

Mechanisms to Deliver Resilient Energy Infrastructure for Liverpool City Region

Dissemination Seminar 19th July 2011

Mechanisms to deliver Resilient Energy Infrastructure

LIVERPOOL CITY REGION
DISSEMINATION SEMINAR – 19 July

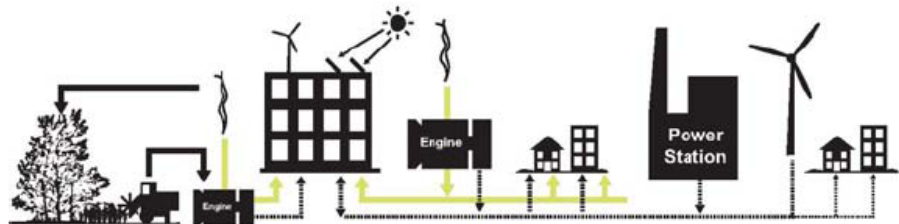


The objectives of this Liverpool City Region (LCR) seminar are to:

- (i) Review current and proposed activity on energy infrastructure across the LCR.
- (ii) Recommend delivery models and mechanisms to take forward a co-ordinated response.
- (iii) Discuss the priority actions and next steps.

The Project:

The work was approved by the LCR Environment and Waste Board in September 2010 and a technical Steering Group of officers has been established to manage the delivery.



Resilient Energy Infrastructure

- **Opportunities**

- Investment in jobs, carbon reduction and energy infrastructure

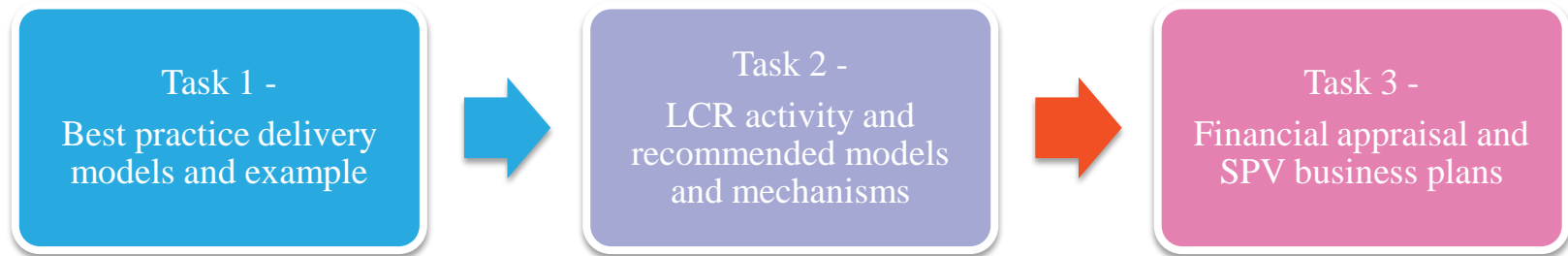
- **Deliverables**

- Economically viable low and zero carbon projects with private and public investment

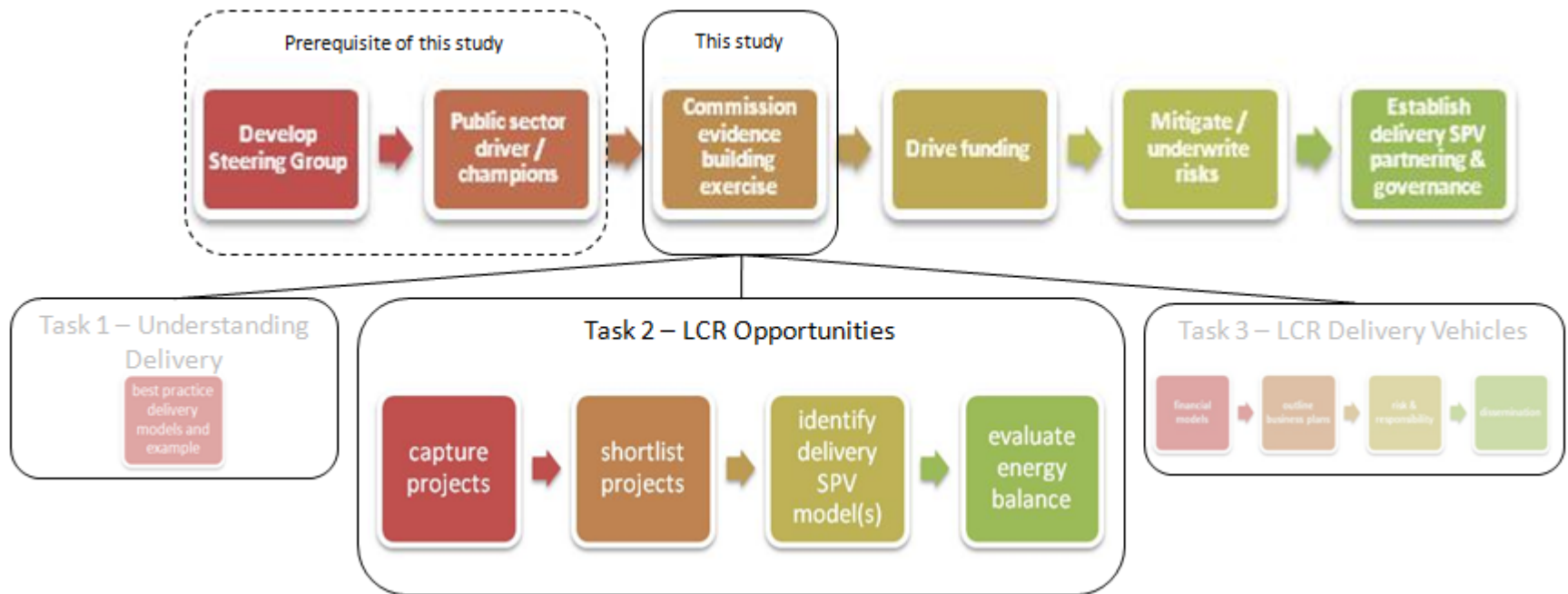
- **Needs**

- LCR/LA involvement in Special Purpose Vehicle (SPV) creation through strong leadership

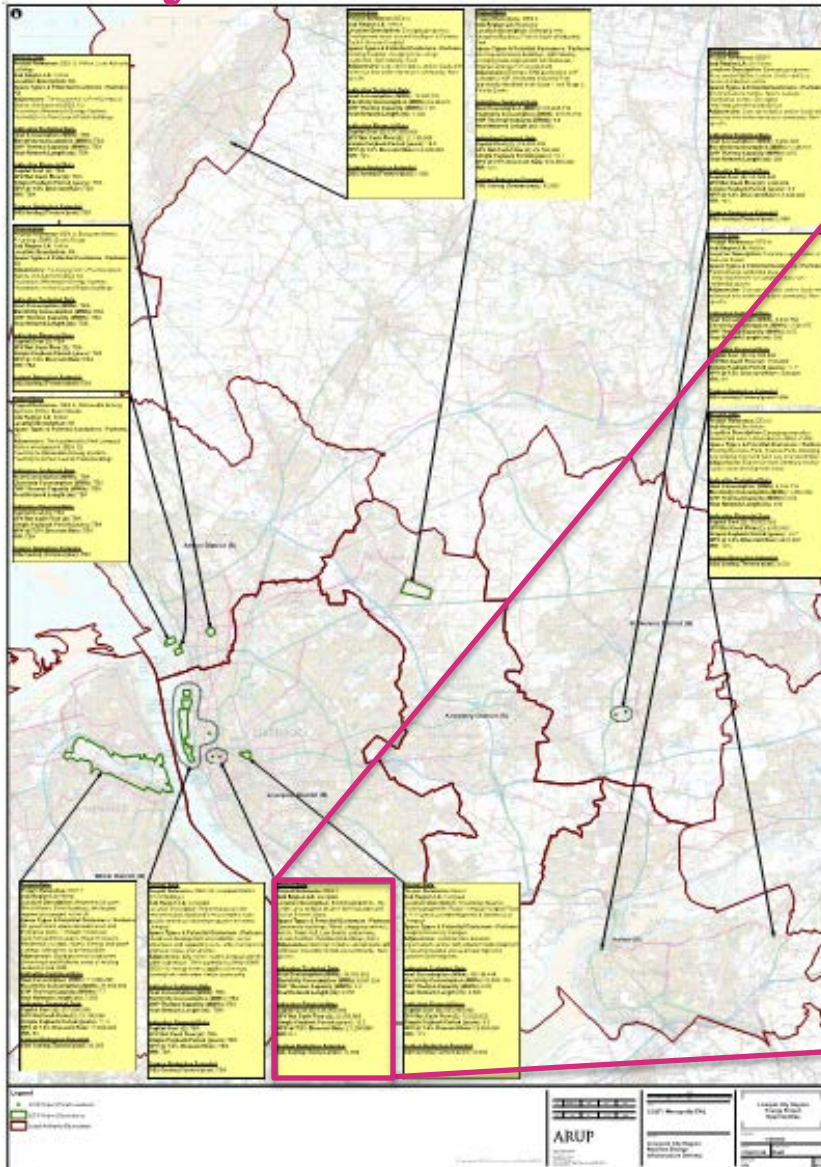
Study Feedback



Study Feedback



Study Feedback



Project Data

Project Reference: DES 1

Sub Region LA: Liverpool

Location Description: Existing properties, city centre area to West of Lime Street station and East of Prince's Dock,

Space Types & Potential Customers / Partners:

Commercial buildings, Retail (shopping centres), Hotels, Town Hall, Law Courts and prisons, Leisure facilities, Residential buildings (flats)

Adjacencies: Concept includes anchor loads with extension into wider mixed use community. Non-specific.

Indicative Technical Data

Heat Consumption (MWh): 30,783,582

Electricity Consumption (MWh): 9,281,250

CHP Thermal Capacity (MWth): 3.3

Heat Network Length (m): 3,000

Indicative Financial Data

Capital Cost (£): £26,000,000

SPV Net Cash Flow (£): £2,200,000

Simple Payback Period (years): 12.2

NPV @ 7.5% Discount Rate: £1,200,000

IRR: 8%

Carbon Reduction Potential

CO₂ Saving (Tonnes/year): 14,000

Study Feedback

Sub Region Project Ref	Project Ref	CHP thermal capacity (MWth)*	Heat consumption (MWh)	Electricity Consumption (MWh)	Heat network length (m)
Liverpool – DES 1	City centre West	3.3	30,783	9,281	3,000
Liverpool – DES 2	RLHT & UoL	3.85	38,194	10,828	3,500
Knowsley – DES 3	KIP & South	9.9	108,035	27,843	9,000
Sefton – DES 4	Southport & Formby DGH	1.65	15,391	4,640	1,500
St Helens – DES 5	Sutton Leisure & Lea Green	0.55	5,456	1,546	500
Halton – DES 6	Daresbury	0.66	6,156	1,856	600
Wirral – DES 7	Wirral Waters	7.7	71,828	21,656	7,000
Halton – DES 8	Runcorn Docks	0.55	8,593	1,546	500
Sefton – DES 9	Bootle Docks				
Liverpool – DES 10	Liverpool Waters				
Liverpool – DES 11	Eldonians				
Knowsley – DES 12	Jaguar				
		28.16	284,436	79,196	25,600

Work in progress

Study Feedback

Sub Region Project Ref	Project Ref	Capital cost (£)	SPV Net Cash flow (£/year)	SPB (years)	NPV (7.5% discount rate)	IRR	CO ₂ Saved (Tonnes / year)
Liverpool – DES 1	City centre West	£26,000,000	£2,200,000	12.2	£1,200,000	8%	14,000
Liverpool – DES 2	RLHT & UoL	£25,000,000	£2,600,000	9.5	£8,000,000	11%	16,000
Knowsley – DES 3	KIP & South	£68,000,000	£6,700,000	10.1	£16,800,000	10%	42,000
Sefton – DES 4	Southport & Formby DGH	£11,000,000	£1,100,000	10.5	£2,300,000	10%	7,000
St Helens – DES 5	Sutton Leisure & Lea Green	£3,000,000	£400,000	9.2	£1,200,000	12%	2,000
Halton – DES 6	Daresbury	£5,000,000	£400,000	10.7	£800,000	10%	3,000
Wirral – DES 7	Wirral Waters	£57,000,000	£5,100,000	11.3	£7,300,000	9%	33,000
Halton – DES 8	Runcorn Docks	£6,000,000	£500,000	11.7	£500,000	9%	2,000
Sefton – DES 9	Bootle Docks						
Liverpool – DES 10	Liverpool Waters						
Liverpool – DES 11	Eldonians						
Knowsley – DES 12	Jaguar						
		£201,000,000				Avg 10%	119,000

Work in progress

Study Feedback

The vast majority of projects captured are those projects being brought forward by a private sector partner.

However it is of paramount importance for Local Authorities to take a lead role in encouraging the projects, shaping the delivery requirements, assisting the funding process and taking a role in the delivery and operating arrangements of the SPV.

Study Feedback



Study Feedback



Study Feedback

Local Authority Independent Project SPV

Policy

- Council guidance
- Consultation
- Stakeholder liaison
- Planning directives
- SEAP
- Other project alignment

Projects

- Development Studies
- Master plan studies
- Partnering
- Consultation
- Grants sourcing
- Technical, financial & legal contract formation
- Project management

Energy

- ESCo contracts
- Gas, power & heat purchase, distribution and supply contracts
- Electricity export Contracts
- Utility liaison
- Emissions accounting

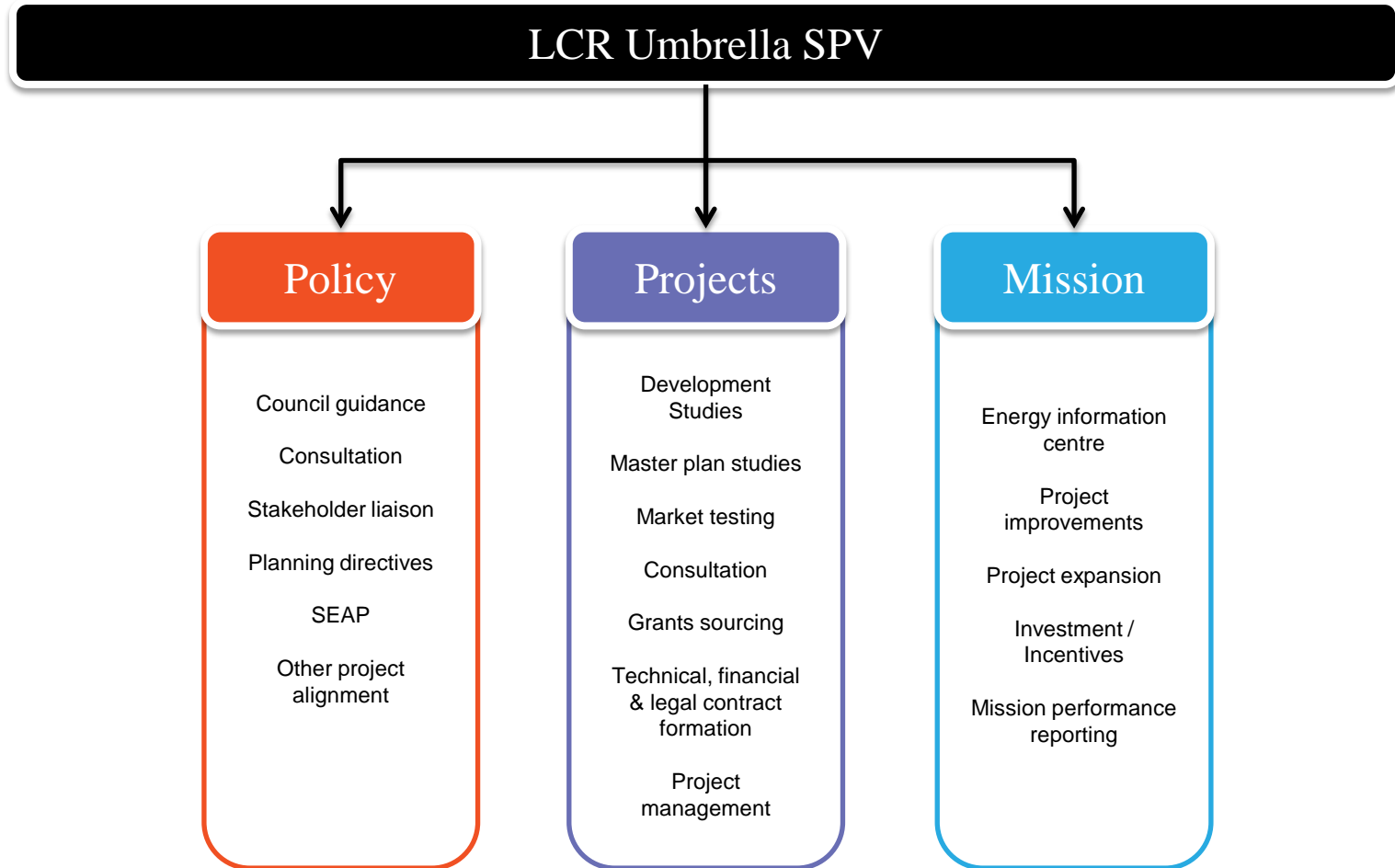
Performance

- Public stock Surveys
- Metering
- Billing
- Reporting
- Performance monitoring
- Energy contract monitoring

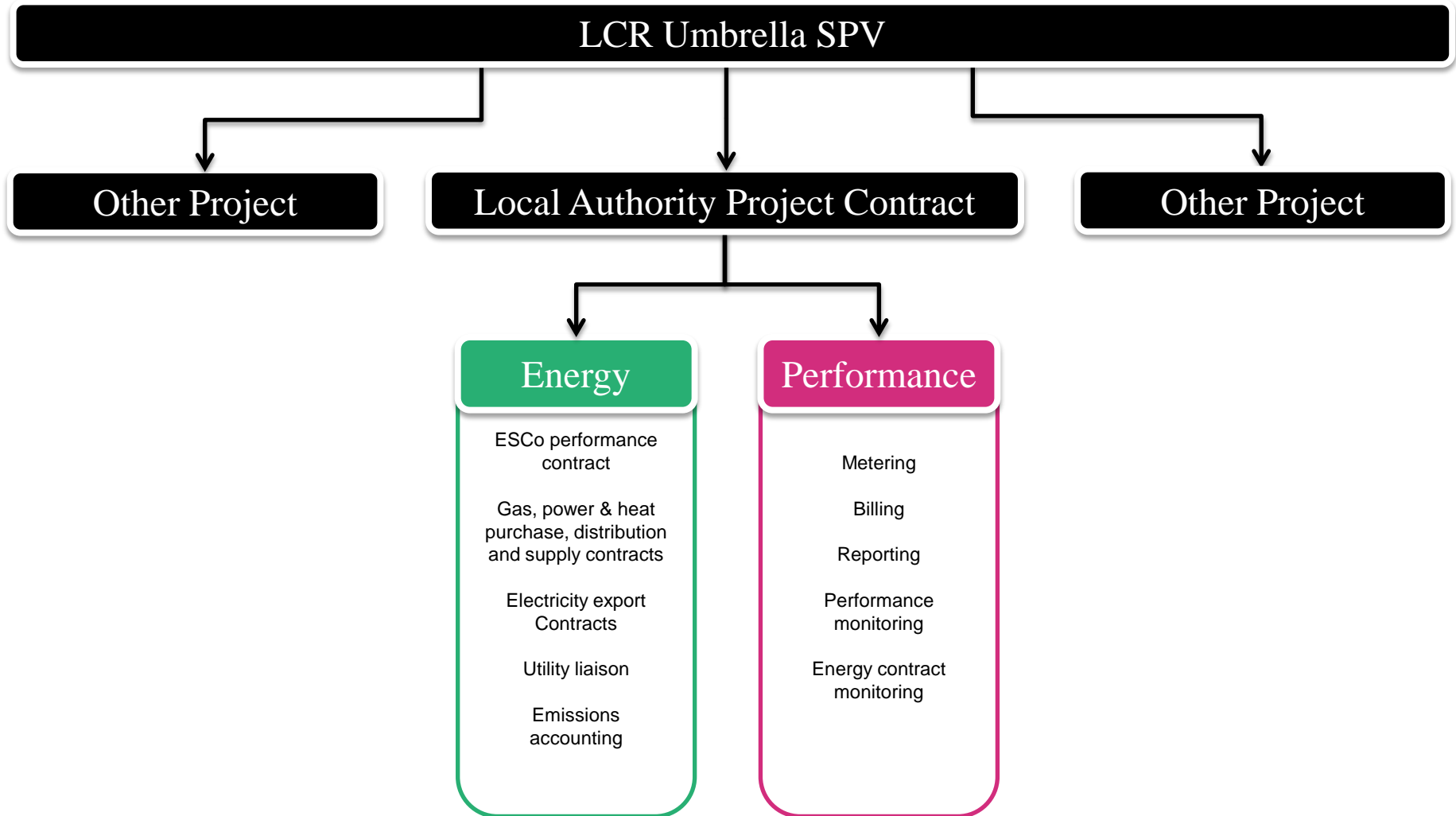
Mission

- Energy information centre
- Project improvements
- Project expansion
- Investment / Incentives
- Mission performance Reports

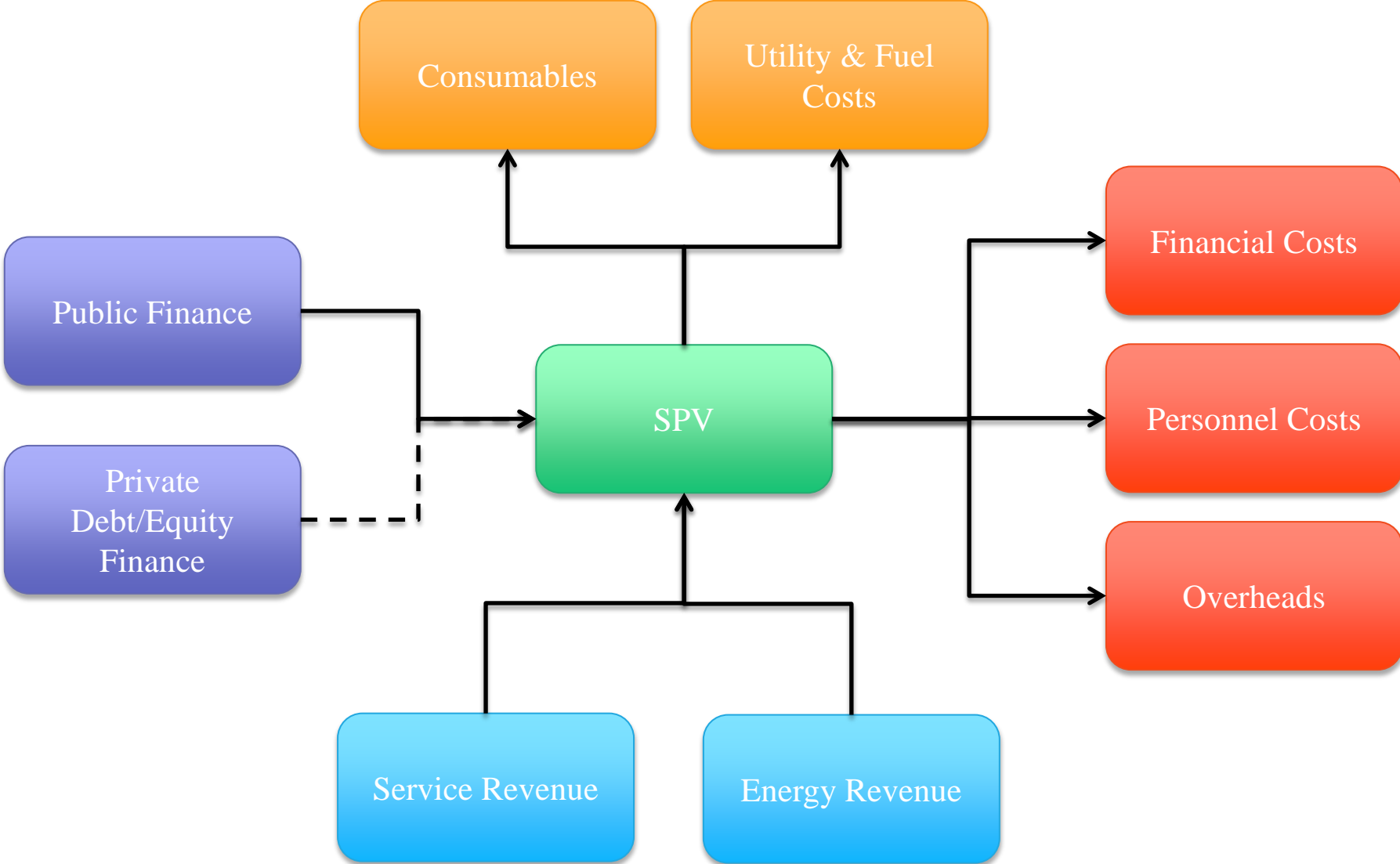
Study Feedback



Study Feedback



Study Feedback



Study Feedback

- **Type 1 - Council Owned Undertaking**
 - A Company limited by guarantee established by a Council to invest in and deliver its objectives
 - *Nottingham City Council, Enviro Energy*
- **Type 2 - Arm's-length joint venture undertaking with Council stake**
 - An arm's-length company limited by guarantee, supported by the involvement and investment of key stakeholders.
 - *Woking Council, Thameswey Energy*
- **Type 3 - Social enterprise undertaking underwritten by Council support**
 - A not-for-profit company established to deliver Council and stakeholder social and environmental objectives
 - *Aberdeen Heat and Power*

Study Feedback

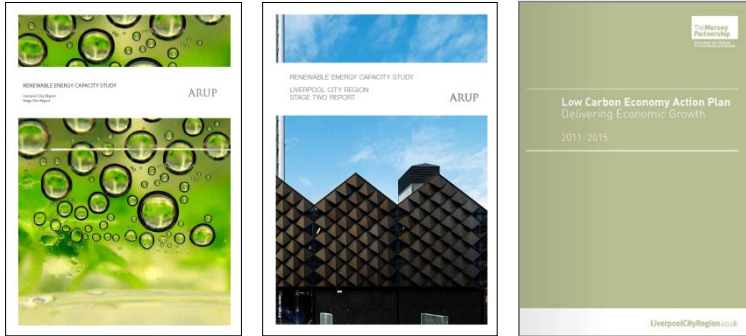
- **Type 4 - Private undertaking governed by partnership arrangement**
 - A private Distributed Energy SPV instigated by the Council to invest in and develop a network.
 - *Southampton Geothermal Company*
- **Type 5 - Mutual undertaking underwritten by Council/stakeholders support**
 - A mutual company or society established to deliver benefits to its heating consumers and/or wider social and environmental objectives.
 - *Danish Distributed Energy Co-operatives*

Towards a Sustainable Energy Action Plan

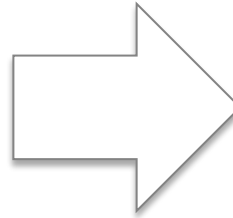
- **STEP 1: Signature of the Covenant of Mayors**
 - Creation of adequate administrative structures
 - Baseline Emission Inventory & SEAP development
- **STEP 2: Sustainable Energy Action Plan submission**
 - Implementation of your Sustainable Energy Action Plan
 - Monitoring progress
- **STEP 3: Regular submission of implementation reports**



Towards a Sustainable Energy Action Plan

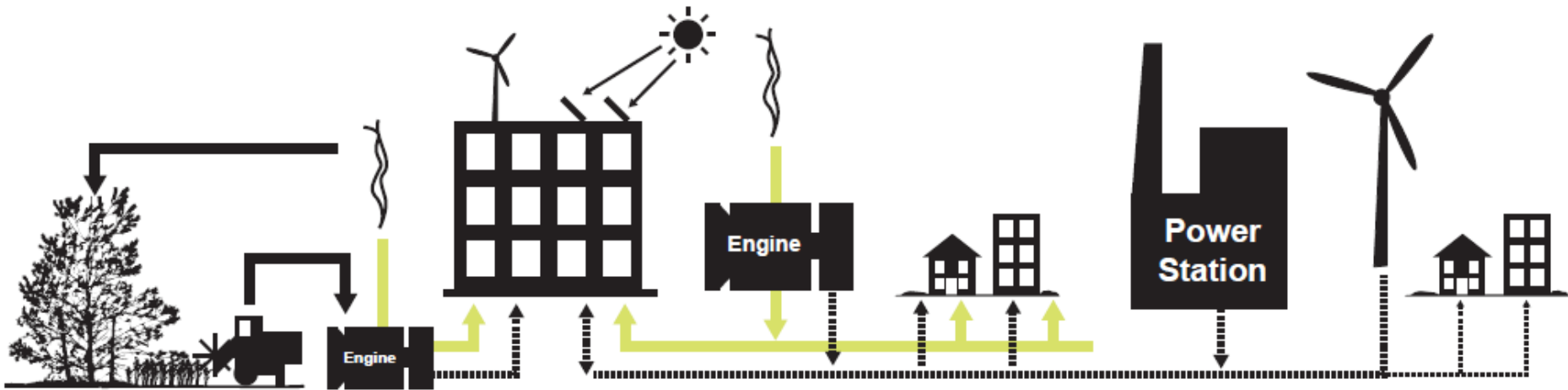


The screenshot shows the 'NI 186 Preparing for action' guide from Energy Saving Trust. It includes a navigation bar with links for 'Funding', 'Policy and legislation', 'Developing a strategy', 'Private sector housing', and 'Social housing'. The main heading is 'Reducing carbon dioxide emissions in your local authority area - the guide'. Below this is a flow diagram with two ovals: 'Preparing for action' and 'Action plan', connected by a right-pointing arrow. The 'Preparing for action' section explains that the guidance helps develop a robust strategic framework to coordinate action on NI 186. The 'Action plan' section explains that the guidance helps identify actions across the local area's carbon footprint to support progress against NI 186.



The image shows the cover of the 'How to develop a Sustainable Energy Action Plan' guidebook. It features the 'Covenant of Mayors' logo at the top left, with the text 'Covenant of Mayors Committed to local sustainable energy'. The main title 'How to develop a Sustainable Energy Action Plan' is written in large white letters inside a blue circular graphic. At the bottom right, it says 'HOW TO DEVELOP A SUSTAINABLE ENERGY ACTION PLAN (SEAP) - GUIDEBOOK'.

Resilient Energy Infrastructure



The Opportunities

- **Employment and skills**
- **Energy security**
- **Affordable energy**
- **Carbon reduction**
- **Influence the future of the City Regions infrastructure development**

The Challenges

- **City Region buy-in**
- **An agreed vision**
- **Take bold, innovative steps**
- **Strong and cohesive leadership**

The Risks

- **Current priorities**
- **Resource constraints**
- **Leave it to utility market forces, business as usual**

The Journey So Far In The City Region

- **Stage 1 – Renewable Energy Capacity Study**
- **Stage 2 – Strategic Opportunities**
- **Stage 3 – Delivery Mechanisms**
- **Stage 3a – SEAP Scoping Study**

- **Plus many other related initiatives**

The Journey Ahead?

- **Agreed City Region vision**
 - Sustainable economic growth
 - Affordable and secure sources of energy
 - Carbon reduction

The Journey Ahead?

- **Signatory and supporters of Covenant of Mayors**
 - Commitment to go beyond EU reduction targets
 - Share experience and know how
 - EC recognition
 - Scientific and technical support
 - Access to funding via European Investment Bank

The Journey Ahead?

- **City Region Sustainable Energy Action Plan**
 - Where are we now?
 - Where do we want to be?
 - How could we get there?
 - Priority actions

Resilient Energy Infrastructure

■ Key Messages

- Coordinated LCR Action
- Senior Local Authority Champions

