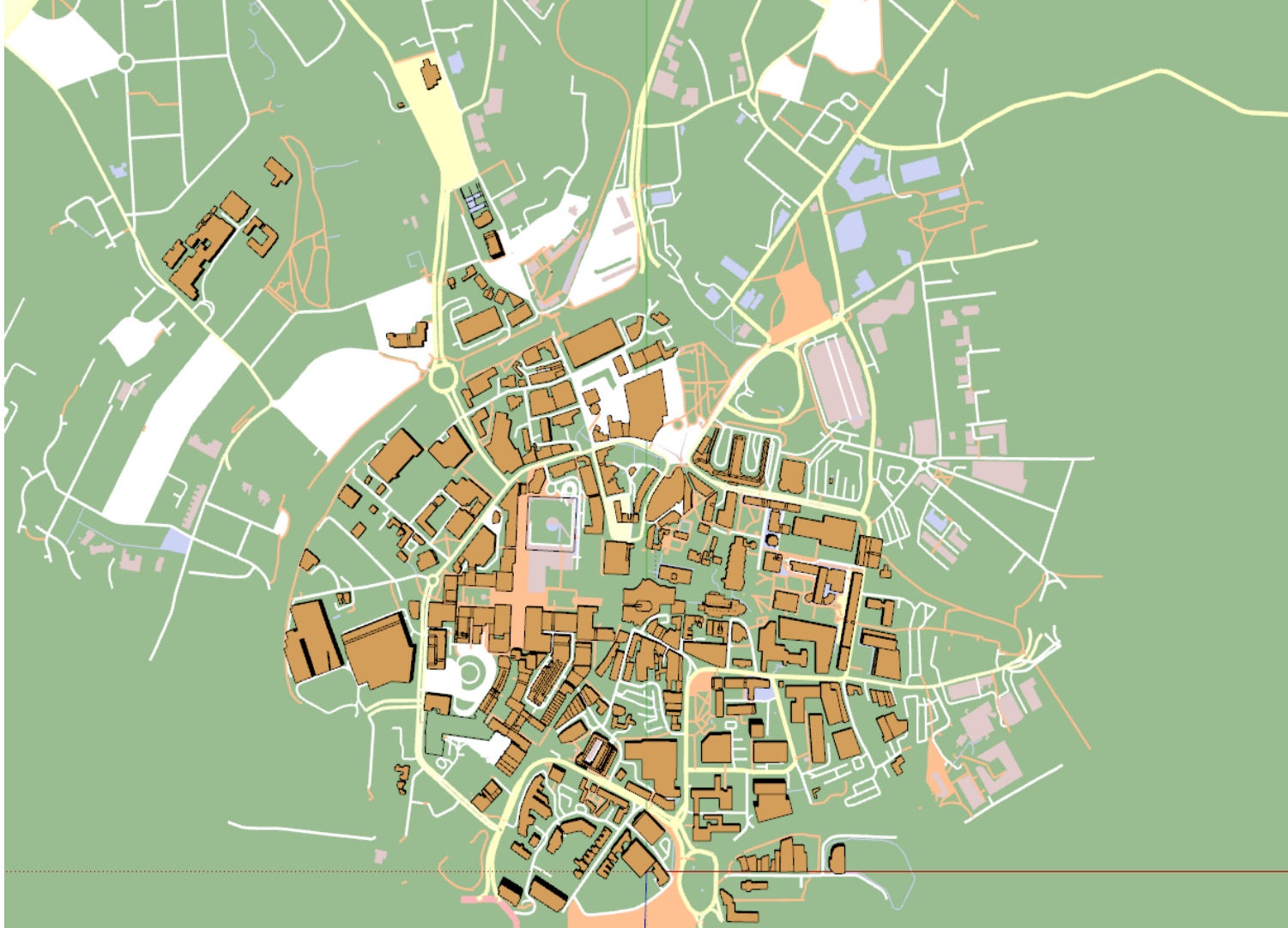
Masterplanning & EcoDistricts
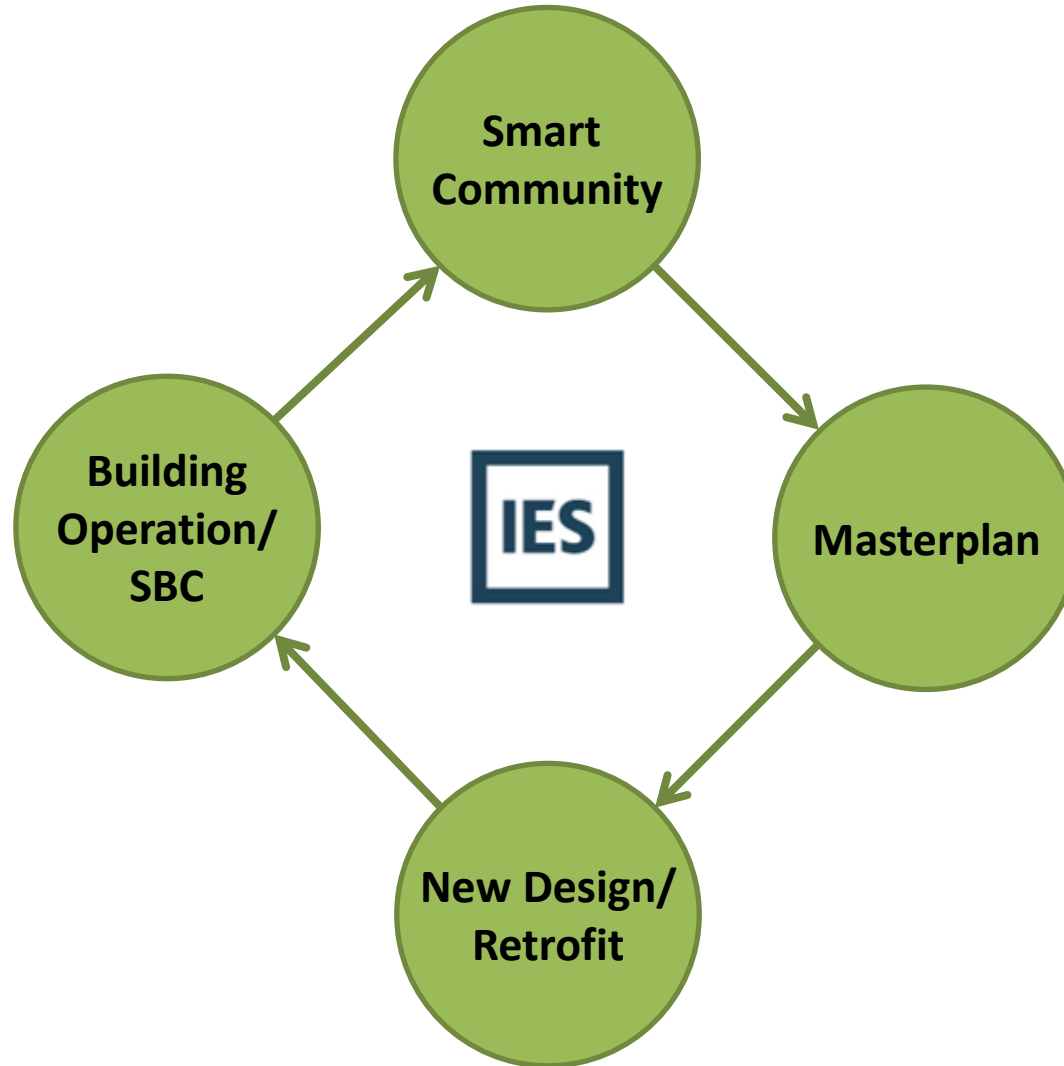## Model Visualization

City Masterplanning
Solar Intensity

City Masterplanning
Solar Intensity

kWh/m²
863.93
812.43
760.93
709.43
657.94
606.44
554.94
503.44
451.95
400.45
348.95

01 Jan - 00:00 to 31/Dec - 23:00

Smart Community Lifecycle (SCL)

Comments & Questions?

www.iesve.com

Thank You!

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