

**PS-ISO - PRECINCT STRATEGIES FOR INFLUENCING OF SUSTAINABILITY
OUTCOMES: A SCOPING STUDY FOR ANY URBAN RENEWAL PRECINCT(S), INFILL,
AND GREENFIELD PRECINCTS**

Raju Kalyan Mazumdar



PROJECT – Check In

- Scope of works
- Project recap
- Discussion of research
- Identification of further work
- Next steps

Scope of Works

Phase 1 – Precinct scale ESD analysis

Objective:

This stage aims to develop a preliminary One Planet Action Plan (OPAP) for the Northland Urban Renewal Precinct similar to created for Fisherman's Bend.

Deliverables:

Document a preliminary OPAP for the Northland Urban Renewal Precinct.

Phase 2 – Building scale ESD analysis

Objective:

Apply the precinct scale scoping work carried out in phase 1 to assess building scale opportunities for different building typologies. The work to be carried out in this phase includes:

- Identify different building typologies by being ear marked for development within the precinct and categories typological characteristics against One Planet themes. Identify ESD Opportunities.
- Evaluate how precinct and building scale opportunities relate to the Sustainable Design Assessment in the Planning Process (SDAPP).
- This work will also be evaluated against the local ESD policies lodged by Banyule, Moreland, Yarra, Whitehorse & Stonnington Councils.

Deliverables:

Report of Building scale ESD opportunities, detailing typological building characteristics and opportunities in relation to One Planet framework themes and their relationship to SDAPP themes and local policy development.



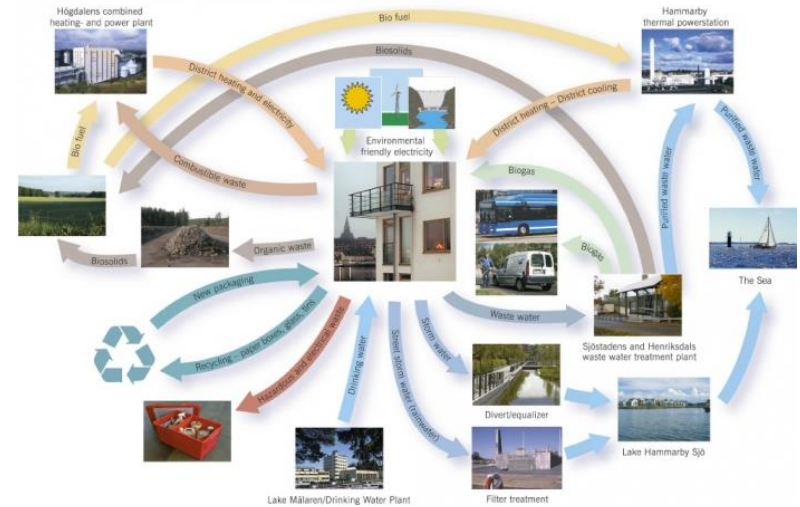
Recap

The 10 One Planet Principles:

Zero carbon		Making buildings more energy efficient and delivering all energy with renewable technologies.
Zero waste		Reducing waste, reusing where possible, and ultimately sending zero waste to landfill.
Sustainable transport		Encouraging low carbon modes of transport to reduce emissions, reducing the need to travel.
Sustainable materials		Using sustainable healthy products, with low embodied energy, sourced locally, made from renewable or waste resources.
Local and sustainable food		Choosing low impact, local, seasonal and organic diets and reducing food waste.
Sustainable water		Using water more efficiently in buildings and in the products we buy; tackling local flooding and water course pollution.
Land use and wildlife		Protecting and restoring biodiversity and natural habitats through appropriate land use and integration into the built environment.
Culture and heritage		Reviving local identity and wisdom; supporting and participating in the arts.
Equity and local economy		Creating bioregional economies that support fair employment, inclusive communities and international fair trade.
Health and happiness		Encouraging active, sociable, meaningful lives to promote good health and well being.

Fisherman's Bend – Vision Statement

Combined Concepts of One Planet & Industrial Ecology



STAKEHOLDERS ENGAGEMENT – Advocacy & lobbying power



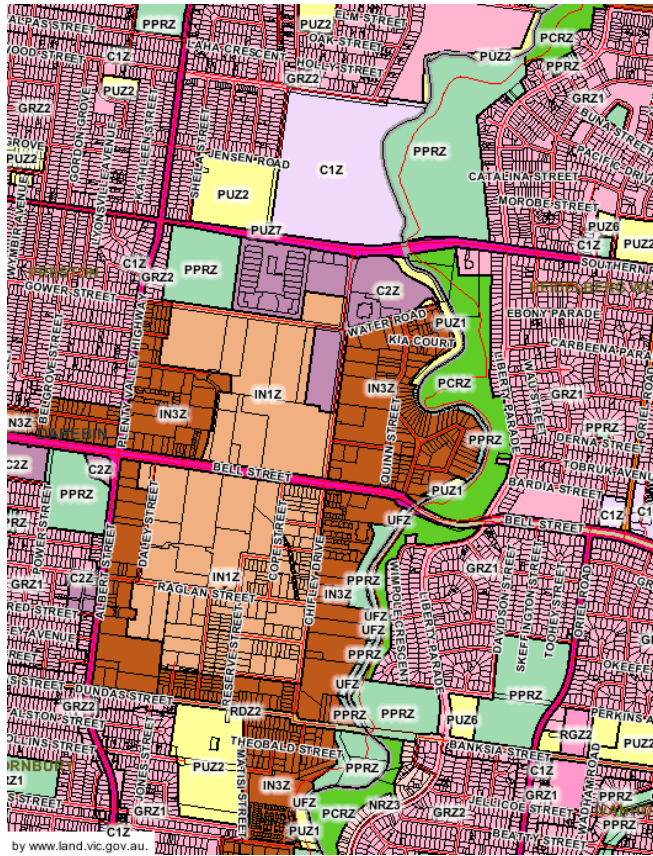
CHALLENGES

- Converting the vision into reality
- How to engage Stakeholders
- Varying spheres of influence / control
- Long time horizon
- Incremental Development
- Policy mechanism (strengths & Weaknesses)
- Integration into existing frameworks
- Decision support frameworks
- Resources (expertise, \$, time...)
- * **NOTE OTHERS THROUGH DISCUSSION**

MASTERPLAN & SCENARIOS

OPPORTUNITIES TO ENHANCE THE PASSIVE DESIGN POTENTIAL OF THE BUILT FORM

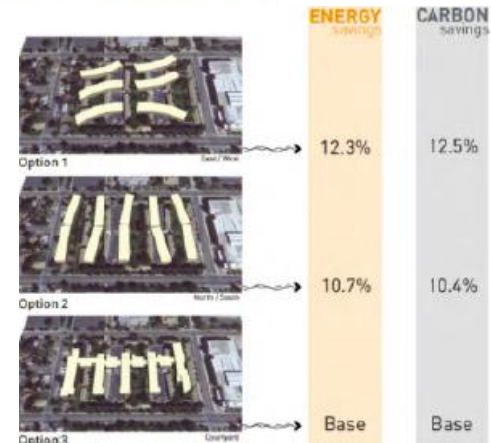
- Planning Zones
- ACZ - Activity Centre
 - B1Z - Commercial 1
 - B2Z - Commercial 1
 - B3Z - Commercial 2
 - B4Z - Commercial 2
 - B5Z - Commercial 1
 - CA - Commonwealth Land (not in scheme)
 - CCZ - Capital City
 - CDZ - Comprehensive Development
 - C1Z - Commercial 1
 - C2Z - Commercial 2
 - DZ - Dockland
 - ERZ - Environmental Rural
 - FZ - Farming
 - GRZ - General Residential
 - GWAZ - Green Wedge A
 - GWZ - Green Wedge
 - IN1Z - Industrial 1
 - IN2Z - Industrial 2
 - IN3Z - Industrial 3
 - LDRZ - Low Density Residential
 - MUZ - Mixed Use
 - NRZ - Neighbourhood Residential
 - PCRZ - Public Conservation & Resource
 - PDZ - Priority Development
 - PPRZ - Public Park & Recreation
 - PUZ1 - Public Use - Service & Utility
 - PUZ2 - Public Use - Education
 - PUZ3 - Public Use - Health Community
 - PUZ4 - Public Use - Transport
 - PUZ5 - Public Use - Cemetery / Crematorium
 - PUZ6 - Public Use - Local Government
 - PUZ7 - Public Use - Other Public Use
 - PZ - Port
 - R1Z - Residential 1
 - R2Z - Residential 2
 - R3Z - Residential 3
 - RAZ - Rural Activity
 - RCZ - Rural Conservation
 - RDZ1 - Road - Category 1
 - RDZ2 - Road - Category 2
 - RGZ - Residential Growth
 - RLZ - Rural Living
 - RUZ - Rural
 - SUZ - Special Use
 - TZ - Township
 - UFZ - Urban Floodway
 - UGZ - Urban Growth



45% less energy use than ASHRAE 90.1-2007



- Feed into a Development Design Code
- Opportunities to engage with urban design / architectural consulting firms as project partners & international best practice urban renewal projects.
- Workshop / design studios – Melbourne University



Energy Use Reduction



TOOLS ANALYSIS



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STEPS



SUSTAINABLE DESIGN SCORECARD

1. Indoor Environment Quality
2. Energy Efficiency
3. Water Efficiency
4. Storm water Management
5. Building Materials
6. Transport
7. Waste Management
8. Urban Ecology
9. Innovation

Alliances – focus can shift to more strategic work e.g.. ESD local policies



1. SDAPP is Building Specific Predicted
2. SDAPP Performance based (predicted)
3. SDAPP Being Applied by CASBE councils (User base & familiarity)
4. One planet can be applied in different context
5. One plant themes can be used as an effective communication / engagement mechanism
6. One planet enables council strategies to be embedded within it
7. One Planet action plans (OPAP) can be tailored to suit specific project context

OTHER TOOLS



LIVING
BUILDING
CHALLENGE™



EcoDistricts



- Given the range of tools that can be applied to the building & precinct scale, a comparative & swot analysis needs to be conducted to identify potential gaps and opportunities
- What is the role of tools within the NURP context (presently & into the future)?



ONE PLANET ACTION PLAN BASIC APPROACH

We're using a One Planet Action Plan to help us live within a fair share of the earth's resources

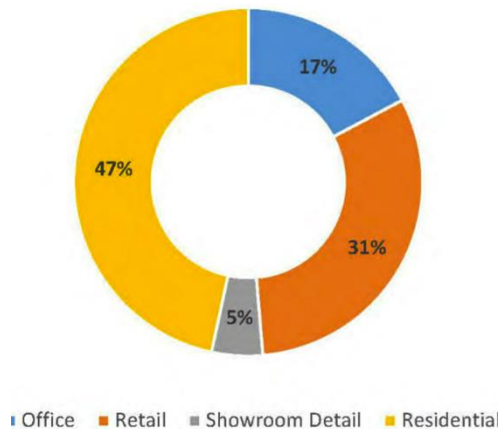
Principle	Indicator	Monitoring Method	Suggested Unit
Zero Carbon	Total energy consumption of the development	Remote metering/Data collected by Energy Services Company or Supplier	
	Metered electricity consumption by property	Remote metering/Data collected by Energy Services Company or Supplier	kWh/year
	Site wide electricity consumption	Remote metering	kWh/year
	More detailed breakdown of electricity demand (lighting, appliances, cooking, heat pumps, etc)	Remote metering	kWh/year
	Cooling demand by property	Remote metering	kWh/year
	Hot water demand by property	Remote metering of on-site hot water system	kWh/year
	Space heating demand by property	Remote metering of on-site heat system	kWh/year
	Percentage of energy demand met by renewables (on and off-site)	Remote metering of on-site generation systems plus imported energy	kWh/year
	Carbon intensity of imported electricity	Data from EPC&E	kWh/year
	Energy consumption by asset class	Remote metering of individual units or areas and green lease requirements	% kWh/year, kWh overtime
Carbon footprint	Energy consumption and carbon intensity data	kgCO ₂ /kWh	
Zero Carbon	Site wide total waste generated	Property services data and/or municipal authority data	kWh/year
	Total and % waste recycled overall and by type (e.g. Dry recyclables, green waste, glass, electrical goods, etc.)	Property services data and/or municipal authority data	kWh/year
	Total and % of recycling and waste from retail, commercial, residential and industrial occupiers	A) Voluntary self-monitoring using scales and standard form. B) Monitoring person goes round and weights individual waste contributions	tones/year and %
	Construction stage waste and recycling	Usually documented as part of billing process/transfer note	kg/year
	% use of recycled/reclaimed materials on site	Mixture of surveys for individuals and records for businesses and site wide	tonnes
	% used for energy from waste	Property services data and/or municipal authority data	tonnes/year
% sent to landfill	Property services data and/or municipal authority data	%	

BUILDING TYPOLOGY EMISSIONS

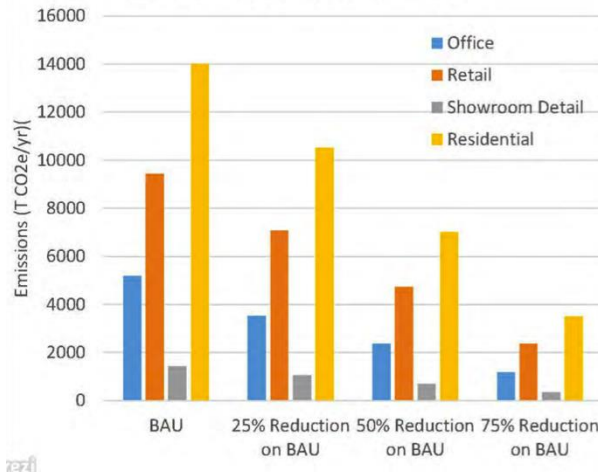
Low employment scenario modeled

- Residential & Retail highest emitters (will be similar for med & high scenarios)

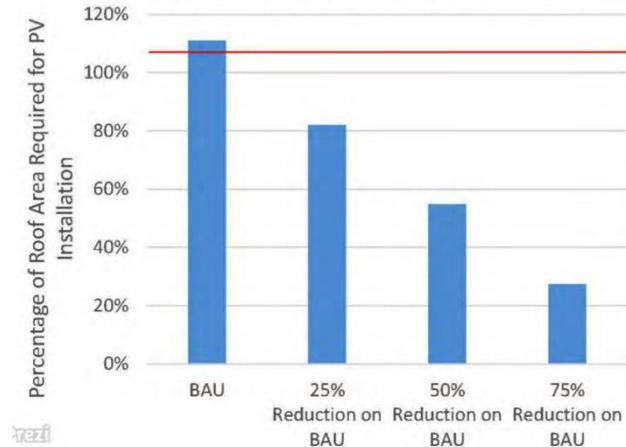
Predicted Emissions Breakdown by Land Use Type



Predicted Greenhouse Emissions Breakdown For Various Energy Efficiency Benchmarks



Available Roof Area of Precinct with PV to Offset Emissions of Various Energy Efficiency Benchmarks



SDAPP = 10% Improvement on BAU

Figure 3: Breakdown of the average electricity bill in Victorian households*



UK (England & Wales) - Zero Carbon as of 2016 - STAGED DELIVERY

3 core requirements for a home to qualify as zero carbon:

1. Minimum efficiency for thermal fabric
2. Remaining CO2 emissions less than or equal to a Carbon Compliance limit
3. Further remaining CO2 emissions must be reduced to zero (through improving upon Steps 1 & 2, or through Allowable Solutions - offsets, green power purchases etc.

Exclusions: Emissions from cooking and 'plug-in' appliances not addressed



STAKEHOLDER MAPPING & ENGAGEMENT

IDENTIFY KEY STAKEHOLDERS ACCORDING TO THEMES

1	Zero Carbon
2	Zero Waste
3	Sustainable Transport
4	Local and Sustainable Materials
5	Local and Sustainable Food
6	Sustainable Water
7	Natural Habitats and Wildlife
8	Culture and Heritage
9	Equity and Fairtrade
10	Health and Happiness

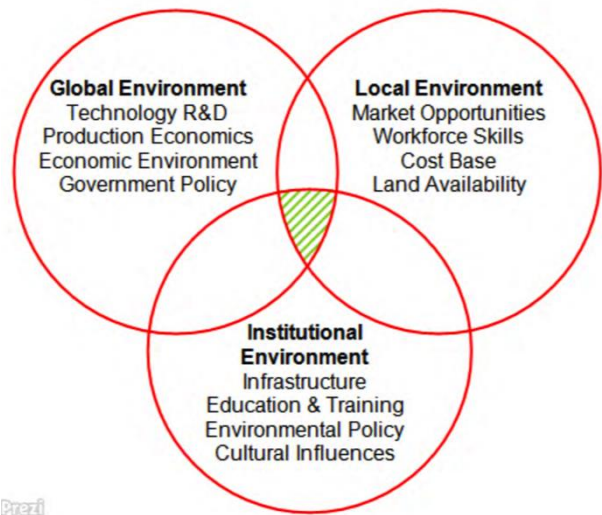
WHO ARE THEY?

- Community groups
- Community development corporations
- Site owners
- Political entities: federal, state & local government
- Regulatory bodies: federal, state & local
- Nonprofit organization
- Developers and real estate companies
- Local businesses
- Local economic development agencies
- Financial institutions
- Build consensus for the project(s)
- Create a community strategy/vision: mission statement & goals



CROSS CUTTING THEMES – GREEN BUSINESS

Alliances & partnerships



The shaded area in the figure represents the area which local areas have the necessary competitive advantage to support the growth of local green businesses. While Councils are unlikely to influence global factor to encourage green business opportunities, they may have an influence on those factors relating to the local and institutional environment.



Prezi

Supply Chain Sustainability (SCS) is the collaborative effort of multiple stakeholder to design, build, and operate a seamless, value added supply chain to meet a project's sustainability goals and objectives.

A screenshot of the ETU Victoria website. The header includes the ETU logo and the text "ETU VICTORIA INDEPENDENT STRONG UNITED". The main content area features a large banner for "EARTHWORKER - HIGH QUALITY SOLAR HOT WATER SYSTEMS" with a circular logo and a green leaf. Below the banner, there is a list of bullet points describing the organization's initiatives:

- Producing technology to reduce carbon emissions
- Creating democratic workplaces that support and empower communities
- Providing green jobs for the next generation of workers in coal-dependent regions
- Strengthening the manufacturing industry in Australia
- Providing access to money-saving solar hot water to households across the country through collective purchase agreements, and installing solar hot water in low-income housing through a dedicated social justice fund.

REGULATORY & NON POLICY MECHANISM

- WHAT MECHANISMS ARE AVAILABLE TO INFLUENCE OUTCOMES?
- CAN WE RANK THEM?
- CAN THEY BE STAGED TO GET OUTCOMES?

- STRUCTURE PLAN
- DEVELOPMENT PLAN OVERLAY
- LAND ACQUISITION OVERLAY
- ENVIRONMENTAL AUDIT OVERLAY
- LOCAL PLANIN POLICY
- REFERENCE DOCUMENTS
- DESIGN GUIDELINES
- DEVELOPMENT CONTRIBUTION PLANS
- COUNCIL STRATEGIES
- COUNCIL ACTION PLANS ITEMS
- OTHERS?

DO OTHER STAKEHOLDERS HAVE MECHANISMS – e.g. New Connection Charges

CASE STUDIES

- RINGWOOD & BOX HILL
- MANNINGHAM – MC2 BUILDING



DEVELOPING A DECISION SUPPORT FRAMEWORK

Retail activity	Other activities	Surrounding land uses	Planning response
None - no retail activity	None - vacant land	Residential	Consider rezoning to Res1Z except where future housing may support new retail facilities
		Commercial/highway location or other uses	Investigate potential to encourage other commercial activity; otherwise consider rezoning to Res1Z
	Other activities - service industry / office / other commercial	Residential	Where other activities are inappropriate to the residential location, encourage them to move to more appropriate sites, and consider rezoning to Res1Z; otherwise retain existing zone but explore possibilities to rationalise the centre where vacancies exist
		Commercial/highway location or other uses	Retain existing zone
Yes - retail activity evident	Excess properties, with many vacancies	Residential	Explore opportunity to rationalise the centre and rezone part of the centre to Res1Z in an effort to support the existing viable commercial uses
		Commercial/highway location or other uses	Consider opportunity to encourage other commercial and highway-oriented activity; retain existing zone but monitor for opportunity to encourage residential development if the centre remains vacant
	Excess properties, mainly service industry / office / other activities	Residential	Where other activities are inappropriate to surrounding residential uses, encourage them to move to more appropriate sites, and consider rezoning to Res1Z; otherwise retain existing zone but explore possibilities to rationalise the centre where vacancies exist
		Commercial/highway location or other uses	Retain existing zone and encourage commercial and highway-oriented development
	Mostly retail	Residential	Retain existing zone for retail use (B1Z)
		Commercial/highway location or other uses	

Source: CITY OF DAREBIN RETAIL ACTIVITY CENTRES STRATEGY

WHAT KEY CRITERIA CAN BE USED

- Sphere of influence (based on land ownership)
- Stakeholder Alignment
- Time Scaling / Staging
- Theme Alignment
- Policy Mechanisms
- All one planet themes
- Cultural / Historical Significance
- Alignment with council strategies

The decision-making framework identifies the Residential 1 Zone as an appropriate alternative to the existing zone in circumstances where the centre has no viable retail role and where residential development is an appropriate development option. However, it is important to note that opportunities for mixed use development should be explored where appropriate (although the use of the Mixed Use Zone is not preferred since it acts as a *de facto* residential zone).

FUNDING OPPORTUNITIES

GOVERNMENT

- Victorian Adaptation and Sustainability Partnership (VASP)
- Office of Living Victoria (OVL)

OTHERS?

SERVICE AUTHORITIES

Power authorities (Distributors in Northland?) – Demand Management studies funding – eg Manningham City Council District Energy Services Feasibility Study

STAKEHOLDERS & INDUSTRY

ALTERNATIVE MODELS

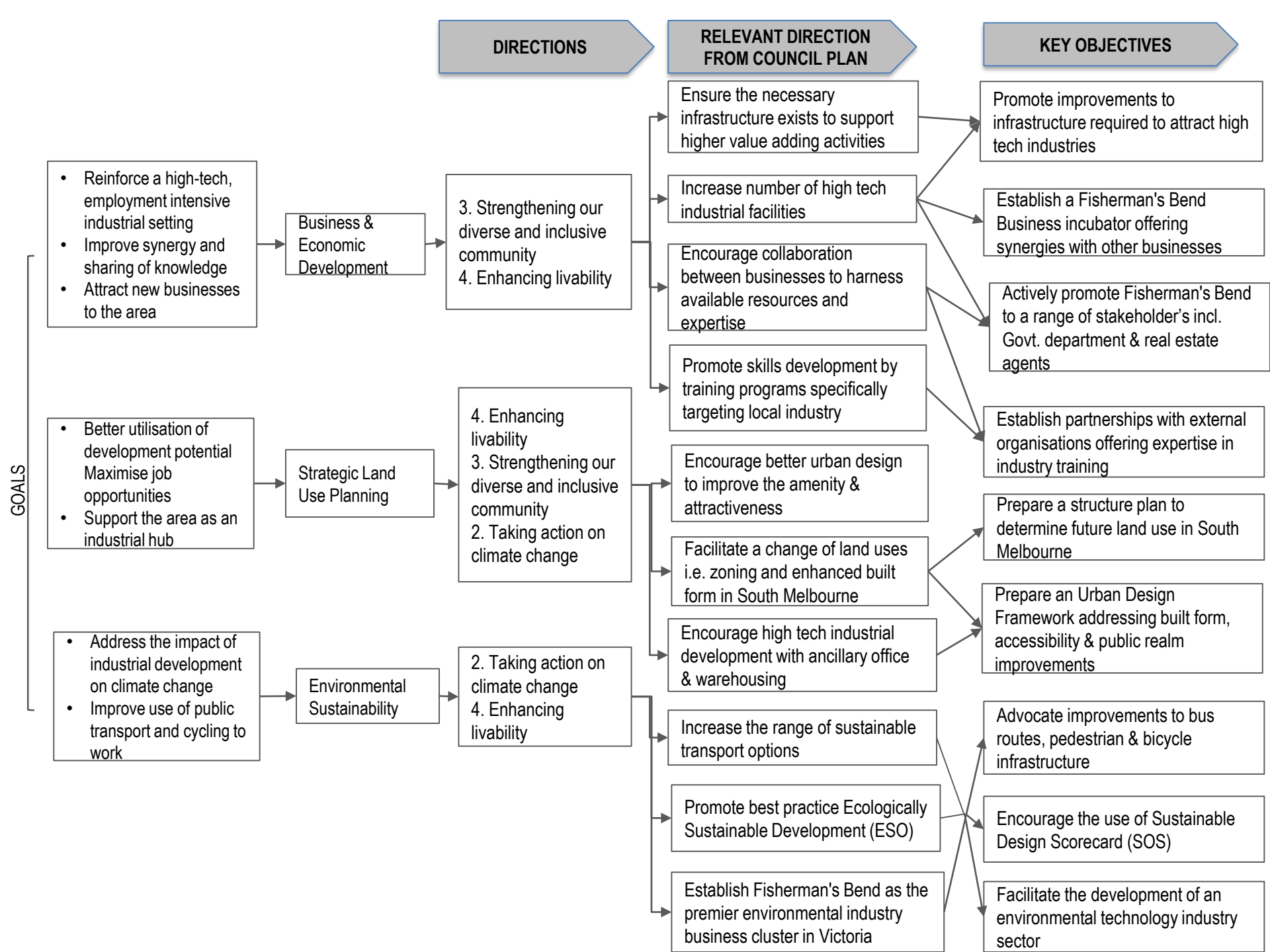
- City of Melbourne's 1200 Building Program / Environmental Upgrade Agreements
- Clean Energy Finance Corporation (CEFC) – mobilises capital investment in renewable energy, low emission technology and energy efficiency in Australia.
- Leasing and power purchase agreement model for supplying PV



CATALYST PROJECT/S

- Within Council's sphere of influence – ie own the land
- What type of project? Community facilities, housing inclusive of affordable?





International - Case studies

Project	Sustainability focus	Nature of development, use and scale.	Target Market	Partners
BedZED, London, UK	Energy, waste, water	Urban regeneration. Largely residential, with some office space.	Mixture commercial housing and social housing	Bioregional in partnership with the Peabody Trust.
Western Harbour Redevelopment, Malmo, Sweden	Energy, waste, water	Brownfield. Mixed – residential, education, commercial, retail. 160 hectares: Stage 1 is 25 hectares. 1,000 dwellings.	High-end housing product.	City of Malmo was the key proponent. Developed by multiple private developers.
Hammarby, Stockholm, Sweden	Energy, waste, water	204 hectares. 10,400 dwellings 200,000m ² of office space. City-owned land redeveloped as showcase new suburb	Middle-to high-end housing product	Stockholm City. Various private developers. Tengbom Architects.
Le Sycomore, eco-neighbourhood	Energy, waste, water	117 hectare, Building targets 1,650 to 4,500 units. Diversified residential development (social housing, residential facilities)	Social housing, and Middle-to-high end housing product.	Grenelle challenges EPAMARNE Architect-urban planner J. Treuttel, Landscape F. Mercier

CASE STUDY: THE SYCOMORE ECO-NEIGHBOURHOOD

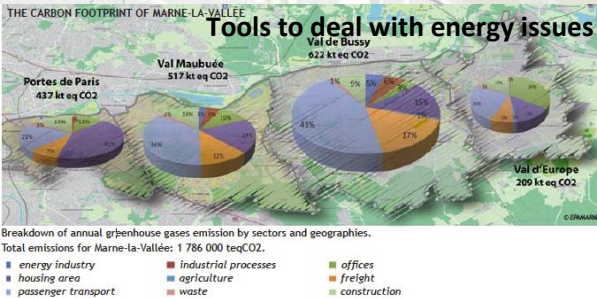
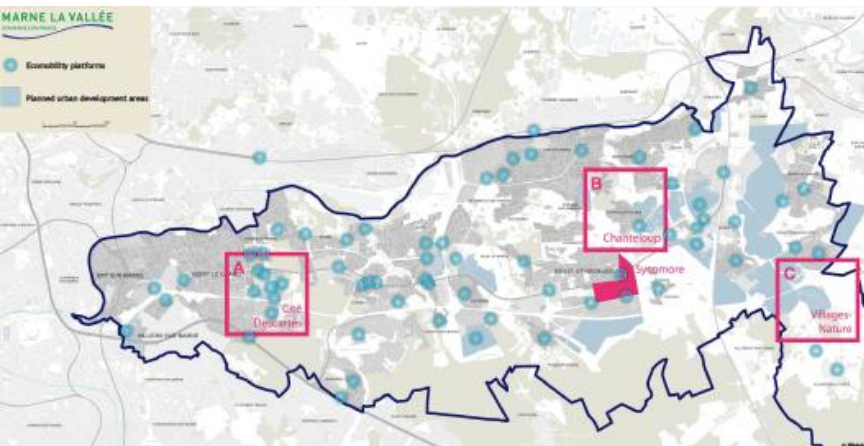
Objective:

To provide for diversified residential development, within a high-quality environment framework, a better response to the needs of local populations and ensure continuity of residential opportunities. The project approach is not just a matter of programming and economic requirements, it is about how to ensure “social harmony” and reduce its environmental footprint.

Description:

Located in Bussy Saint-Georges, this town is one of the highest urban rates of development in Europe. The population of this town increased from 100,000 in 1976 to more than 320,000 in 2013.

EPAMARE (local planning development of Le Sycomore, commits to change its to an “eco-neighborhood” approach.



The urban planner as part of a cross-functional multi-team organisation: a new approach to project management

