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ESCo Opportunities

STEP UP webinar, August 21st 2014

Guest speakers:

Ian Booth, Aberdeen Heat and Power

Lars Holmquist, Göteborg Energi

Facilitator:

Lucy Sparks, University of Strathclyde

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Aberdeen Heat & Power (AH&P)



Ian Booth - General Manager

ESCo Webinar 21st August 2014

Developing and Delivering ESCo's



Aberdeen Heat & Power (AH&P)



- Brief Introduction to ESCo's
- How an ESCo can be delivered
- Summary of the benefits to the City
- Opportunities / challenges for the future
- Summary



Aberdeen Heat & Power (AH&P) ESCo Definition



- An Energy Service Company or ESCo can mean different things to different areas and different conditions.
- What do you want the ESCo to be and what do you want the ESCo to do?
- ESCo's can range from being totally within the public sector, through a mix of public / private ownership, to a totally private company.
- And can be classed as a charitable, not-for-profit, or profit making enterprise
- So, depending on what the aims of the ESCo are and how this will be incorporated then -
- **There is an ESCo model out there for you!!**



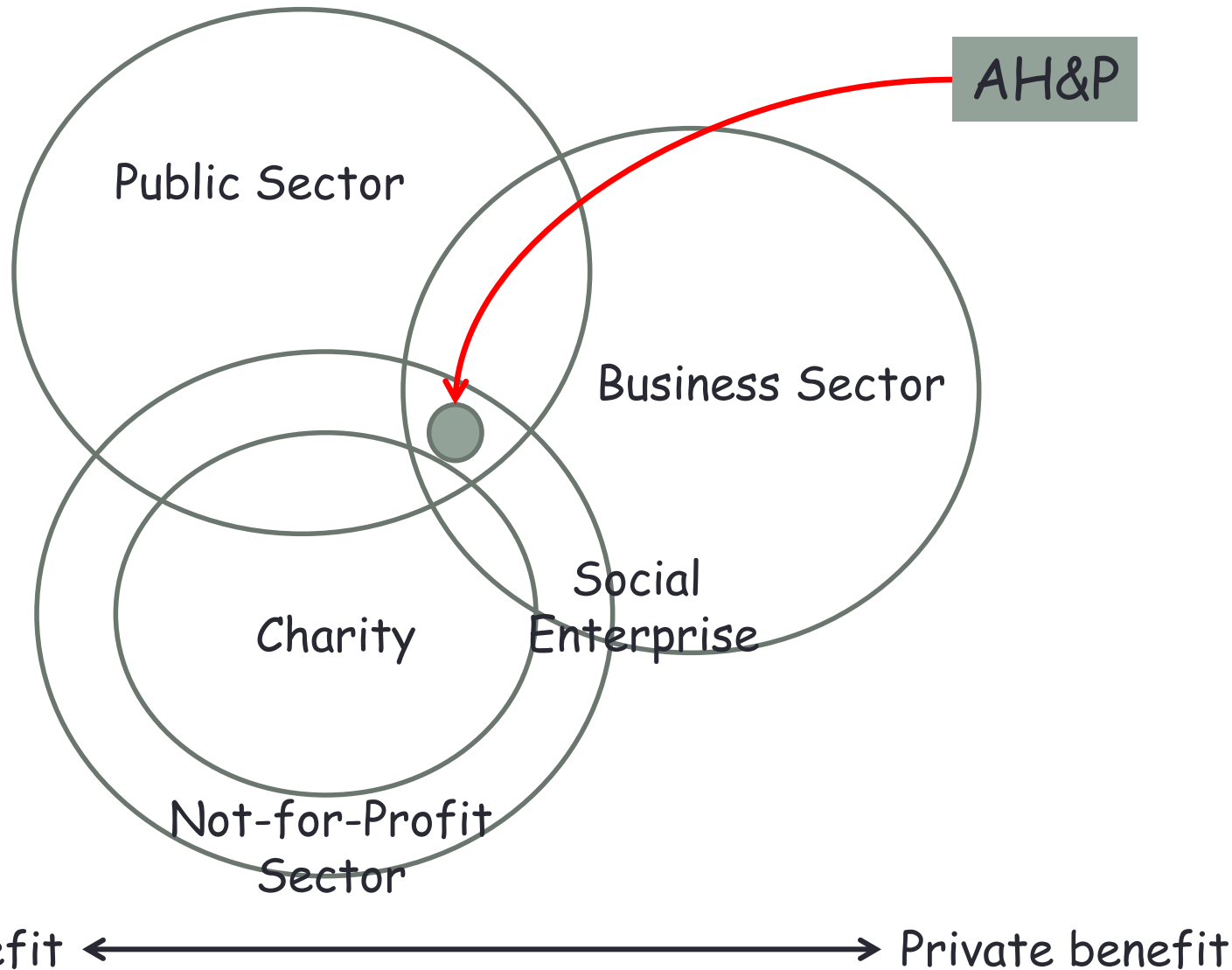
Aberdeen Heat & Power (AH&P) ESCo Definition

- Essentially, in our case - the ESCo (being Aberdeen Heat & Power Company Limited) is the delivery vehicle / mechanism for development and operation of district heating and heat networks within Aberdeen City.





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Delivering Affordable Warmth .



Aberdeen Heat & Power (AH&P) ESCo Definition



- The formation of the AH&P stems back to the 1995 Home Energy Conservation Act - HECA strategy
- Investment over several years through Housing Capital Programme - vast majority of low rise homes have gas central heating - low hanging fruit
- 1999 - City Council adopted Affordable Warmth Strategy
- But little had been done in adopting a strategy for multistoreys - regarded as "Hard to Heat", poor thermal efficiency
- In 2001 Council commissioned options appraisal of all 59 multi-storey blocks (4,500 flats)
- Had electric storage or warm air heating - under-heating due to cost
- 70% of residents estimated to be in fuel poverty
- Recommended install CHP in clusters of multistoreys



Aberdeen Heat & Power (AH&P) Background (cont'd)

- Study identified technical solutions best able to deliver low cost, efficient heating to residents
- Recommendation was to install water based communal heating systems connected to CHP where applicable
- Council could afford to facilitate such a project in one cluster but only at a rate of one project every 10-12 years due to capital constraints
- Commercial Energy Service Co's could gain access to 3rd party investment to accelerate deployment but required returns would determine a high heat cost thus undermining the objective of reducing fuel poverty
- Thus in 2002....





Aberdeen Heat & Power (AH&P)

- 2002 - Established Aberdeen Heat and Power
 - Independent - not-for-profit company, limited by guarantee, to develop and manage DH / CHP schemes "for the benefit of the people of Aberdeen"





Aberdeen Heat & Power (AH&P)

The Company



- AH&P set up in 2002 with aims to:
 - Deliver affordable heat to hard to heat properties
 - Develop district heating systems from a base of combined heat & power (CHP) systems
 - Help to alleviate fuel poverty
 - Reduce Aberdeen City Council's carbon footprint



Aberdeen Heat & Power (AH&P)

Governance

- Company set up with Board of volunteer Directors :
 - Technical, Management, Financial, Community and intermediary skills
 - Two seats reserved on the Board for Council appointed personnel
 - Appointment of a DH / CHP specialist chosen through tender
 - Aberdeen City Council Officer support - local Champion
- Original objective to plan a pilot project





Aberdeen Heat & Power (AH&P)

Why Separate Company and not in house?

- Council did not have in-house skills
- Independent Company can be just that - independent
- Guarantee from Council - walk-in rights should Company fail
- Project management, operations, maintenance functions and risks transferred but with Council influence / direction from Board Members
- Council get on with running the Council, AH&P get on with running a District Heating business to deliver affordable heat.





Aberdeen Heat & Power (AH&P)

Development of first Project - Stockethill - cluster of 4 multis

- Grant received for drawing up a set of Standard Agreements
- Framework Agreement with 50 year term drawn up - and then for each project:
 - Installation Agreement inclusive of project costs (although Council carry capital risk, AH&P must manage project costs within budget)
 - Licence to occupy land for energy centre and wayleave for underground services
 - Heat Supply Agreement
 - Maintenance Agreement where applicable





Aberdeen Heat & Power (AH&P) Framework Agreement highlights



- Council wishes to have heat delivered to occupiers of specified buildings (each project has this defined)
- AH&P agree to procure, install, operate and maintain systems to facilitate provision of heat
- Supply period is to 31st March 2052
- AH&P warrants performance and delivery of heat, with plant operated to Good Industrial Practice
- Teckal Exemption whereby Council appoint AH&P to develop DH / CHP projects without tendering, but in turn AH&P must open tender project procurement



Aberdeen Heat & Power (AH&P)

Framework Agreement highlights (cont'd)



- Title passes to Council at point of supply (entry to block)
- AH&P must maintain equipment, Council must allow this. Conditions of access for repair, service and inspection
- Conditions of failure or discontinuance, emergency procedure
- Other usual clauses about Insurances, Indemnities, Data Protection, Waiver, Assignment, Force Majeure, Regulation Compliance etc.
- Project conditions
 - Licences, consents, and permissions including planning and wayleaves must be applied for and obtained by AH&P
 - Agreed project dates (specific to each project)



Aberdeen Heat & Power (AH&P)

Evolution since first project

- CHP for domestic housing alone is not most efficient - need diversity
- Next project at Hazlehead and subsequent projects at Seaton and towards city Centre are inclusive of domestic and non domestic properties
 - More conducive to continuous running
 - More efficient
 - More cost effective
- Private Wire Connection and Agreements
- Development of Project Procedures





Aberdeen Heat & Power (AH&P)

Funding of projects

- Background of project costs based on
 - Whole life costings: Capital costs for CHP higher; Running costs lower
- For domestic housing - full capital costs need to be covered
- If capital had to be borrowed the heat charge would increase and occupants could be pushed back into fuel poverty
- To date full capital for domestic housing from combination of:
 - Housing Capital Programme
 - Charge to owners for connections
 - Community Energy Programme Grant (CEP)
 - Carbon Emission Reduction Target (CERT)
 - Carbon Emission Saving Programme (CESP)
 - Energy Company Obligation (ECO)
- Non-domestic connections met largely by Central Energy Efficiency Fund (CEEF) funding





Aberdeen Heat & Power (AH&P)

Operations Now



- **Sources of income:**

- Sale of electricity to grid and Private Wire - 38% of sales
- Sale of heat - domestic - 36% of sales
- Sale of Heat - non-domestic - 23% of sales
- Maintenance - 3% of sales

- **Costs:**

- Fuel - 75% of costs
- Maintenance - 11% of costs
- Overheads / Depreciation / Rates - 14% of costs



Aberdeen Heat & Power (AH&P)

So has the Business Model worked?



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YES!

Delivering Affordable Warmth .



Aberdeen Heat & Power (AH&P)

Progress and benefits thus far?

- Continuing to develop capital projects - 22 blocks converted to DH / CHP (+11) and further 7 stand alone (+1)
- Successful operations - 3 energy centres operational, 1 being extended currently and 1 new one under construction
- 13 public buildings connected
- Small efficient business - 2 staff with external specialists for engineering, financial and legal services - low overheads
- Reduced fuel poverty to those connected. Typically costs to residents down by 25-40%
- Reduced carbon footprint. DH/CHP system has reduced carbon by circa 40% when compared to electric heating
- Future proofing of the network as we go - larger pipes installed - more up front capital - cost benefit may not be realised for some years





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Progress and benefits thus far (cont'd)



- Evolvement of agreements over time to include variations for stand alone blocks, non-domestic buildings etc.
- Limitations through Teckal arrg't only a small percentage of non-Council business allowed.
- If more non-Council connections to take place then need a separate structure to handle this
 - Evolvement of District Energy Aberdeen Limited (DEAL)
 - Modified Framework Agreement and others to accommodate
 - Company established September 2013 (non-trading as yet)
 - Permits development into commercial sector
 - Profits from DEAL to be channeled back to AH&P
 - Separate Board structure of DEAL as a heat "retail" company

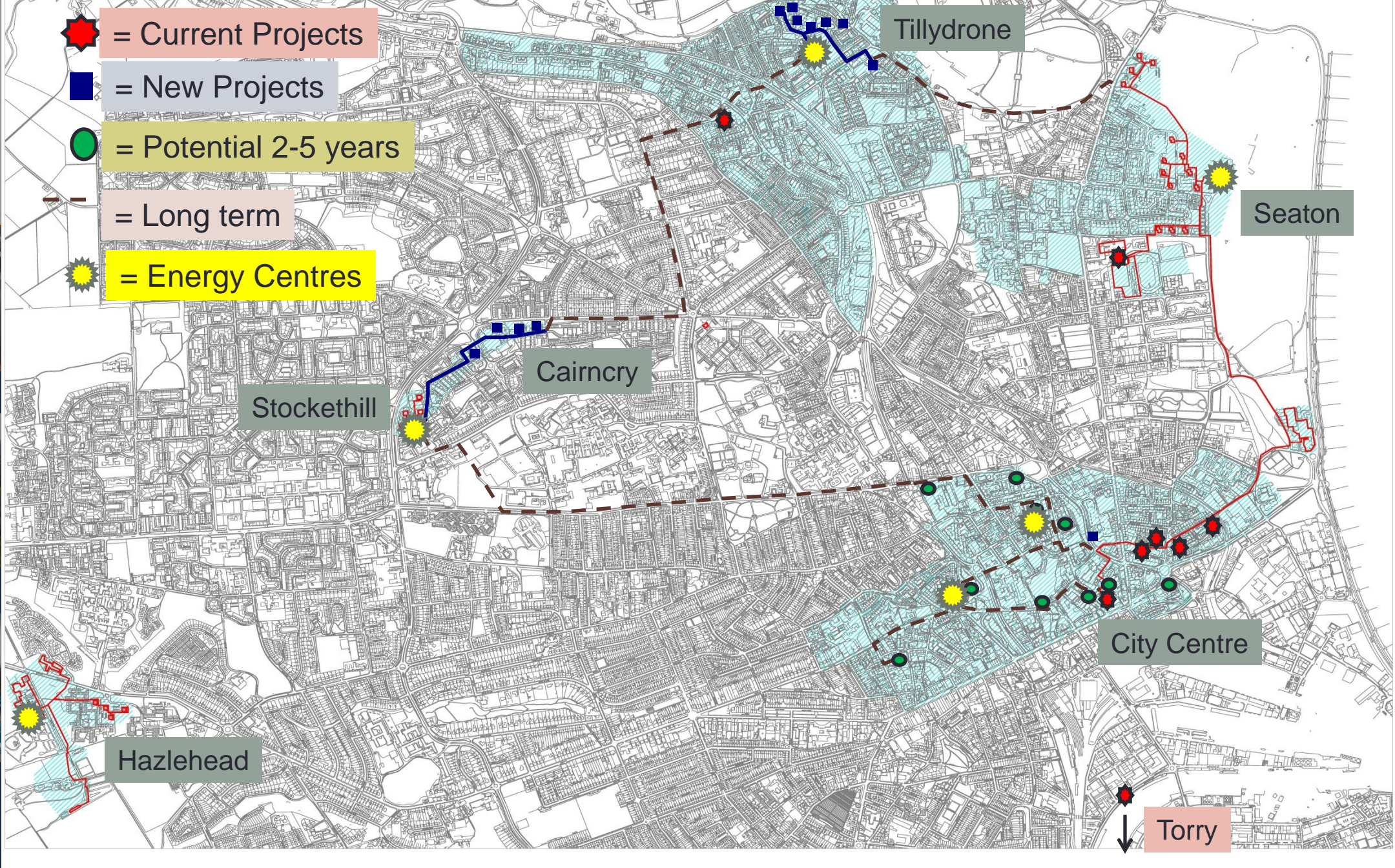


Aberdeen Heat & Power (AH&P)

Progress and benefits thus far (cont'd)



- AH&P is a company limited by guarantee with Members
- DEAL is a company limited by shares (AH&P sole shareholder)
- AH&P are the Network Operator and:
 - Retail heat supply to Council domestic, (including domestic owner / occupiers) and non-domestic premises
 - Private wire electricity supply to Council where applicable
 - Wholesale heat supply to DEAL
- DEAL will:
 - Retail heat supply to non-Council, non domestic customers
 - Private wire supply to non Council customers where applicable





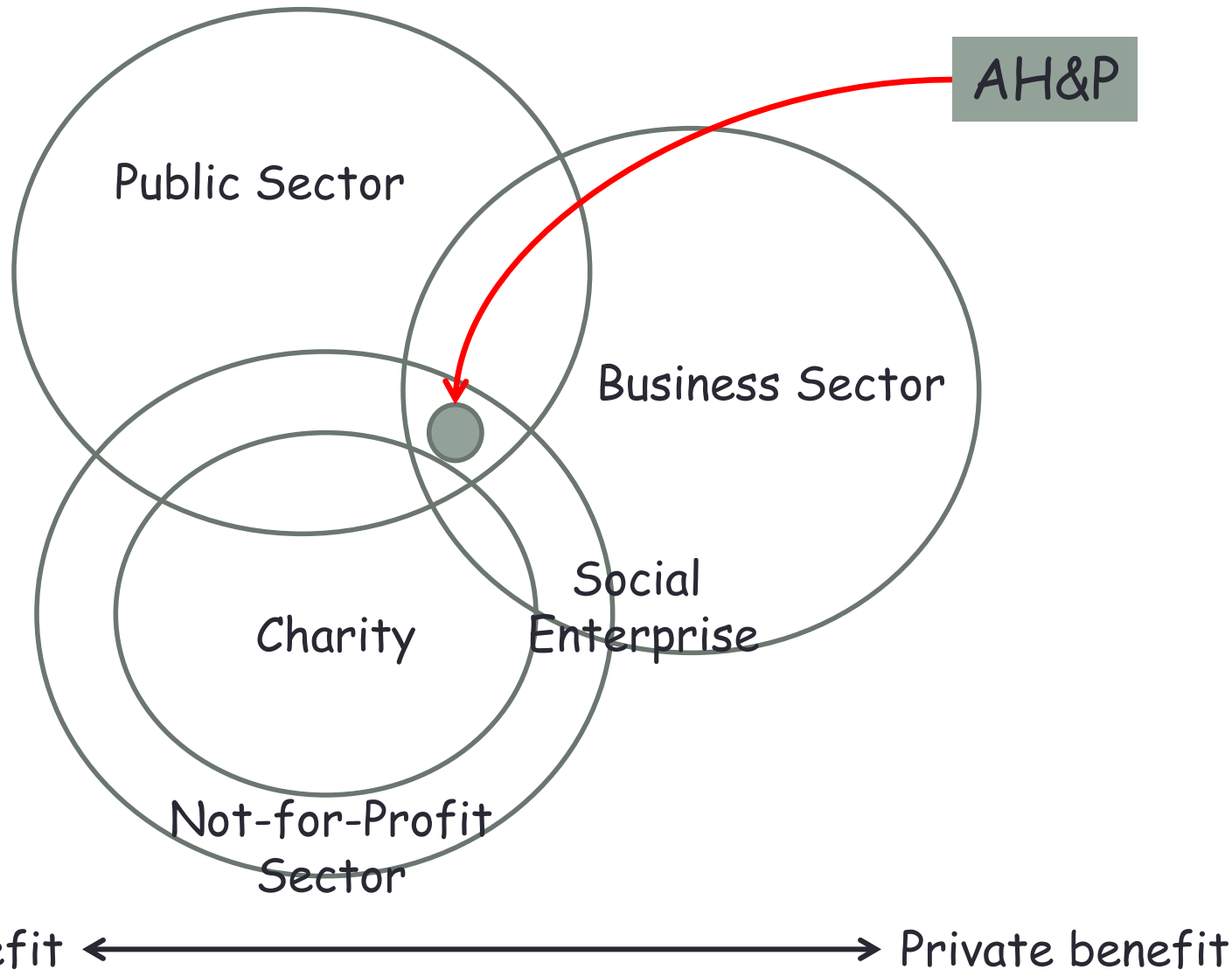
Opportunities for the Future.....

- With the new subsidiary company District Energy Aberdeen Ltd (DEAL) set up as a heat retail arm to develop links to non-Council and non- Public Sector connections and identify infrastructure developments.
- Make use of Heat Mapping and previous development work to set and affirm strategy for network expansion
- Through these developments consider the financing of projects with potential borrowing through the District Heating Loan Fund and others, such as EU funding streams
- Strong consideration to application for parent company to become a charity - further strengthening the aims of the company.





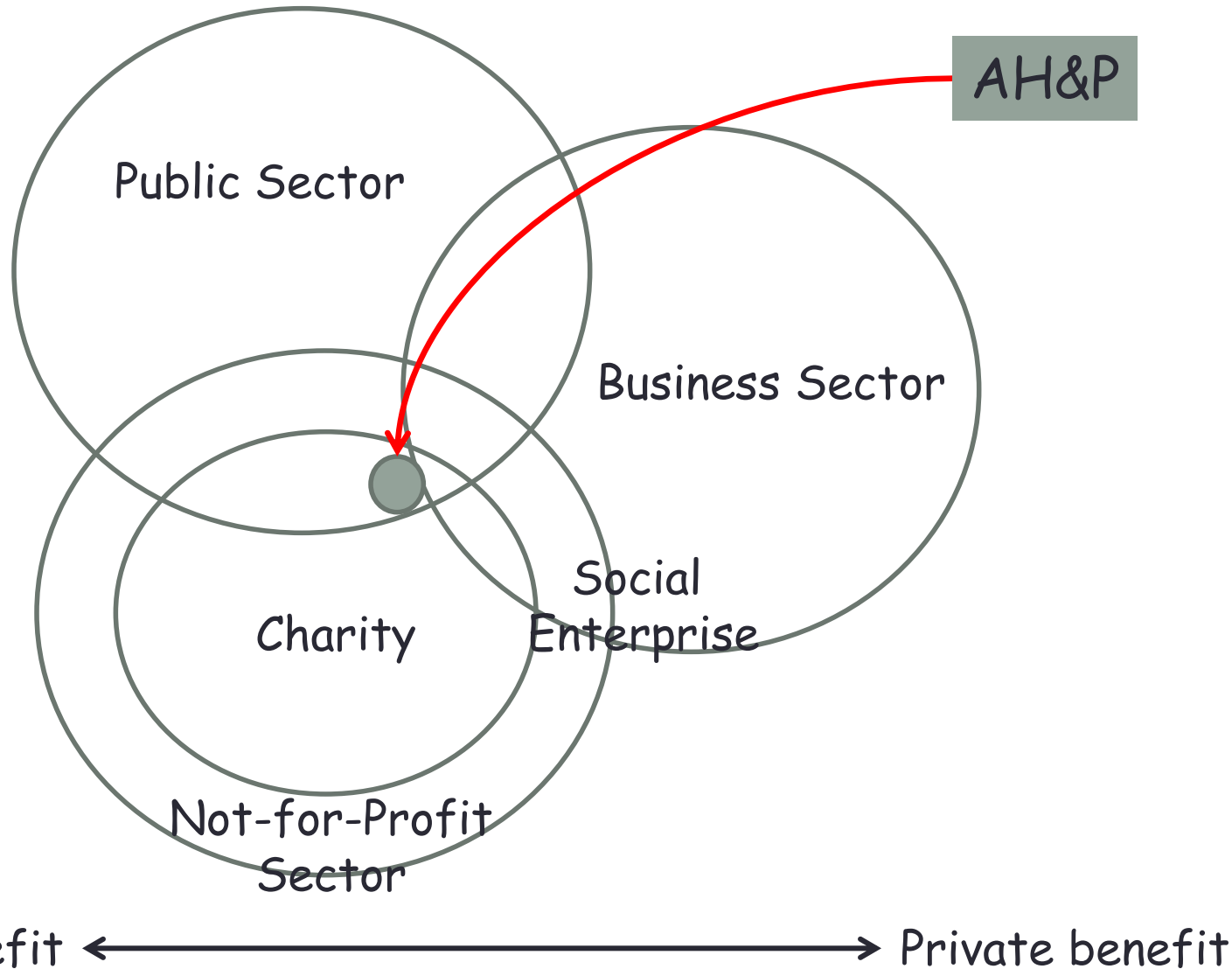
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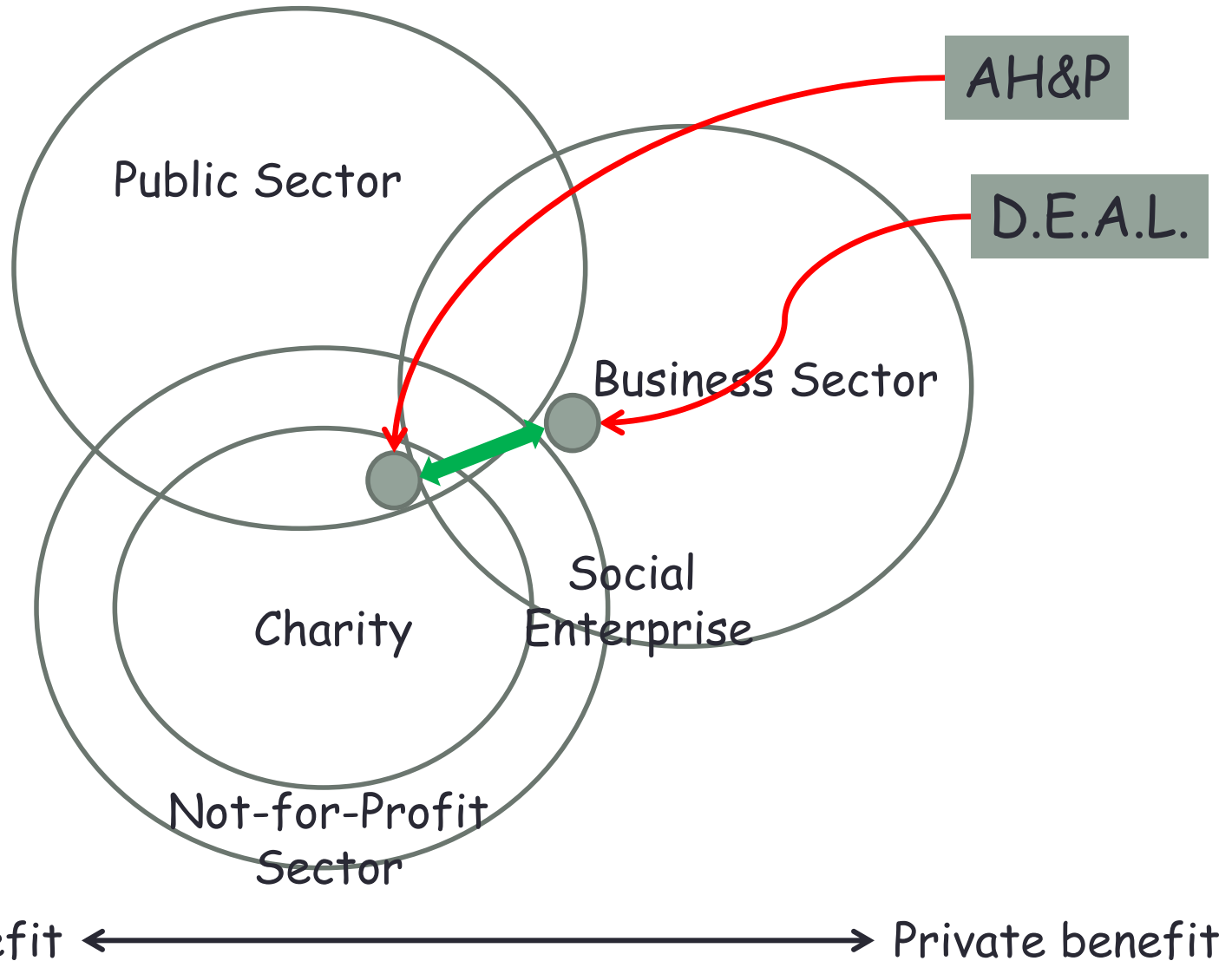
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Opportunities for the Future.....(cont'd)



- Extend the DH network at a pace which is financially and practically viable
- Build and sustain partnerships and agreements for future connections
- Review fuel technologies to “bolt on” the front end (Energy from Waste, Geothermal, Biofuels, Hydrogen, other Renewables)
- Multiple CHP stations around the City linked into one city-wide heat network



Challenges for the Future.....

- Funding of domestic housing projects in lights of changes to funding streams (e.g. recent ECO funding changes)
- Working to overcome short term-ism of funding mechanisms and funding programmes - too short to cater for large scale DH opportunities to be built up to viable projects
- Developers accepting that DH is a viable possibility - not just build, sell, forget.
- Maintaining a sensible approach to expansion, without rushing into areas that could increase business risk - grow at a manageable pace
- Managing capital funding and associated risks against a back drop of fully funded capex to date
- Investigate methods of funding of infrastructure development against realisation that benefits may not arise for some years





Our Aims are being met....

- We believe we are still meeting our start-out ambitions
 - Tackling fuel poverty
 - Providing affordable heat
 - Reducing carbon emissions through use of low carbon technology
 - Installing reliable, efficient and controllable systems for domestic and commercial buildings





Contact Details



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