



# Green Village

**One Planet Living® leadership review**  
December 2022



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# Report overview



# Report overview

## Project name:

Green Village

## Project type:

Real estate

## Developer:

World Council of Churches, in partnership with Implenia

## Description:

A redevelopment site in the Municipality of Grand-Saconnex in central Geneva, Switzerland.

Six new buildings with offices, apartments and a hotel are arranged around the restored Ecumenical Centre, the historic headquarters of the World Council of Churches.

Once completed, the district will be home to some 3,000 employees, more than 200 hotel and apartment rooms, 50 families, and numerous local services.

## Reviewer:

Nicole Lazarus

## Sign-off and quality review:

[[name]]

## Date of review:

December 2022



## Leadership status:



One Planet  
Living®

Leader  
2023

# Bioregional and One Planet Living

# Bioregional and One Planet Living

## About Bioregional

Bioregional is a purpose-led sustainability consultancy. It has worked in over 20 countries on sustainable development, working with local communities, cities, and companies.

Bioregional devised the One Planet Living framework in 2003 with WWF, based on our experiences creating the multi-award-winning BedZED in South London, the UK's first large-scale sustainable community. One Planet Living has guided the development of real estate across the world, shaping exemplar communities that enable sustainable living.



## About One Planet Living

One Planet Living® is a vision of a world where it is easy and attractive to live happy, healthy lives within the limits of our Earth's resources.

We need this vision because if everyone lived as we do in Western Europe, we would need almost three planets to support us. The measure of this is called 'ecological footprinting'. Meanwhile, many lack what they need for a good life, and wildlife is being pushed out to make room for our demands.

The One Planet Living framework consists of 10 principles which cover the activities that drive resource consumption, and the elements that form the basis of a good life for everyone. The principles are used to identify the needs in a local area, to relate these to the planetary bottom-line, and then to structure responses to those needs.

	Health and happiness
	Equity and local economy
	Culture and community
	Land and nature
	Sustainable water
	Local and sustainable food
	Travel and transport
	Materials and products
	Zero waste
	Zero carbon energy





# What is a One Planet Living leadership review?

# What is a One Planet Living leadership review?

**A review is when you open your action plan to scrutiny from a suitable qualified expert from Bioregional (or one appointed by us). It will include:**

- Reviewing the action plan as a whole and providing advice and suggestions on how it might be improved
- Evaluating it against several criteria including impact, systems change, ambition and delivery
- Assessing the action plan against the One Planet Living goals and guidance and local industry best practice.
- You can then discuss whether your action plan could be a candidate for leadership recognition.

This document reviews the action plan created by World Council of Churches (WCC) and Implenia.





# Current status of Green Village

# Current status of Green Village

**Green Village consists of six new buildings and landscaped areas arranged around the existing historic Ecumenical Centre. At the time of this review the buildings are each at different stages:**

- Montreal building has just been delivered and the 48 new apartment owners are moving in early 2023.
- The Kyoto office building is under construction. It will be delivered to its owners, Swiss Life in spring 2024.
- The building permit for the restoration of the Ecumenical Centre has just been granted by the council.
- The Stockholm office building for international organisations is in its first design stages.
- The design of Lima building will commence in early 2023. This will become the main offices for the World Council of Churches and their sister organisations.
- Stockholm and Lima buildings expect to be delivered in early 2027.
- The market for new hotels has started to recover after the pandemic so negotiations for the development of the Rio building hotel have recommenced.
- The final Durban building is being considered for different uses, as yet undecided.

## Infrastructure is progressing:

- The microgrid contract has just been signed with service provider Group A securing 100% renewable electricity from the grid to top up the onsite solar array.

- The population of Grand-Saconnex have just voted in favour of a new tramway which will run along the western edge of Green Village, connecting with downtown Geneva and out to the French side of the city. The tram is due to open in late 2026.
- Bicycle parking provision has been increased to over 100 spaces per building.



Figure 1 - Model of Green Village

# Review summary and highlights

# Review summary

Green Village is a thorough and technically robust expression of One Planet Living on a high-profile regeneration site well placed for car free living. The One Planet Living ambition informs every aspect of the development and expresses WCC's commitment to a just and sustainable global community.

The team have deployed innovative business models to secure forward investment in buildings and zero carbon infrastructure in order to realise this vision. Implenía's integrated construction and real estate services are enabling end to end coherence, from planning and design, through construction and handover, to long term governance and facilities management.

Collaboration with Grand-Saconnex municipality, and the permanent presence of the vision holders, WCC all secure confidence in the deliverability of the many ambitious sustainability measures that will deliver One Planet Living in this community.

**Following a detailed review of the One Planet Living Action Plan, we are pleased to endorse Green Village as a One Planet Living Leader for 2023.**

This review contains recommendations for further measures in the post construction phase. When Green Village undertakes its next progress review with Bioregional and if these suggestions are adopted, Green Village is well-placed to be endorsed as a One Planet Living Global Leader.



One Planet  
Living®

Leader  
2023

## Comment from World Council of Churches



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## Comment from Implenía



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# Review highlights

## Highlights

### 1. Culture of sustainability:

Plans to embed sustainability in the long-term governance of the site begin with the permanent presence of vision-holders WCC occupying two of the seven buildings. One Planet Living and all the action plan commitments are reflected in every purchase and lease agreement and a One Planet Living governance association will be established. Efforts undertaken during the development phase will be continued post-occupancy by a "sustainability steward" who will have a dedicated community meeting space to create links between people, to raise awareness via a range of services that promote the circular economy, local and sustainable food. Green Village will aim to maintain its One Planet Living recognition through regular reviews and audits.

### 2. Technically rigorous:

Excellent measures on energy and water efficiency standards, on indoor air quality and thermal comfort. Measures include high building fabric standards, ventilation strategies, thermal mass approach and active shading.

### 3. Third party Energy Services Company (ESCo):

Excellent solar and geothermal energy generation on site meeting 100% of heating, cooling and hot water needs and 14% of electricity. The ESCo will manage a microgrid, enabling the full financial benefits of the PV array to be retained on site and increasing self-utilisation to some 70%. The ESCo has undertaken thermal energy contracting, providing upfront investment in the geothermal heat network. This business model delivers a robust zero-carbon community with long term certainty over energy prices for occupants.

### 4. Heritage architecture:

Preservation and restoration of historic buildings and landscape architecture

### 5. Leverage

Opportunities to promote widespread transition through WCC's global network of 352 member churches from 120 countries, representing over 580 million Christians worldwide, and through Implenla's presence on pan-European construction industry boards.

# Review highlights

## Suggestions

### 1. Air travel

Given the international nature of this Geneva district, and given the proximity to the airport, there is a risk of very high travel-related carbon footprints for some Green Village occupants and their visitors. Bioregional suggest several measures to address this risk:

- WCC/Implenia can plan engagement activities to ensure all Green Village occupants understand the impacts of air travel and are encouraged to use alternatives.
- All building owners and occupying organisations can produce sustainable travel plans that include tracking of any air travel impacts and measures to incentivise alternative travel modes whenever possible.
- The sustainability steward can facilitate ongoing discussions to share creative ways to incentivise alternatives to air travel e.g. hotel discounts for visitors arriving by other means, free electric taxis from the train station on account, vouchers for local restaurants for people arriving by other means etc.
- One Planet Living reviews to include a report on this subject in future and if possible, an estimate of the carbon impacts for Green Village related air travel.

### 2. Post-occupancy engagement

Provision of a One Planet Living Board, a sustainability steward and a dedicated community space are all excellent. Bioregional suggest some enhancements to these provisions:

- With first residents arriving imminently, but with no sustainability steward yet in post, some interim engagement measures will help new arrivals to adopt new and sustainable habits from the beginning.
- The next progress review could include even more detail about the engagement activities and sustainability culture post occupancy, particularly on facilitating the many aspects of sustainable lifestyle choices. For example, information about the tablet provided to new apartment owners.




### 3. Land use and nature

The landscape design and biodiversity provision at Green Village is excellent. Bioregional suggest exploring a further opportunity for creative partnerships with local nature-based organisations. The ecological footprint of Green Village extends far beyond the site boundaries so an appropriate scale of activity to address the ecological emergency could also extend beyond site boundaries whilst providing occupants with a welcome connection with more extensive natural places. For example, partnership with a local nature reserve in the Geneva surrounds could provide Green Village occupants with volunteering opportunities.

# Action plan summary

# Action plan summary

Bioregional uses a simple red/amber/green traffic-light approach to indicate how well the action plan addresses the One Planet Living principle and their goals. More detailed comments and recommendations are in the 'full review' section.

-  Well addressed
-  Adequately addressed
-  Not fully addressed

	<p>Excellent approach to achieving a healthy, comfortable indoor environment. Opportunity for more detail on how active lifestyles and mental wellbeing will be promoted.</p>			<p>Promoting local sustainable food suppliers and appropriate food production on this high-density site. Ambition for 100% adoption of a sustainable food manifesto. Opportunity to engage specifically on minimising food waste.</p>	
	<p>Innovative business models for incoming building owner investment and third party zero-carbon energy company. Ambitious mix of economic activity on site. Excellent accessibility. Favouring local suppliers.</p>			<p>Excellent measures for reducing the need to travel, for enabling active travel, public transport and electric transport. The action plan does not yet address the impacts of flying which could be a significant source of carbon emissions in this location.</p>	
	<p>Architectural heritage preserved and restored. Ambitious plans for long term culture of sustainability with ongoing sustainability reviews, a One Planet Living governance board and dedicated sustainability steward.</p>			<p>Good embodied carbon tracking and ambitious targets but heavy dependence on concrete. The action plan does not include engagement specifically on consumer choices and reduction in consumption of goods.</p>	
	<p>Excellent landscape design for integrated and diverse habitats with differentiated management regimes. Opportunities for partnerships to support nature and improvements off site.</p>			<p>Includes good waste and recycling targets. Opportunity for more detail on engagement activities to promote total waste reduction.</p>	
	<p>Excellent water efficiency standards. Surface water management also excellent with permeable surfaces, a green roof on the largest roof and measures to prevent runoff pollution during construction.</p>			<p>Excellent building fabric standard, ventilation, thermal mass and active shading. Excellent solar and geothermal energy generation on site. Third party EScO manages a microgrid and thermal contracting to deliver robust zero carbon community.</p>	



# Overall leadership assessment

# Overall leadership assessment

## Scope

### Highlights

The action plan addresses the design and construction phases of all 10 One Planet Living principles very thoroughly.

It addresses the post-occupancy phase, touching on all 10 One Planet Living principles, but more detail could be provided.

Future governance plans ensure One Planet Living continuity in every building purchase and lease agreement.

WCC's anchor presence also provides confidence that the One Planet Living approach will extend into the scope of future years.

### Opportunities

The action plan should move to include air travel of Green Village occupants and also their visitors within its scope.

## Transformation

### Highlights

Green Village provides both founding partners with a shining example of what a sustainable future can look like.

WCC runs a Care for Creation and Climate Justice programme. As pioneers of sustainable communities and participants in every UN climate change conference, WCC have the potential to tell the Green Village story across their global network of churches as a way to inspire and start conversations.

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Implenia aims for net-zero corporate emissions by 2050 and a reduction of 15% by 2025. Green Village is providing a test bed of sustainability solutions for the whole company and is informing their work across their portfolio of projects.

Implenia is a founder member of the Swiss Association for Sustainable Neighbourhoods, creators of SEED certification. They attend numerous construction industry initiatives providing the potential to influence and improve building standards

### Opportunities

Bioregional looks forward to seeing the Green Village story being told to both audiences in ways that catalyse system change and transition

## Ambition

### Highlights

The outcomes and targets align with and address all the One Planet Living goals. Impressive carbon targets for embodied carbon during construction, post-occupancy energy use, and travel.

## Implementation

### Highlights

Very comprehensive and coherent set of actions for all design and construction aspects.

Good basis of infrastructure and services to enable sustainable lifestyles.

### Opportunities

Opportunities to enhance the detailed and specific actions to deliver green lifestyles engagement and measures.

# Review in full

# 1

## Health and happiness

Encouraging active, social, meaningful lives to promote good health and wellbeing



### Headline outcome:

Green Village is a location that enhances the mental and physical health of its residents, workers and society

#### Physical health

##### Highlights

- Excellent ventilation strategy with double-flow heat recovery
- Ongoing monitoring for comfortable temperature and humidity levels indoors
- Exposed thermal mass approach assists with stable indoor temperatures
- Healthy building materials and fit out, targeting 100% compliance with Minergie-Eco thresholds for air quality tests

##### Opportunities

- More actions post-occupancy to promote active lifestyle choices and physical well-being

#### Happiness and wellbeing

##### Highlights

- An ambition for high satisfaction levels and sense of community, evaluated using periodic surveys

##### Opportunities

- More actions post-occupancy to foster mental wellbeing



# 2

## Equity and local economy

Creating safe, equitable places to live and work that support local prosperity and international fair trade



### Headline outcome:

Green Village proactively supports the local green economy, and enables all members of society to participate

#### Diversity and equality of opportunity

##### Highlights

- Targeting 100% accessibility to all facilities

##### Opportunities

- Green Village users will be relatively affluent on a global scale. Affluence usually accompanies relatively high environmental footprints. This provides an opportunity to engage on the importance of sustainable lifestyle choices and low impact consumer choices. Additional actions around this could be developed with Green Village occupants.

#### Vibrant local economy

##### Highlights

- Healthy mix of use types, from a range of businesses and service providers to residential and a hotel. Provides potential for a thriving district meeting many needs on site. Including at least 5 different local shops.

Innovative investment models for Green Village include:

- Lifecycle costing over 30 years
- A third-party Energy Services Company investing in energy infrastructure assets, a microgrid and thermal energy contracting.

- Innovative service charge model combined with participative neighbourhood governance. This funds among other things the sustainability steward post and excellent landscape management.
- A commitment that all construction sub-contractors meet Swiss social agreements.

#### Fair international trade

##### Opportunities

- Add detail to the action in the plan: “Leverage the links created between all WCC sister organisations, driven by ecumenical values”.

# 3

## Culture and community

Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living



### Headline outcome:

Green Village, accessible to all, has different types of activities, where all the actors are encouraged to take part in the One Planet Living approach

#### Sense of place and belonging

##### Highlights

- A number of community dedicated spaces, including playgrounds, outdoor meeting spaces, an ecumenical chapel and a space managed by the sustainability steward.

#### Local culture and heritage

##### Highlights

- Listed heritage features of the site have all been audited, preserved and restored. These include the landscape architecture of the Brügger Garden, and the chapel and Ecumenical Centre.
- Public events such as music concerts.
- School group visits.

#### Active citizenship and sustainability culture

##### Highlights

- WCC and Implenia have proactively sought prospective building owners and tenants who buy into the schemes' green credentials.
- The project will be audited every two years using the SEED certification scheme developed by the Swiss Association for Sustainable Neighbourhoods. Progress reviews will ensure the action plan stays on track.
- Commitment to establish a One Planet Living Association with finance for a long-term sustainability steward to champion one planet living.
- Commitment to draft a One Planet Living neighbourhood charter, aligned with One Planet Living goals, setting out responsibilities.

- The team are currently onboarding the real estate agent to ensure they can engage with residents on OPL. A first residents' meeting in late February 2023 will include an OPL discussion. WCC are currently planning how monitoring results will be shared through public displays on site.
- As the owner and anchor organisation based at Green Village, the WCC brings a unique cultural richness to the district with an ecumenical chapel open during working hours and a worship programme available.
- WCC runs a range of advocacy programmes on climate justice, gender equality, racial justice, peace and disarmament and more. WCC continue to participate in every UN climate change COP.

Continues overleaf

# 3

## Culture and community

Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living



### Active citizenship and sustainability culture (continued)

#### Highlights

- WCC has made a public commitment to reach net zero by 2030 for its own operations with a delivery plan expected in June 2023.

#### Opportunities

- More detail on the activities of the sustainability steward
- More detail on the One Planet Living Association and the process for creating the One Planet Living neighbourhood charter.
- Future specific contributions from WCC to the cultural life and sustainable practices at Green Village.

- Opportunities for WCC and Implenla to leverage culture change and wider adoption of sustainability change through their networks.
- Developing ways to ensure building owners ensure their tenants uphold the One Planet Living approach.

# 4

## Land and nature

Protecting and restoring land for the benefit of people and wildlife



### Headline outcome:

Green Village is a district with a net-positive impact on biodiversity, and where the sound of the nature prevails over the traffic, bringing people closer to nature

- **Positive contribution to local biodiversity**
- **Enhance ecosystem services**
- **Carbon sequestration**
- **Engage people in the value of nature**

#### Highlights

- High quality of biodiversity integration and environmental design in the landscape plan. Five different habitat types will have differentiated management regimes and interconnectivity for wildlife between them. These include water meadows, flow meadows, gravel pioneer surfaces, trees and shrubs.
- Lots of excellent technical detail such as wildlife friendly lighting, interpretive boards, careful soil management and permeable surfaces.
- Green roof on WCC building.

#### Opportunities

- Interested to hear about creative future opportunities to partner with local wildlife reserves or open spaces, or community engagement with biodiversity issues off site.
- Interested to hear how the zero-pesticide ambition plays out.



# 5

## Sustainable water

Using water efficiently, protecting local water resources and reducing flooding and drought



### Headline outcome:

Green Village sets new standards thanks to landscaping for the treatment of stormwater

#### Water efficiency

##### Highlights

- Good residential water efficiency target of 90L/person/day
- Water efficient fittings are specified in all buildings.
- Landscaping has been designed to minimise water needs.
- Rainwater will be harvested for reuse.
- Water consumption will be monitored and awareness raising engagement activities will be facilitated.

##### Opportunities

- Are there opportunities for greywater recycling in any of the buildings?

#### Surface water management

##### Highlights

- Permeable surfaces, including the green roof, and rainwater management are designed to cope with 100-year rainfall events

#### Runoff during construction

##### Highlights

- Targeting zero construction water-related incidents by containing and managing all pollutants and effluents.

# 6

## Local and sustainable food

Promoting sustainable, humane farming and healthy diets high in local, seasonal organic food and vegetable protein



### Headline outcome:

In Green Village, everyone has access to fresh local produce, and healthy, vegetable protein-based diets become the norm

- **Fresh, local, seasonal, healthy produce**
- **Diets high in vegetable protein**
- **Promote sustainable, humane farming**

#### Highlights

- The sustainability steward will facilitate a collection area for deliveries of organic and seasonal products to residents and workers in the neighbourhood
- The sustainability steward will encourage and promote local producers in partnership with local suppliers.
- The landscape will include food growing features on site, including beekeeping and fruit trees.
- The sustainability steward will recruit a team of volunteers and together they will draw up a manifesto favouring low carbon products and plant-based diets for all food procurement at Green Village. All catering services and shops will commit to this manifesto.
- WCC's catering contractor was vetted for its sustainability policy. They were selected to provide fresh, local food and always offer a vegan option.

#### Eliminate food waste

#### Opportunities

- Post-occupancy engagement on minimising food waste.

# 7

## Travel and transport

Reducing the need to travel, and encouraging walking, cycling and low-carbon transport



### Headline outcome:

Green Village is a place where you can easily live without a car

- **Reduce car dependence and the need to travel**
- **Promote walking and cycling**

#### Highlights

- The combination of mixed and varied onsite facilities and easy access to all city facilities reduces the need for many car journeys.
- Car parking spaces will be limited to one for every five people living or working. Whereas secure bicycle storage will be available for one in three people.
- The target for non-car travel is >60% of journeys.
- WCC already reduced their own on site car parking needs by two thirds over four years by providing cycle storage, showers and bus pass subsidies. They facilitate home working and video conferencing.

#### Opportunities

- Opportunities for the sustainability steward to engage on and promote sustainable travel habits are not yet defined.
- When people move into a new home or start in a new workplace, there is a great opportunity to influence new and more sustainable travel habits.
- Explore interim measures (ahead of Sustainability Stewards appointment) could be introduced to make the most of this critical time.

#### Promote car-sharing and public transport

#### Highlights

- The city centre location offers many bus routes. The train station is a 30-minute walk or an 8-minute bike ride.
- A new tram service has just been agreed, running adjacent to Green Village and connecting users to the city centre and surrounding areas.
- A car sharing service will be set up, starting with two cars, offering mobility insurance to those who choose not to own a car.

Continues overleaf

# 7

## Travel and transport

Reducing the need to travel, and encouraging walking, cycling and low-carbon transport



### Promote low/zero-carbon vehicles

#### Highlights

- Electric charging facilities will be provided for bikes, scooters and all forms of personal electric transport, including three-in-five parking spaces to have charging facilities.

### Raise awareness of the impacts of, and promote alternatives to, air travel

#### Highlights

- Travel habits will be monitored and reviewed every xxx years via a survey.
- A carbon target for travel has been set at 315 kgCO<sub>2</sub>eq/person/year for office users and 240 kgCO<sub>2</sub>eq/person/year for residents. This represents a xxx% reduction compared with the average Swiss person.
- As a global membership organisation, WCC value the relationship-building importance of real physical meetings. They also recognise the climate change impacts of the air travel necessary to hold these meetings.

- WCC encourages land-based travel for attendance where it is possible. It has invested in excellent video conferencing facilities, for both small meetings but also for hybrid meetings of up to 300 people. They highlight member activities that are possible without travel. They have reduced their large physical member gatherings from annual to every 18 months.

#### Opportunities

- The impacts of air travel at Green Village should be addressed in the One Planet Living action plan. Starting as soon as possible with an assessment of how much flying is likely to be part of the travel habits of residents, workers and visitors to Green Village. Then a creative approach to incentives for alternatives will be needed for residents, workers and visitors.

# 8

## Materials and products

Using materials from sustainable sources and promoting products that help people reduce consumption



### Headline outcome:

The embodied carbon of materials at Green Village is measured throughout the different phases of development and construction to achieve lower impacts

#### Reduce consumption of materials and products

##### Highlights

- Promotion of a local association called Smart Geneva, that helps Geneva's residents to share objects such as tools or play equipment.
- WCC joined the Blue Community to eliminate bottled water. In doing so, they aim to reduce plastic consumption but also to address water rights issues. They provide no disposable plastic cups at water fountains. In meeting, they use water jugs and proper glasses.

#### Opportunities

- The action plan does not yet include engagement activities to encourage less consumption post-occupancy. With a relatively affluent demographic at Green Village, this is particularly important. Consumption of goods can account for up to 20% of people's carbon footprint.
- The incoming sustainability steward will have the remit to address this but in the interim, it would be good to include some appropriate actions to achieve this amongst residents, building owners and workers.

#### Choose materials and products with minimum impact

##### Highlights

- Embodied carbon of construction materials is measured and managed using BIM compatible software, Lesosai.
- The current as-built embodied carbon figure is 674kgCO<sub>2</sub>/m<sup>2</sup> but includes early carbon intensive infrastructure such as an underground car park and even a regulatory nuclear bunker. Ultimately, the target for full build-out is very ambitious at 420kgCO<sub>2</sub>/m<sup>2</sup>.

Continues overleaf



# 8

## Materials and products

Using materials from sustainable sources and promoting products that help people reduce consumption



### Choose materials and products with minimum impact (continued)

#### Highlights

- Building materials are of European origin and all supply companies are within 40km. Materials are selected for most sustainable use of resources and maximum recycled content from the circular economy.
- This approach carries over from construction to fit out with all building operators required by their deed of sale to consider OPL goals for fit out choices.

#### Opportunities

- Any further substitutions and reduction in concrete use for the remainder of the development will help to meet the embodied carbon target. Is there an opportunity to innovate and to move away from concrete frame for a future building?

### Non-toxic materials and products

#### Highlights

- 100% of materials are checked for toxic impacts before use. The project aspires to 100% compliance for indoor air quality tests.

# 9

## Zero waste

Reducing consumption, re-using and recycling to achieve zero waste and zero pollution



### Headline outcome:

Green Village aims to become a zero-waste site where all businesses are invited to ensure that no non-recyclable material is brought onto site

- **Reduce wasteful consumption**
- **Zero waste to landfill**

#### Highlights

- Careful management of excavation waste, demolition and construction waste, both through design and on-site practices.
- Monitoring of post-occupancy waste with targets of 220kg/person/year and 70% recycling rate.

#### Opportunities

- Engagement opportunities with residents and businesses around minimising food waste.

#### Upcycling, reuse and recycling

#### Opportunities

- WCC is exploring what a One Planet Living demolition process will look like, with staff well-being in mind as well as resource efficiency.

# 10

## Zero carbon energy

Making buildings and manufacturing energy efficient and supplying all energy with renewables



### Headline outcome:

Green Village aims to become a zero-waste site where all businesses are invited to ensure that no non-recyclable material is brought onto site

#### Energy efficient buildings

##### Highlights

- Excellent fabric efficiency standards.
- Minergie-A performance renovation of WCC building thermal envelope
- Heat recovery via double-flow ventilation
- No air conditioning required

##### Opportunities

- One small outstanding query about the slightly high roof u-value in Kyoto building.

#### 100% renewable energy

##### Highlights

Heating and cooling:

- 100% is supplied from a geothermal aquifer 15m beneath the site with licensed access via 2 pairs of boreholes.
- A low temperature (12-18C) ambient loop connects to each building via a water-to-water heat pump.
- Active automated external shading combined with a site wide cooling loop, used to chill building slabs and beams, so employing an activated thermal mass strategy and avoiding the need for any air conditioning.

Microgrid electricity generation on site:

- 600kWp solar array targeting 70% onsite utilisation and meeting 14% of expected demand

Energy Services Company:

- A 3rd party EScO is in place to manage the entire heating system and microgrid. They have invested the capital asset costs and will recoup revenue from energy sales.
- 100% renewable energy supply contract

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