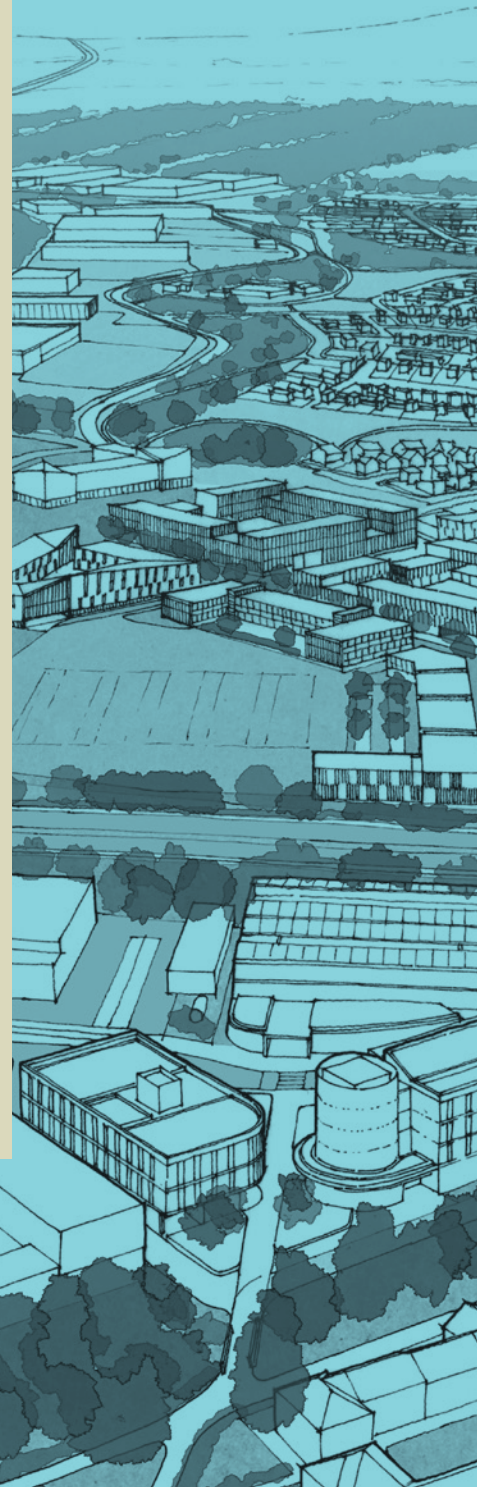


Perth West

Our Project Profile

May 2020



Wrapped in breathtaking countryside, our beautiful city has a proud heritage and fantastic quality of life. An idyllic place for active life and well-being, with a city centre of great architecture, clean and open public spaces, and rich in food, culture, and hospitality.

A place to explore and enjoy as a tourist; a place to work and build a career; a place to live life and grow as a family.

The Perth Story (2020)





Perth West will support the growth of Perth through investment in infrastructure and land that enables climate change adaptation, skilled employment opportunities and public amenities for the city and region to come forward at speed.

Our Ambition...

Is for *cutting edge, clean technologies* to converge at this strategic site to showcase, in a city environment, the complex solutions for *smart city growth*.

Our Approach...

Is to develop *solutions* through collaboration and *active engagement* with Perth & Kinross Council, communities, businesses, academia and government agencies.

These solutions are enabled through the design and delivery of infrastructure and development land on the western edge of Perth connected to the city centre.

Perth West is uniquely placed to drive forward this inclusive, green growth agenda due to its scale, location, framework and collaborative delivery approach. Within a regional context, the development provides a pathway for research and manufacturing to deploy, at scale, innovative solutions to achieving net zero targets in a city environment.

The focus is on integrating city scale clean energy generation and distribution with modern urban logistics, progressive public transport and future street design to accelerate climate change adaptation and attract inward investment into Perth and the wider region.

The UK Government is committing £5m through the Tay Cities Regional Deal to accelerate enabling infrastructure in the form of the Perth Innovation Highway. Supported through the formation of the Perth West Investment Board, Perth & Kinross Council and the project promoter, the John Dewar Lamberkin Trust, are delivering this transformational agenda.

Current economic modelling forecasts the project can deliver 1,080 net new jobs to the city and a GVA of £65m per annum, in addition to local economic opportunities.

The development strategy focuses on 4 growth priorities...

1

Sustainable Growth

Integrating zero carbon energy generation and storage into existing and planned residential, commercial and public neighbourhoods to decarbonise electricity, heat and transport energy demand for Perth.

2

Inclusive Growth

Connecting the infrastructure and business models with city neighbourhoods, businesses, skills development programmes and social strategies.

3

Economic Growth

Enabling new industries, business models and research ventures to cluster around this smart, zero carbon infrastructure and land uses, as a knowledge centre and living lab.

4

Urban Growth

Investing in land uses that meet the changing demographic profile of the city.

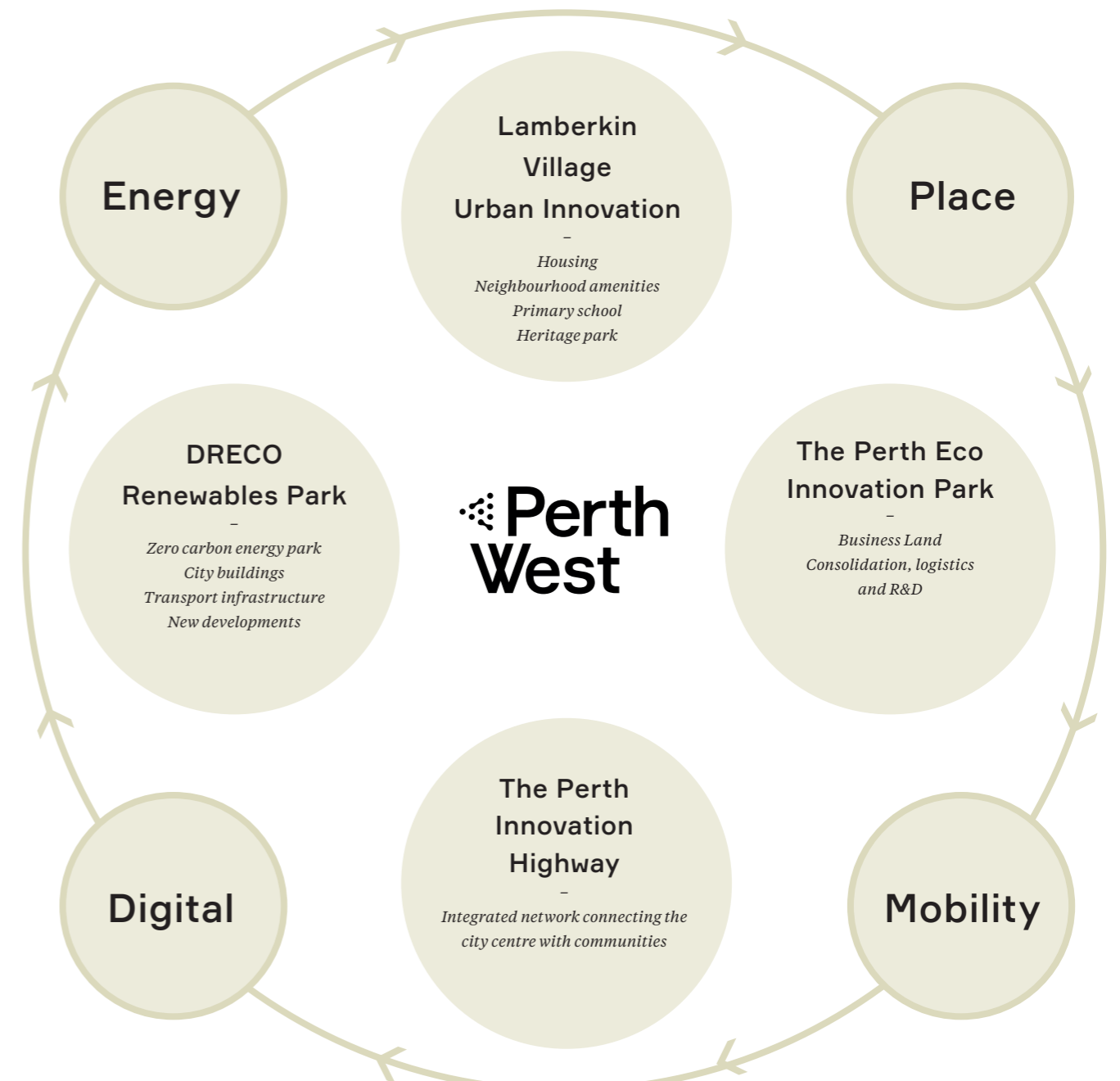
These priorities have been built into the development framework and delivery strategy around 4 core components as set out below and illustrated in the diagram opposite:



What is Perth West?

Our aim is to develop these components as part of a city scale net zero transition strategy as illustrated in the diagram shown below.

This profile outlines these components as part of a net zero climate adaptation strategy to inform residents and businesses in Perth, government, agencies, research institutions and urban practitioners of the project and the journey to transforming Perth into one of Europe’s smartest, greenest cities.





Perth West totals 240 hectares of land along the western edge of Perth with existing and planned connections to the city, M90 and the A9 and A85 trunk road network.

Perth West Allocation

- | | |
|--------------------------|--|
| 1. M90 | 7. John Dewar Lamberkin Trust |
| 2. West Lamberkine Wood | 8. Proposal of Application Notice Boundary – Perth West MU70 |
| 3. A9 | 9. Central area |
| 4. Broxden Roundabout | 10. A9 |
| 5. Broxden Business Park | 11. A85 |
| 6. Southern area | |



The development will be delivered in phases from 2021 and when complete will comprise an integrated energy and data network supporting 25+hectares of commercial land, 3,500 mixed tenure houses, a series of neighbourhood centres with two primary schools and a heritage park accessible to the city of Perth.

Within this site wide context and as illustrated in the two figures below, the southern phase comprising 180 hectares is being progressed as the first phase to deliver the four growth priorities.

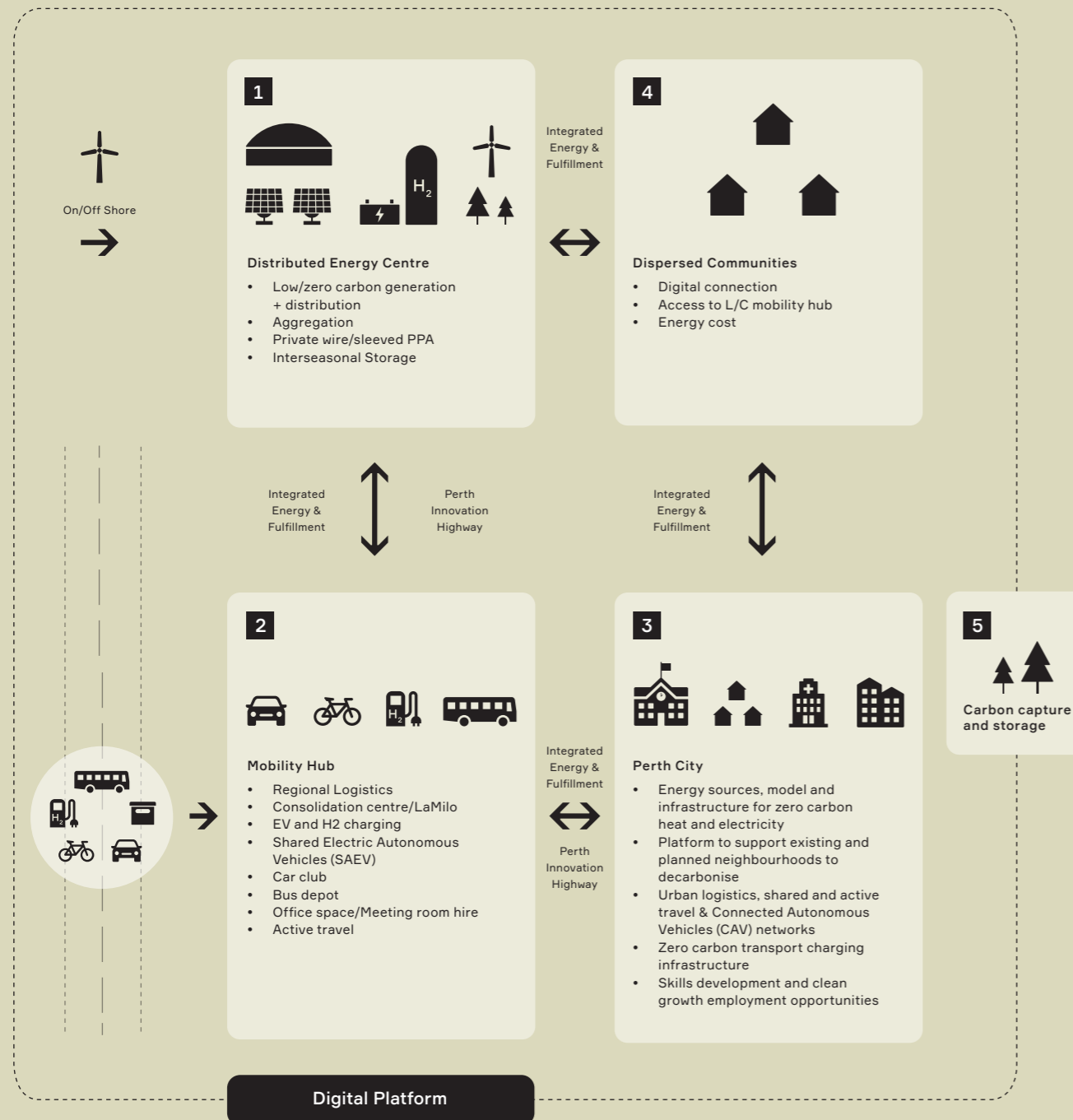
Site wide masterplan framework

- | | |
|---|------------------------------|
| 1. Heritage Park | 6. Broxden Mobility Hub |
| 2. Perth Innovation Highway | 7. Perth Eco Innovation Park |
| 3. Neighbourhood areas | 8. Southern area |
| 4. Internal development road and service corridor | 9. Central area |
| 5. Neighbourhood centres | 10. Northern area |



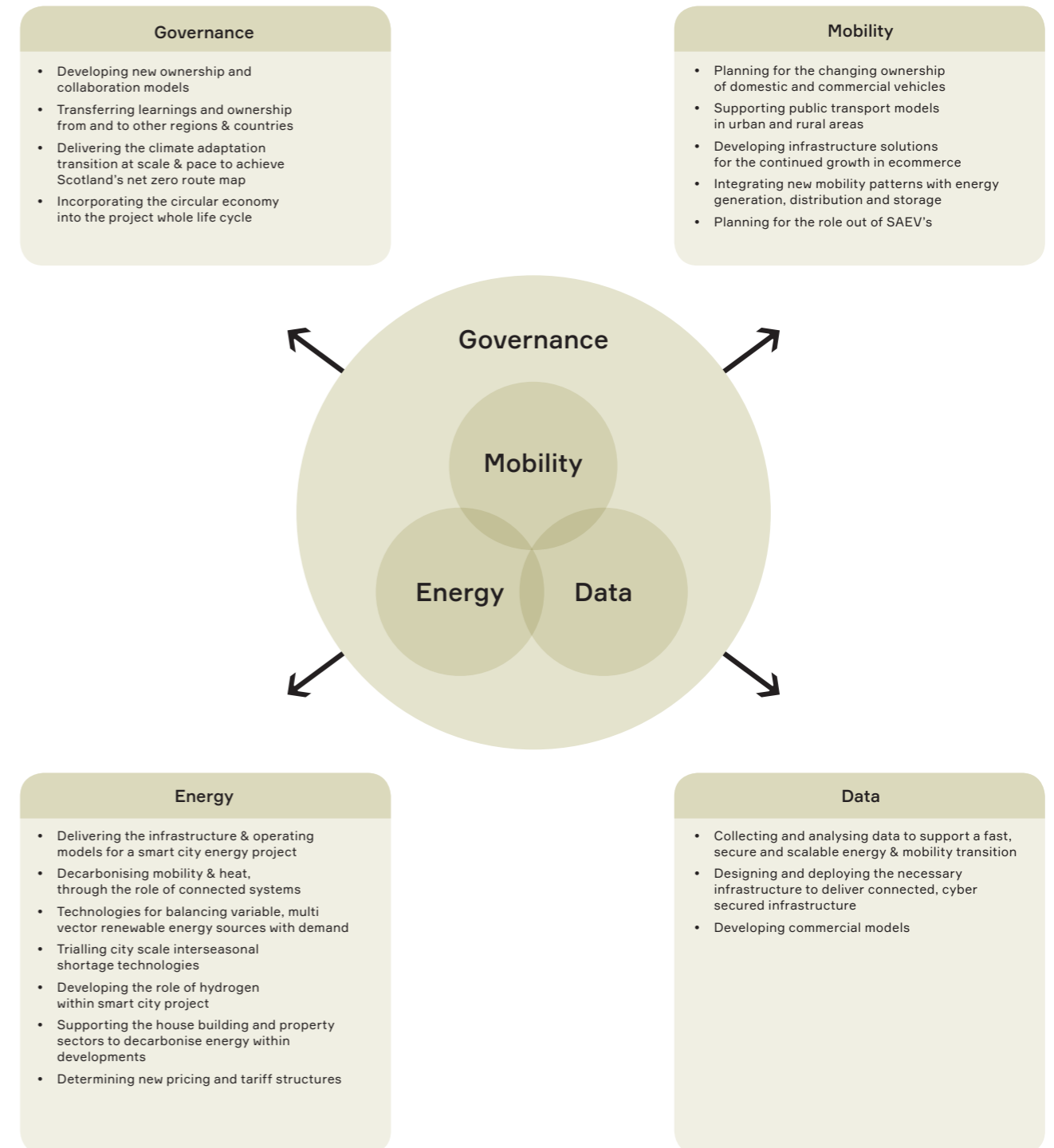
Net Zero Transition

Scotland's Net Zero Route Map	
2030	2045
10 Years	25 Years
50% all energy from renewables	Net Zero
30% increase in productivity	Inclusive growth



Challenges in the design and delivery of infrastructure to enable the transition to net zero

The challenge cities face is to enable the adaptation of their economies through strategies that are inclusive and can be undertaken at pace and scale. This requires collaboration between public institutions, academia, industry and project promoters as illustrated in the project diagram below:



Southern Masterplan (JDLT)

- 1. Western Junction & Charging/ Refuelling Facility
- 2. Heritage Park
- 3. DRECO
- 4. Lamberkin Village
- 5. Perth Eco Innovation Park
- 6. Perth Innovation Highway
- 7. Broxden Mobility Hub
- 8. Neighbourhood Centres
- 9. Broxden Low Carbon Hub
- 10. A9
- 11. Broxden Roundabout
- 12. M90
- 13. A9
- 14. Central area
- 15. West Lamberkine Wood
- 16. Shared infrastructure connection to central zone



The Perth Innovation Highway

The Perth Innovation Highway describes a corridor that connects existing and planned city mobility and full fibre strategies with renewable energy sources.

The corridor will comprise physical and digital infrastructure brought forward within a governance model that provides secure, affordable and wide reaching commercial and public access.

Originating as a plan to bridge the gap which exists between policy and transport technology, the Perth Innovation Highway is evolving through research, design and public consultation. The aim is to develop, at pace, a detailed understanding of how people and goods move within a city and the land uses that enable future mobility patterns which are decarbonised, connected and accessible. The preliminary phase of the Perth Innovation Highway is being brought forward as part of the Tay Cities Region Growth Deal.

Within the Perth West development, the Perth Innovation Highway will open a cluster of urban mobility land uses comprising the urban consolidation centre, last mile delivery and mobility hub and integrate these with existing and proposed neighbourhoods.

As illustrated in the tables on pages 11 and 12, the design will facilitate route prioritisation for public transport, support active travel and enable new models of urban logistics. Integrated with digital infrastructure, the Perth Innovation Highway will enable a range of technological applications from smart lighting to prioritised bus travel, dynamic lanes and kerbs to modulate use during different periods of the day, capacity for urban logistics through to responsive traffic lights that meet the requirements of pedestrians and cyclists.

Perth Innovation Highway

The Perth Innovation Highway will form the first stage of the overall concept of linking the replacement A9 Tibbermore junction to Perth city centre to build a city/regional link.

To achieve this aim, the project is structured around three stages as set out in the table below and comprises;

- Secure data collection through the design and deployment of road sensors to build a data base of mobility patterns covering vehicle types, frequencies, congestion, parking, public transport, pedestrian and cycle movements, interactions, attractors, air quality and between weather impacts.
- Data analysis to build a detailed understanding of real-time mobility patterns to design a strategy for modelling future mobility.
- Delivering the mobility strategy through an approach that is integrated with the Perth West project and builds on the gateway location and scale to host new technologies & programmes such as dynamic lanes, smart signalling, on demand and sharing models a regional consolidation centre and hydrogen refuelling facility.

1 Data Collation - through TCD (R&D)

Factors included					
Road sensors	School Children - routes & times	Bus routes/programme, type & usage	Logistics - types & routes	Street lighting - location & type	Existing data ducting
Air Quality	Emissions	Vehicle Types	Duration + time over 24 hrs	Ownership	Regularity - vehicle type
Congestion - location, duration & time	Function of the park & ride	Road type, width & condition	Pedestrians - routes & times	Weather	Cyclists - routes & times
Drainage	Parking - on street, park & ride logistics				

2 What will this tell us?



3 Deployment categories, models and physical interventions - phased implementation: Integrate with heat strategy

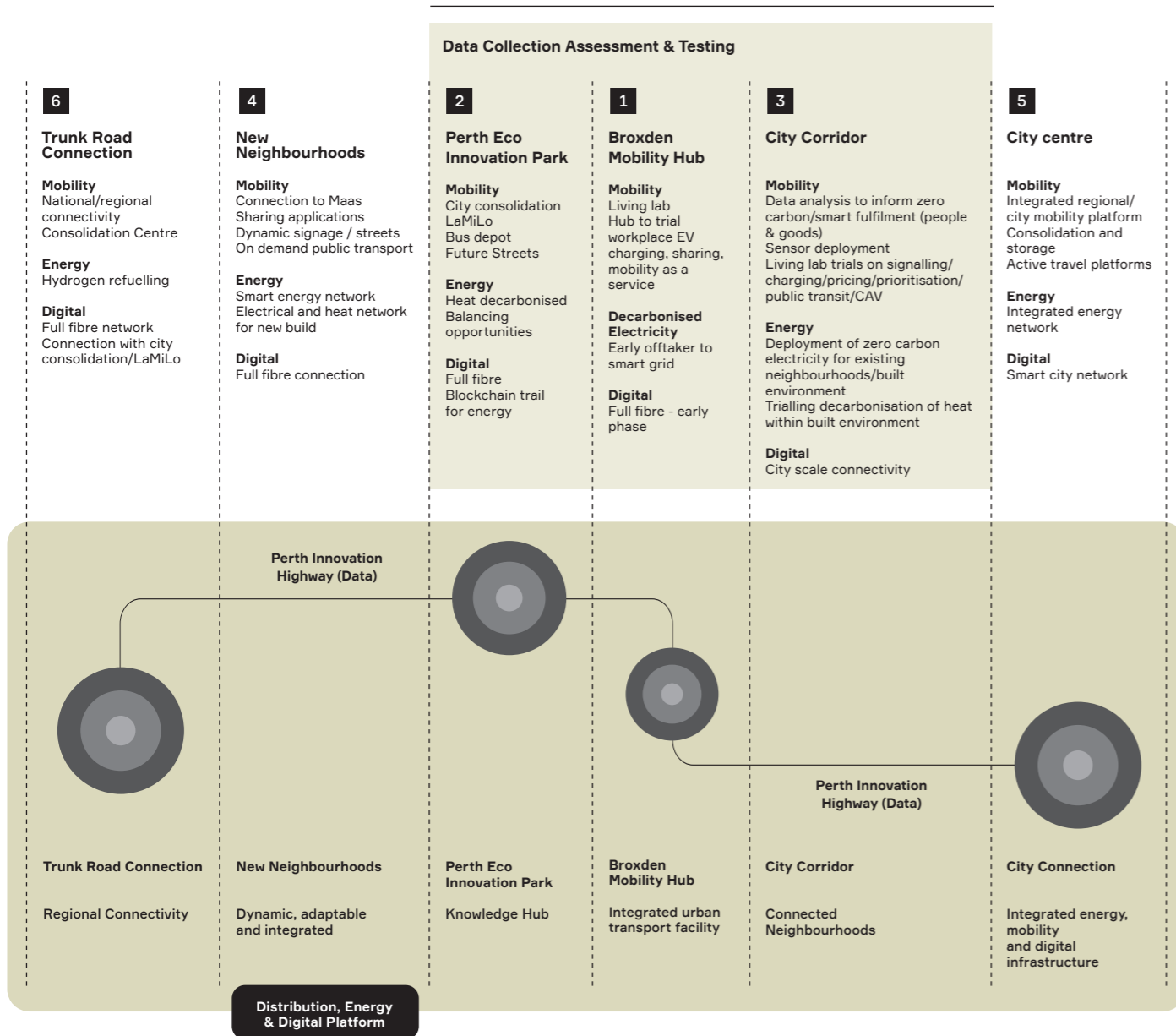
Categories	Models	Physical	Reliance/dependencies
Public Mobility	Mobility as a service (MaaS) & On demand	Integrated routes, connectivity & land uses, Street design & function	Routes, Digital, Energy
Logistics	City/region hub and spoke	Mobility Hub, Urban Consolidation Centre, Last mile delivery (MiLo)	Land use, Routes, Digital
Pedestrian/Cycle	Street lighting - location & type	Integrated with public mobility	Energy, Land use, Routes
Charging Infrastructure	Generation/transmission/storage/charging	Type - linked to use, Generation source, Location - linked to parking/patterns, V2G, Hydrogen, Swap	Energy, Digital, Land use
Connectivities	IOT and digital platforms	Accessible/comprehensive, Sensors/poles/infrastructure, Cyber secured	Energy, Land use
Private vehicles	SAEV Active travel	Active travel hubs, Car share, Charging, Parking	Digital, Land use, Routes
Connected and Autonomous Vehicles (CAV)	Regulatory, priorities & digital	Streets, Parking, Type - category (1/2/3)	Living lab - trialling, Land use

Innovation Highway Characteristics

By connecting Perth city centre to the A9 through a proposed grade separated junction, the Perth Innovation Highway offers the opportunity for businesses within the energy, logistics and mobility sectors to co-locate alongside academic research institutions.

The phasing of this ‘smart’ infrastructure is illustrated in the table below which explains how the deployment of the Perth Innovation Highway will deliver the knowledge hub and enabling works for city wide use.

Phase 1 – Perth Innovation Highway



The Perth Innovation Highway Actions

- 1 Submit the planning application for the Perth Innovation Highway in the late summer of 2020,
- 2 Design the data collection strategy (stage 1) for deployment by 2021 as part of the Tay Cities Region Deal Full Business Case,
- 3 Develop our understanding of future street design, urban and suburban mobility solutions and connecting neighbourhoods,
- 4 Integrate the project with the Invest in Perth programme to engage with industry, innovators and logistics operators,
- 5 Engage at a Tay cities region level by sharing outcomes and aligning with complimentary projects, to accelerate regional clean growth capabilities, skills development, training and a pathway to commercial opportunities.
- 6 Engage with the STPR review for an acceleration of the A9 Tibbermore Junction

The Perth Eco Innovation Park

To unlock the economic potential of the ‘smart’ infrastructure contained within the Perth Innovation Highway, 26 hectares of commercial land on the edge of the city will be designed and delivered as a knowledge hub known as the Perth Eco Innovation Park.

Phase 1 of the Perth Eco Innovation Park incorporates a mobility hub providing access to a range of transport services including active travel and infrastructure for vehicle charging and a last mile delivery facility for the fulfilment of goods.

Phase 2 will involve enabling infrastructure to support innovative forms of urban logistics and active travel. Working with governments, PKC, industry and academic institutions, we intend to deliver a knowledge hub to accelerate smart mobility platforms at city scale, integrated with a range of individual projects being progressed within the city and connected to a dynamic renewable energy network.

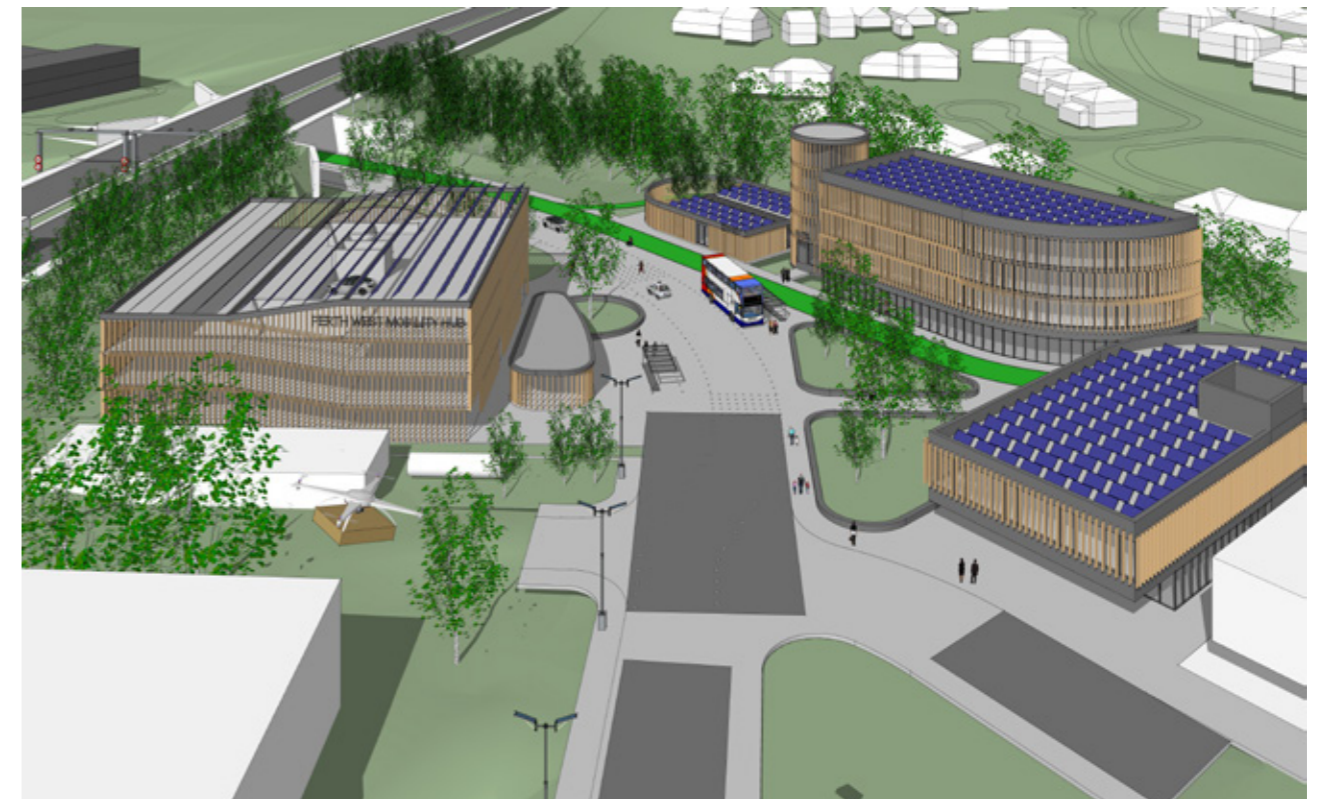
Phase 3 will complete the enabling infrastructure through a replacement grade separated junction at the A9 (Tibbermore). This will form a direct link between the city centre and the trunk road network. Through the Perth Innovation Highway, phase 3 will enable regional connectivity to a range of mobility platforms whilst opening land for a regional consolidation facility and hydrogen refuelling station.

Phase 1 A city transport & logistics centre

The first phase of the Perth Eco Innovation Park is a city mobility hub located at the eastern entrance into Perth West at the Broxden Business Park. This will be a catalyst for a step change in urban mobility providing public and shared mobility modes including charging infrastructure, options for car sharing and integrated active travel and last mile delivery models. The building groups are shown in the figure below.

Connected to the integrated energy network and the Perth Innovation Highway, this hub is designed to support urban mobility innovations that enable local neighbourhood and city centre businesses to adapt to the trends in the electrification & ownership of vehicles, public transport and areas such as ‘on demand’ mobility and active travel.

*Broxden Mobility Hub
concept drawing*



Phase 2 A commercial & research facility, including a mobility corridor

Phase 2 of the Perth Eco Innovation Park will come to the market in 2022, comprising 11 hectares of commercial land accessed from Broxden via the underpass into the Perth West site.

Building on the phase 1 infrastructure and city mobility uses, this will provide an urban consolidation centre, last mile delivery facility, offices and research as part of a knowledge hub centred on urban mobility and energy.

A public transport hub is also seen as a way of embedding public transport infrastructure into both the employment and residential land uses.

Extending west from phase 2 this mobility corridor could present the opportunity to trial new models and technologies for city transport from automation in public transport through to applications for logistics.

Planned layout of the Perth Eco Innovation Park

- 1. School and Amenities
- 2. Neighbourhood Areas
- 3. Knowledge Hub (phase 2)
- 4. Pedestrian and cyclist connections
- 5. Broxden Mobility Hub (phase 1)
- 6. City linkage



Phase 3 Regional consolidation centre & hydrogen refuelling facility

The infrastructure and commercial buildings which are planned for phases 1 & 2 will bring the Perth innovation Highway through to the A9 as shown on the accompanying route plan on page 18. Phase 3 proposes the release of the final tranche of 15 hectares of employment land which will be promoted as a regional logistics consolidation centre and a site for a hydrogen refuelling facility.

The enabling infrastructure that will bring this land to the market is the grade separated junction that is being considered under the Second Strategic Transport Projects Review to replace the existing A9 junction at Tibbermore.

Once completed, the three phases of the Perth Eco Innovation Park will form a continuous corridor linking the replacement A9 junction to the existing services at Broxden Business Park and extending the digital and clean energy infrastructure through the Perth West site. This will facilitate the integration of regional and city logistics hubs with mobility and smart energy innovation as shown in the figure below.

Precedent images of trunk road network service stations of the future & connected regional consolidation networks

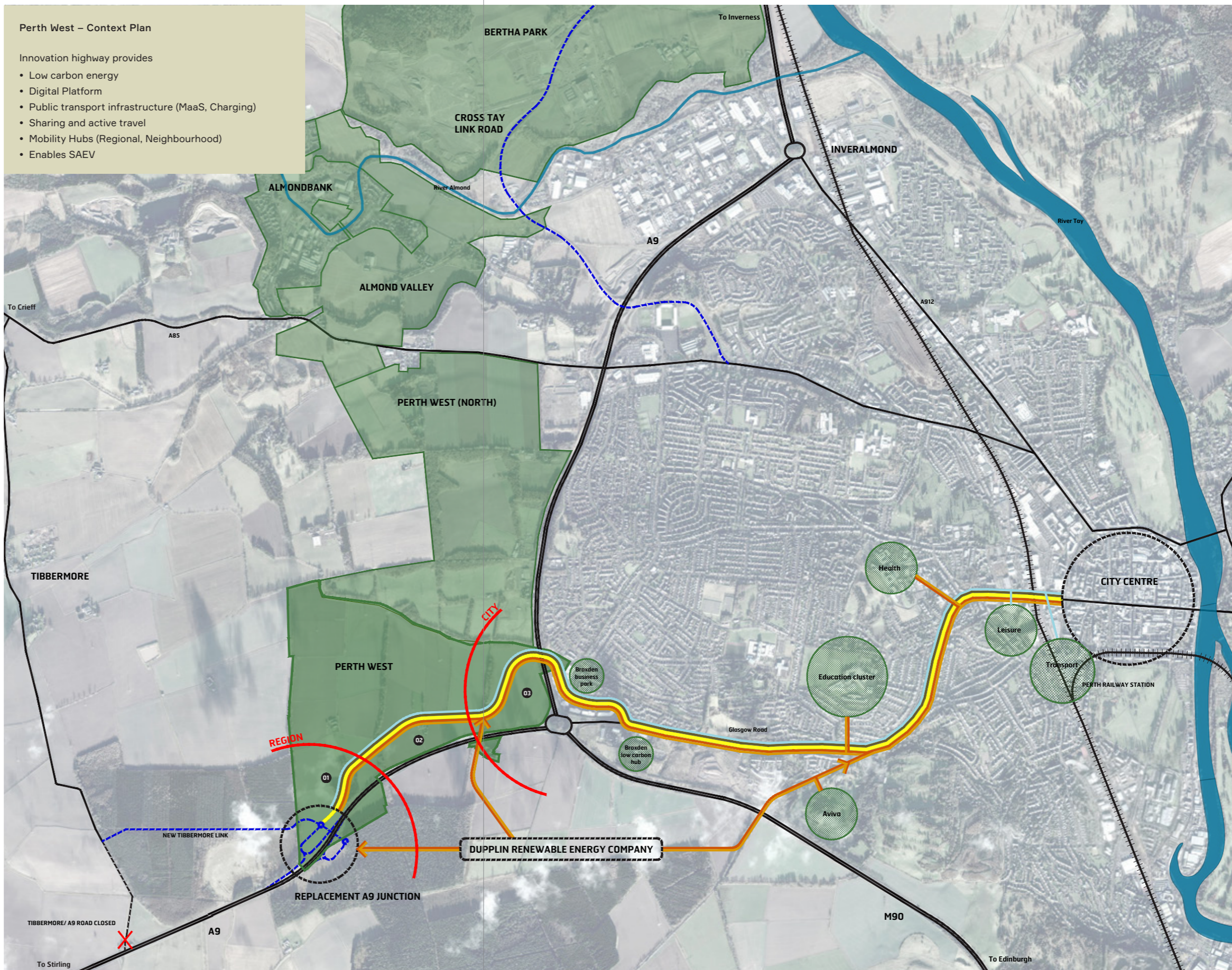


Regional Connectivity

These planned land uses build on the locational attributes of Perth as an axis between the north east/north west and central belt whilst capitalising on the investment in energy, mobility and data to host a regional fulfilment centre.

Key

- Perth's major expansion areas
- 01 – Regional Consolidation centre
- 02 – 'The Link' – Commercial Corridor
- 03 – City Logistics/Transport/Innovation
- Existing roads
- Innovation highway
- Mobility
- Data
- Heat
- Electricity
- Replacement A9 junction & Tibbermore link
- Railway Line
- Demand



The Perth Eco Innovation Park Actions

- 1 Include the Perth Eco Innovation Park within the Perth West planning application in the summer of 2020,
- 2 Submit a detailed planning application for the Mobility Hub in late summer of 2020 for commencement in 2021,
- 3 Develop the phasing strategy to integrate with the deployment of the Perth Innovation Highway,
- 4 Integrate the project with the Invest in Perth programme to engage with industry, innovators and logistics operators.

Dupplin Renewable Energy Park

Delivering the growth priorities for Perth requires access to city scale renewable energy resources, infrastructure and a governance structure to integrate energy, mobility and digital platforms.

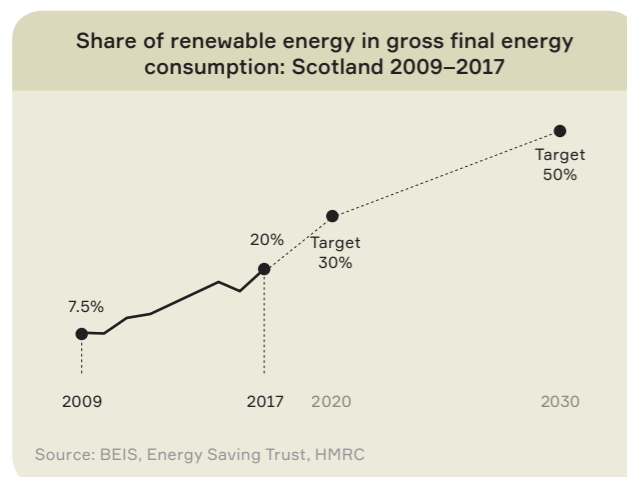
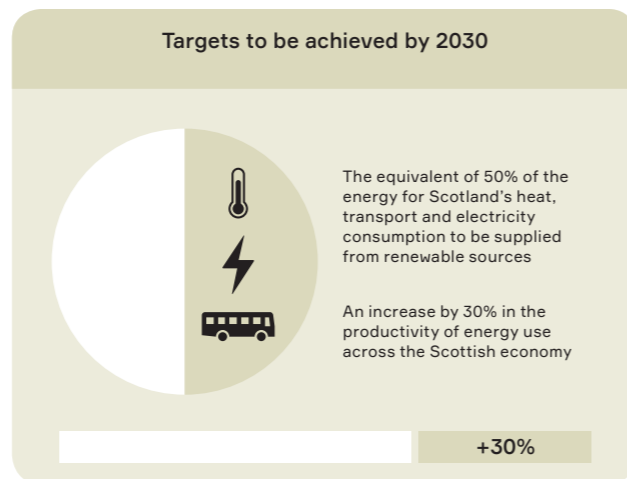
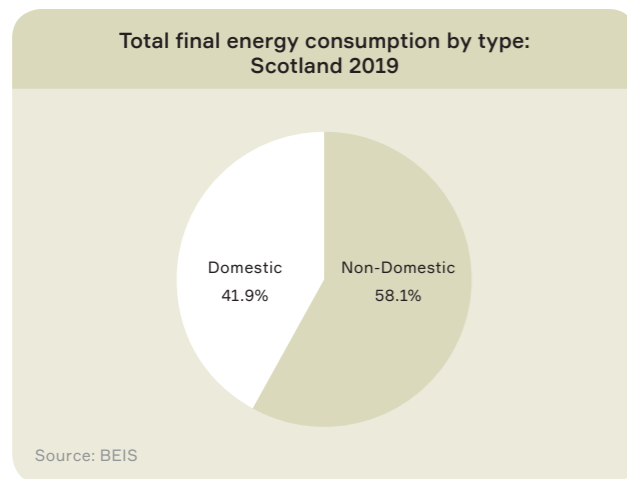
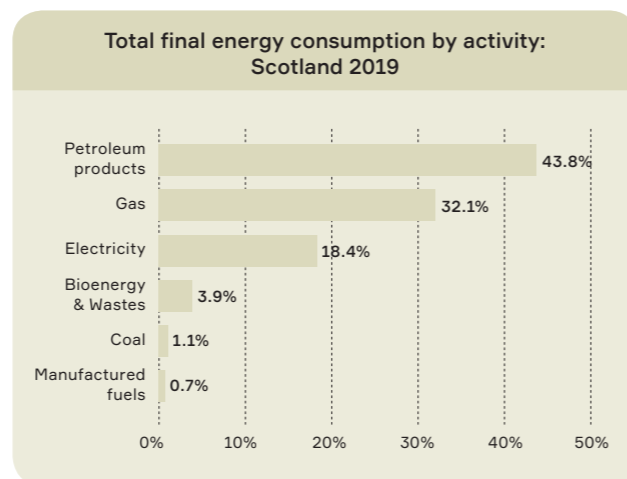
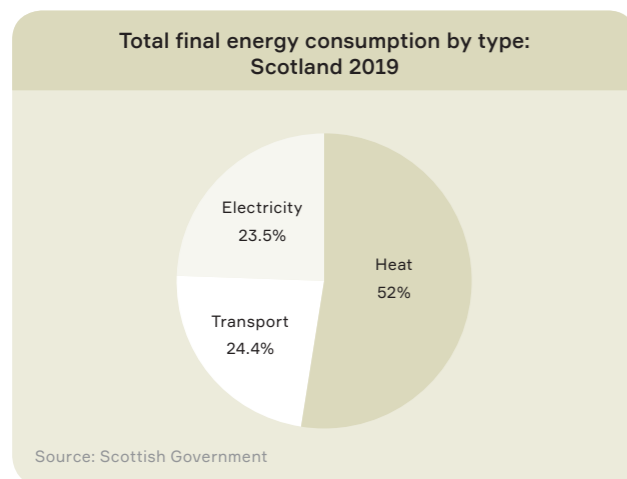
This led to the establishment of the Perth West Reference Group; a network of public sector, private businesses & academic teams supporting the development of an energy transition strategy. The Group's work is focused on two outcomes: (i) the design and delivery of an integrated energy network and (ii) the early implementation of city logistics and public travel infrastructure.

The *energy dashboard* overleaf illustrates this challenge and highlights the necessity for cities to develop their renewable energy resources and integrate these with heat and mobility strategies, and build digital platforms to enable high speed connectivity.

The integrated energy network is a response to the challenges of achieving net zero targets before 2030 (50%) and 2045 (100%), particularly within the areas of mobility and heat where currently renewable energy contributes 4% & 6% of the respective energy demand.

Scotland's Energy Dashboard

The Dupplin Renewable Energy Park (DRECO) has the capacity to generate renewable electricity delivered to users through a smart local network.



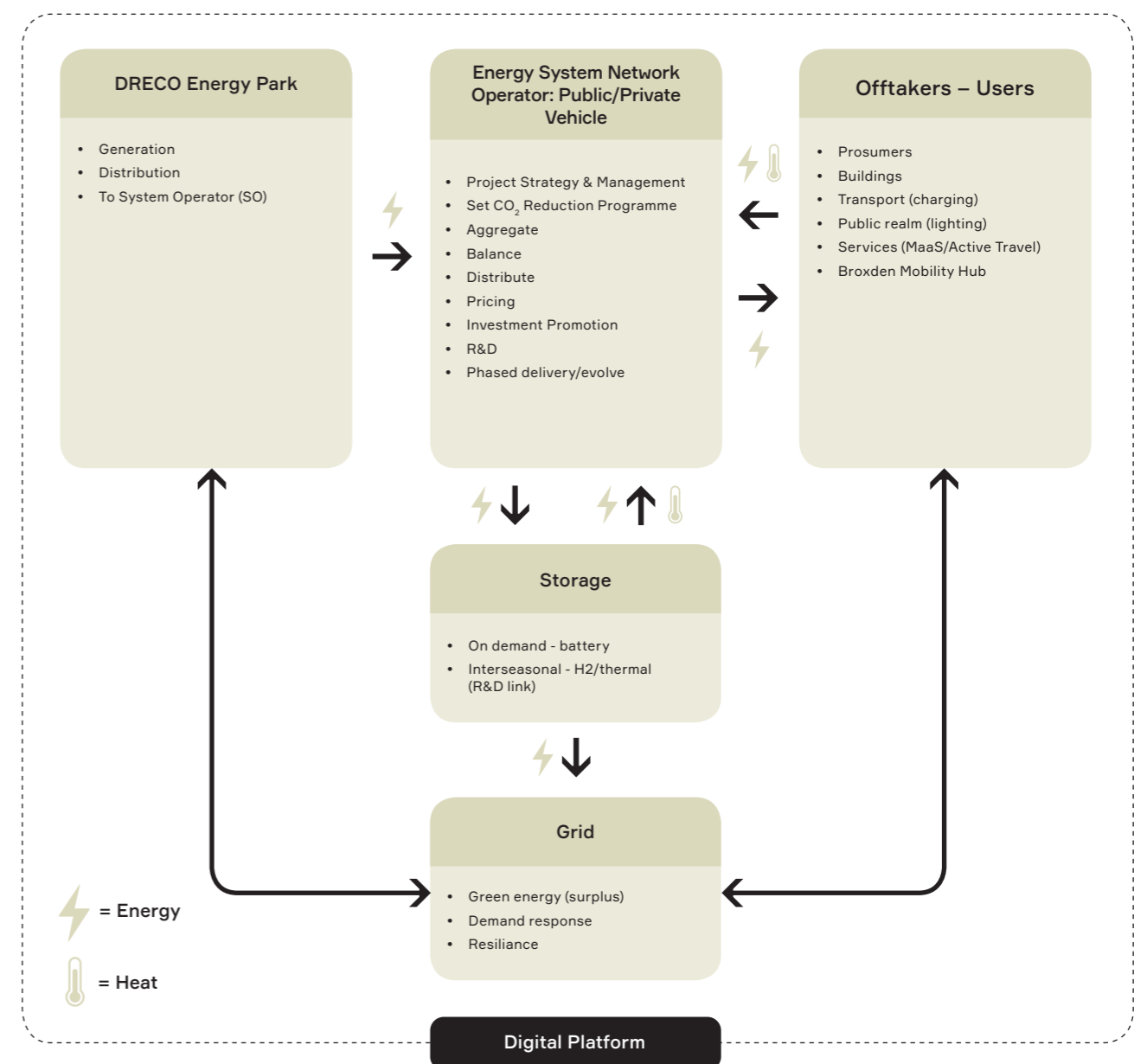
Renewable Energy Targets Summary of latest progress	%	Year
Overall renewable energy target 30% of total Scottish Energy consumption from renewables by 2020	20%	2018
Renewable Electricity Target 100% of gross electricity consumption from renewables by 2020	75%	2018
Renewable Heat Target 11% of non-electrical heat demand from renewables by 2020	6%	2018
Renewable Transport Target 10% of transport petrol and diesel consumption from biofuels by 2020	4%	2018
Energy Consumption Target 12% in total energy consumption by 2020	15%	2018

DRECO model

The emerging operational model is set out in the table below and is structured around the shared objectives of (i) the generation of zero carbon electricity, (ii) the electrification of end uses, (iii) the operation of a smart grid and (iv) market adaptation and affordability.

By integrating this renewable energy source into the development, the Perth West project can address public health issues related to congestion and the social and economic opportunities of developing smart, active mobility.

Energy generated at DRECO will support electric vehicle charging infrastructure both within the development site and Perth city more generally.



Dupplin Renewable Energy Park

Actions

- 1 Public procurement for a strategic partner to develop the techno feasibility analysis for the integrated energy model is underway. This will be run through Public Contracts Scotland in 2020.
- 2 The submission of a DRECO planning application in the autumn of 2020 for the development of 19.5MW of solar electricity generation (including battery storage) on the edge of Perth.
- 3 Developing the design of phase 1 of a smart grid to connect DRECO with the Broxden Park Ride, Active Travel and planned Mobility Hub in the summer of 2020.
- 4 Integrating the design of the smart energy network with the development of the Perth Innovation Highway.
- 5 Support regional knowledge sharing and the integration of projects through the Perth Climate Summit.
- 6 Engage with the STPR review for an acceleration of the A9 Tibbermore Junction

Lamberkin Village

The Perth Innovation Highway will open up land for 3,500+ homes within the Perth West site which could include as many as 875 affordable homes.

Consistent with the project priorities of sustainable, inclusive urban growth, the development strategy is to open up land with infrastructure that can support the requirements of the changing population profile and household projections for Perth.

Our ambition is that with the early delivery of the DRECO energy network, the Perth Innovation Highway and Broxden mobility hub, infrastructure is integrated with new homes to provide access to zero carbon power sources, public transport options and social amenities.

This approach is reflected in the proposed phasing strategy illustrated in the figure overleaf, with land released for housing in parallel with the energy and transport infrastructure, active travel initiatives and social amenities.

Informed through community and neighbouring landowner consultation, these uses include pedestrian, cycle and bus connections to existing neighbourhoods, Perth city and the delivery of integrated new facilities based on a heritage park, primary school and neighbourhood retail space.

Residential Neighbourhoods

The proposed location and scale of the residential neighbourhoods is influenced by the topography, landscape character and heritage of the area, reflected through the incorporation of farm steadings into each area and pedestrian and cycle connections to the heritage park and wider countryside.

Lamberkin Village will offer an inter-generational housing mix, including the provision for retirement homes, young and growing families, along with different and a broader mix of tenures such as mid market rent and custom and self-build homes.

*Clockwise from top left:
Primary School, located within Perth West MU70 North; Noah's ark Neighbourhood centre, located within Perth West MU70 North; Phase 1 of MU70 South Site; Lamberkin Village and West Mid Lamberkin Neighbourhood centre, Perth West MU70 south*



Connected Living

This approach will be underpinned by the proposed digital infrastructure which is planned to run throughout Lamberkin Village to meet current and future technology requirements of the smart home. The aim is to provide greater technological support for home working, assisted living and connections to the active travel options enabled by the Broxden mobility hub and last mile delivery facilities.

Connection into the DRECO smart local energy network will allow the residential development to come forward aligned to the Scottish Government's net zero 2045 target.

Taken together with innovation in building design it is anticipated that both heat and light demand for the residential development will be met from the DRECO Renewable Energy Park.

The masterplan for Lamberkin Village is aligned with the wider project strategy of sustainable, urban growth which has led to the design of "20 minute" neighbourhoods. These are intended to enable access to daily services and amenities within approximately 20 minutes from homes, through safe, accessible and connected walking and cycle routes as illustrated in the development plan below.

Connected neighbourhoods

- | | |
|---|---|
| 1 A9 Tibbermore Junction & Hydrogen Refuelling Facility | 6 Perth Innovation Highway |
| 2 Heritage Park | 7 Broxden Mobility Hub |
| 3 West Mid-Lamberkin Neighbourhood Centre | 8 Broxden neighbourhood Centre |
| 4 East Mid-Lamberkin Neighbourhood Centre | 9 A9 |
| 5 Perth Eco Innovation Park | 10 West Lamberkine Wood |
| | 11 Shared Infrastructure Connection to Central area |
| | 12 Primary School |



Lamberkin Village Actions

- 1 Work with the local community, neighbouring landowners and housebuilding industry to shape the development masterplan and phasing strategy through a sequential approach to design development.
- 2 Build our understanding of approaches to broaden the range and type of new housing to reflect the changing and growing demographic requirements for future housing.
- 3 Design an infrastructure strategy that integrates zero carbon energy heat and power network with new housing, including trials of passive house technology at scale, the electrification of heat, charging technology, sharing active travel models and urban logistics.

National investment context



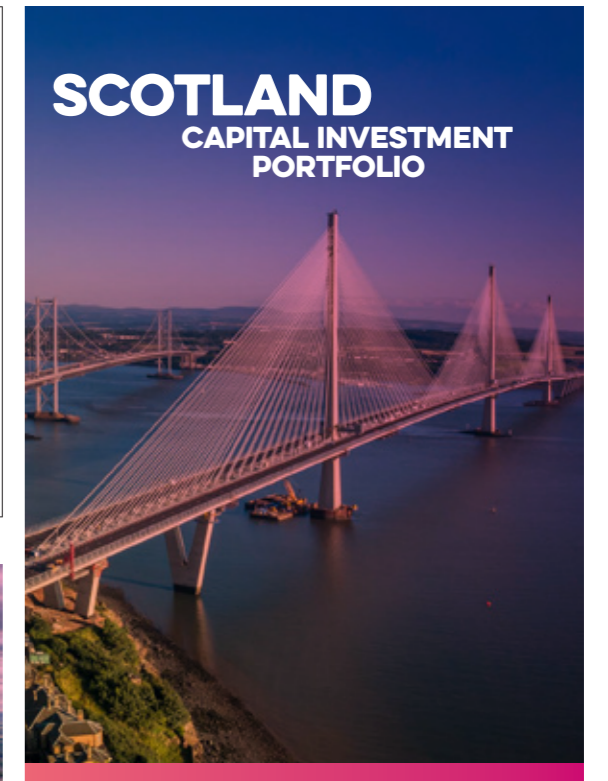

Perth West
A National Eco Innovation Business Park & Sustainable City Expansion

Project Promoter: Perth and Kinross Council.
Scale: GVA £100 million plus.
Sector: Mixed use.
Location: Perth, Scotland.
Investment Type: Debt and equity investment.
Programme: 2021 - 2035.
Planning Status: Planning consent programmed for 2019. Programmed in Local Development Plan.

Opportunity
A strategic opportunity for a joint venture partner, debt or equity investment to bring forward a Scottish Eco Innovation Business Park. Capital expenditure is £50 million. GVA of over £100 million, peak borrowing of £20 million, covering capital and revenue projects in infrastructure distribution, commercial & residential property, and district heat and power network.

Overview
Background
Perth is a rapidly growing city with a population of 50,000 - projected to grow by 20% by 2031. Perth is in the centre of Scotland, less than one hour travel from Glasgow and Edinburgh with 90% of Scotland's population accessible in 90 minutes. The project proposes a distribution consolidation centre and will host technologies, systems and processes to decarbonise urban growth including electrically enabled highways, mobility as a service, automation, Artificial Intelligence and renewable district power generation.
Investment returns will be generated from infrastructure, revenue through property rental and head-lease streams, and revenue from design, build, finance and management of the academic facilities.
The development is supported by more than £400 million of planned public investment in infrastructure. Recent investors in Perth include Porsche, Jaguar Land Rover & Biffaward plc Homes.
The development is a 150 hectare zoned development area, with 1500 units of mixed tenure housing, a distribution centre (20,000m²), business park (20,000m²) for commercial offices, industrial, hotel, leisure, district heat & power systems, and an academic centre. It will be delivered in four phases: phases 1 and 2 - trunk road and service infrastructure to open up the site along with 800 mixed tenure houses and distribution consolidation centre; and phases 3 and 4 - 800 houses and academic centre plus 20,000m² of business land.
Promoter and Partnerships
Perth West is a collaborative project between the local authority (Perth and Kinross Council), government agencies, landowner and businesses.
www.investperth.co.uk/perth-west
There is already a strong track record of delivering commercial developments in the area including Broaden Business Park in Perth.







Project Promoters
John Dewar Lamberkin Trust

Planning Consultants
Ristol Consulting Ltd
RP Planning

Project Design Team
Brooks Murray architects
Benton Scott-Simmons
Turnberry Consulting
SYSTRA
ECUS
Airshed
CSP acoustics
Langton tree specialists
Bayne Stevenson Associates
Guard archaeology
Stantec

Design Consultants
Graphical House

Invest in Perth
Connect with business and life

#SCOTLANDISNOW



PERTH



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