Step-WISE CO_2

Introduction to Step-WISE Technical Toolkit by IES

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Step-WISE: A Toolkit for Decarbonization

The Step-WISE Project Aim:

- Advance decarbonization efforts through comprehensive capacity-building

- Develop a technical toolkit to support the creation of effective CET plans

Step-WISE: A Toolkit for Decarbonization

Components of the Toolkit

iCD — A 3D master planning modelling tool that assists in creating baseline and intervention models at urban level

iCM — Provides 3D visualization and stakeholder engagement features

iVN — Enables advanced analysis of local energy systems, including district heating and storage

Power BI — Customizable dashboards for monitoring and visualizing progress

iSC — Collects and visualises building performance data to optimize operations

Develop a baseline

Data Gathering

Gather data on building geometry, type, energy consumption, system performance, and usage patterns from government agencies, utilities, research institutions, and open data platforms.

iCD model creation

ICD models create digital twins of real buildings to simulate their behaviour and provide a valuable baseline for testing and monitoring various options.

Model and simulation

Import all essential data from available data sets into iCD. Develop a virtual model of your area. Assess with a high confidence a baseline for you decarbonisation journey.

Review Results

A reliable baseline model is crucial for a successful zero-carbon journey, providing a stable foundation for future enhancements and ensuring confidence in the process.

Identify and analyse potential actions

Identify high emitters

Engage with stakeholders that have a potential of a high impact on carbon emission reductions. Start a conversation, understand their view on decarbonisation and actions taken up to date. Include their perspectives and plans in decarbonisation scenarios.

Sort archetypes

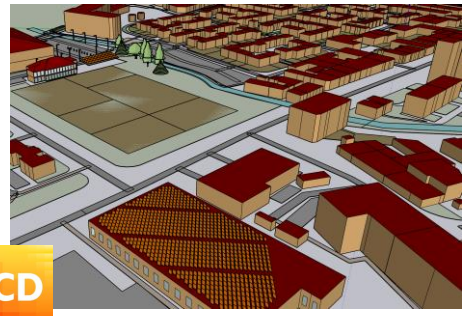
Identify groups of similar buildings that can benefit from the same upgrades. This will help to apply the changes to the model. Most importantly, it will streamline a process of future incentives design to help certain parties and community groups to achieve the set goals.

Create scenarios

Create scenarios, and investigate their impact by running multiple simulations using ICL technology. iCD tool allows to investigate larger range of various solutions. This ensures a selection of the best ones, and in the most beneficial sequence.

Live Demonstration

Model and refine scenarios



- Heating & Cooling setpoints
- Lighting upgrades & controls
- Equipment upgrades & controls
- Fabric upgrades
- Airtightness enhancements
- HVAC system upgrades
- Electrification
- Carbon sequestration

- Local Energy Networks (DHN, DCN)
- Renewable generation

- Master model
- Information visualisation
- Data sharing
- Client engagement

Model and refine scenarios

Heating & Cooling setpoints
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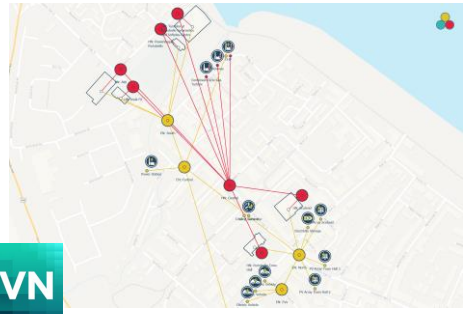
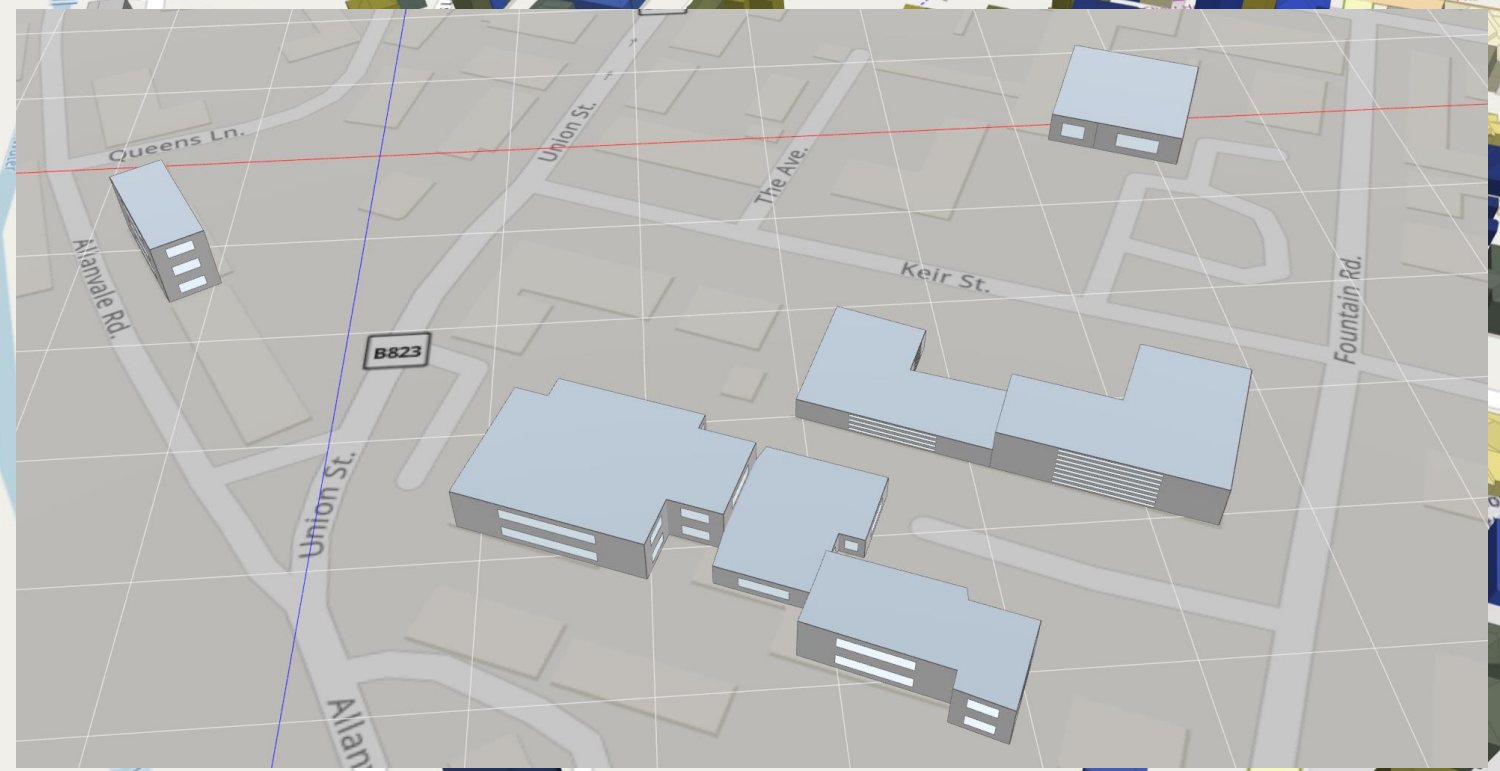
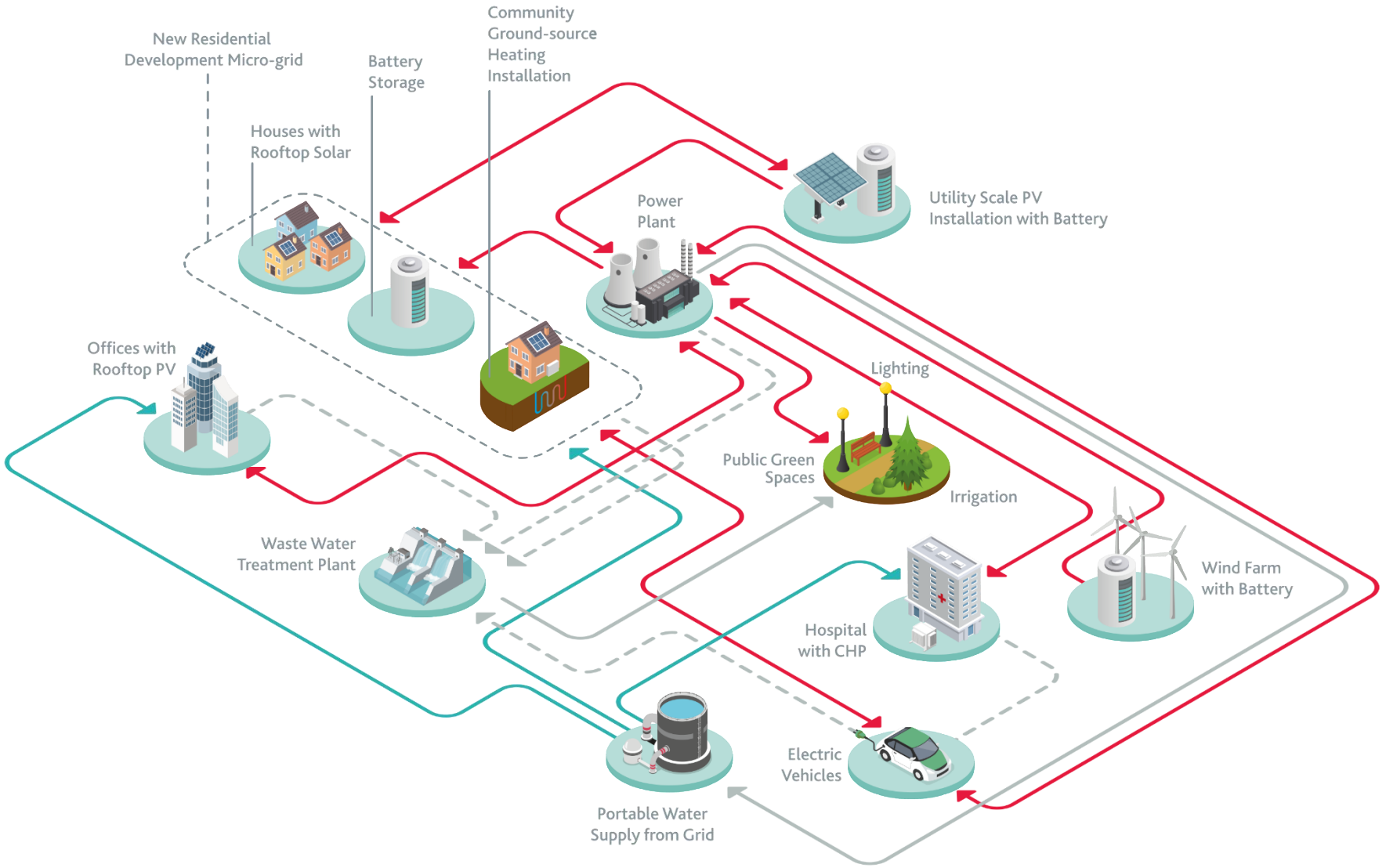


Local Energy Networks (DHN, DCN)
Renewable generation

Master model
Information visualisation
Data sharing
Client engagement


Queens Ln.
Union St.
The Ave.
Keir St.
Allanvale Rd.
B823
Union St.
Fountain Rd.
Allan

Analyse Local Energy Systems



Live Demonstration

Model and refine scenarios

iCD

Heating & Cooling setpoints
Lighting upgrades & controls
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iVN

Local Energy Networks (DHN, DCN)
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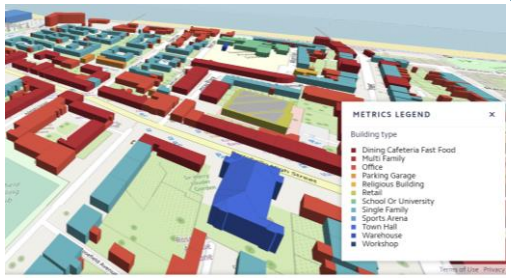
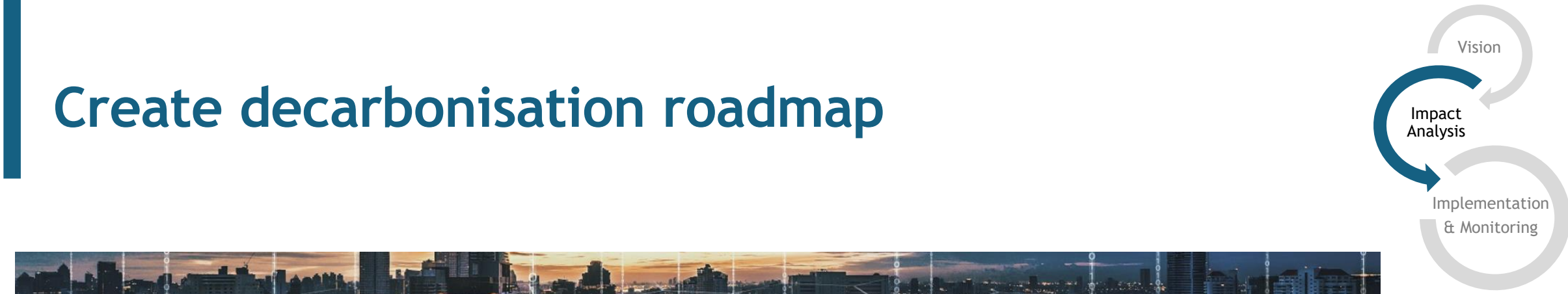


Master model
Information visualisation
Data sharing
Client engagement


METRICS LEGEND
Sim total carbon - kg / (m^2 year)
2
17
31
46
60
Mine Wood
How's Park
Allan Water
B823
Cornton Road
Women's National Facility
Castle Vale
John Cowane Row
Westhaugh Road
Strathmore Drive
Achray Drive
Yorlich Place
Johnston Avenue
Etive Place
Easter Cornton Road
Dumyat Road
Buchanan Drive
Dunvegan Drive
Fernbank
Causewayhead Road
Alloa Road
Bridgehaugh
B998

Create decarbonisation roadmap



Review scenarios

Establish which scenarios the best meet the vision and initially set goals.

Discuss options

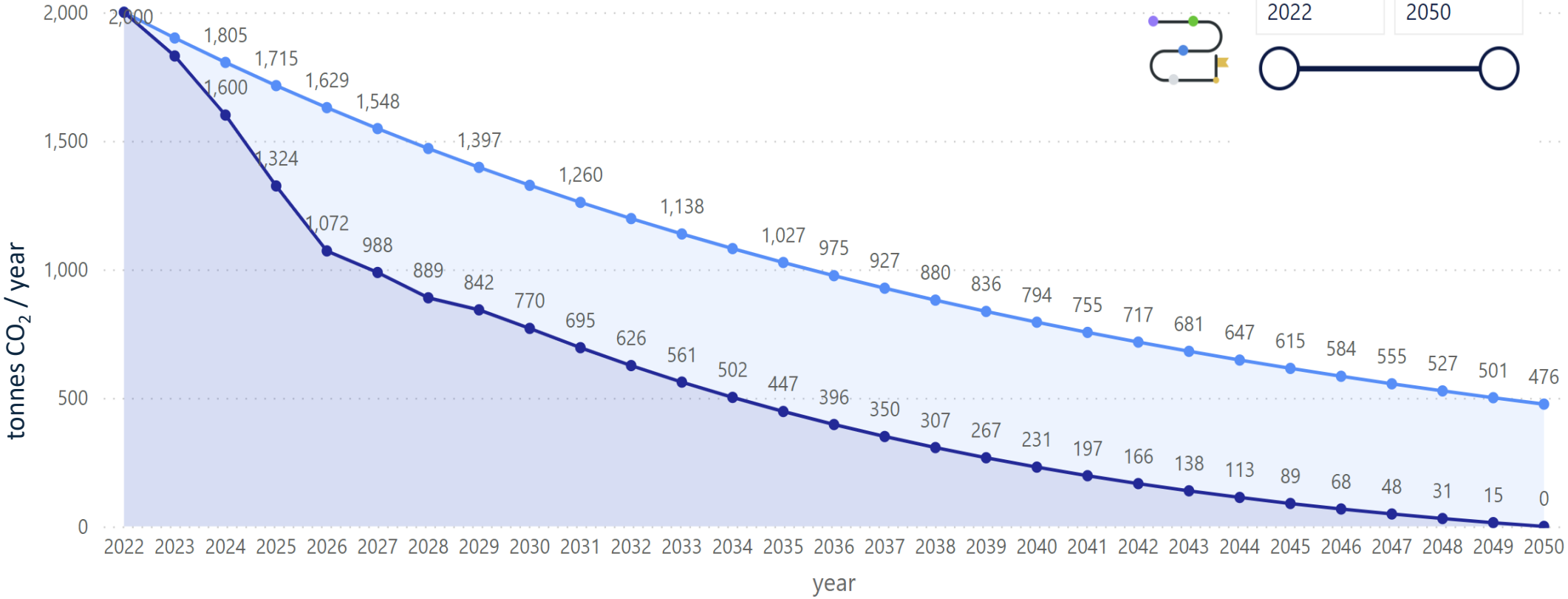
Involve stakeholders in making the final decisions on the selection of measures and their implementation.

Create roadmap

Utilise ICL tools to create and visualise the Decarbonisation Roadmap.

IES Digital Twin Services - Decarbonisation Roadmap

Community decarbonisation pathway



Download sample report

Assessment period

2022 2050

27,036 tonnes

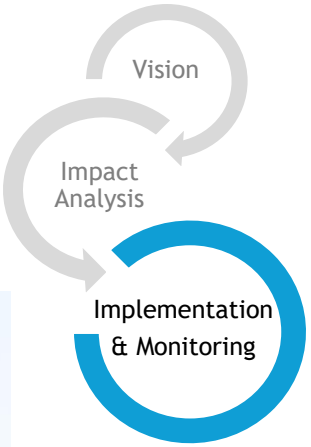
CO2 savings **without** grid decarbonisation

41,438 tonnes

CO2 savings **with** grid decarbonisation

Live Demonstration

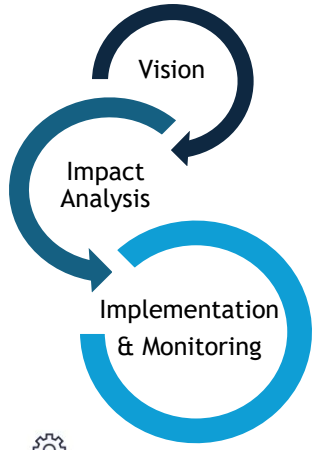
Create implementation schedule

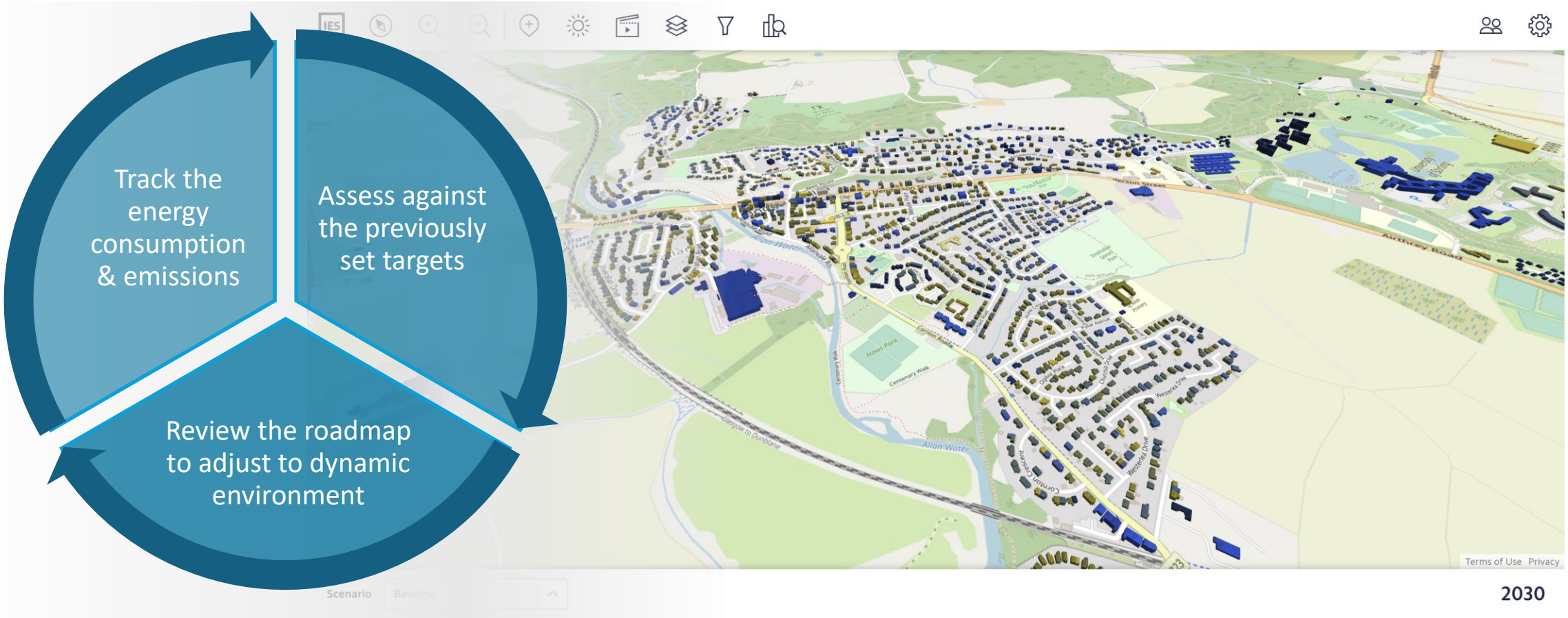


Main purpose of the implementation schedule is to stir and guide the community towards the zero carbon future, allowing for adjustment along the way.

- Define short, medium and long term goals
- Design supportive legislation and policies
- Keep dialog open with stakeholders and community

Continuous monitoring and roadmap review





Thank you

Any Questions?

www.iesve.com/icl

Upcoming Workshops & Webinars

March 2025

✔ **Introductory Workshop: CET Planning Workshop**
March 13, 2025 | 11:00 AM CET | Virtual

✔ **Step-WISE Technical Toolkit Introduction**
March 13, 2025 | 12:00 PM CET | Virtual

Technical Toolkit Webinar 1: Step-WISE Toolkit - iCD (Create Baseline & Compare Scenarios)
March 27, 2025 | 10:00 AM CET | Virtual

April 2025

Technical Toolkit Webinar 2: Step-WISE Toolkit - Technical Skills Enhancement
April 30, 2025 | 10:00 AM CET | Virtual

May 2025

Hybrid Workshop on Mitigation/Adaptation, Stakeholder Collaboration, and Funding/Budgeting
May 8-9, 2025 | Time TBA | Plovdiv, Hybrid

Virtual Workshop in Local Languages – Q&A UC1-EAP
May 20, 2025 | 10:00 AM CET | Virtual

Virtual Workshop in Local Languages – Q&A UC4-CERES/Traza
May 21, 2025 | 10:00 AM CET | Virtual

Virtual Workshop in Local Languages – Q&A UC5-SINLOC/R2M
May 22, 2025 | 10:00 AM CET | Virtual

Step-WISE CO_2 Life