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# Business Models and Financing for Low Carbon Projects

## STEP UP webinar, October 23<sup>rd</sup> 2014

### *Guest speakers:*

Viv Cockburn, Scottish Future Trust

Paul Moseley, Scottish Futures Trust

Gregor Paterson-Jones, Green Investment Bank

### *Facilitator:*

Lucy Sparks, University of Strathclyde

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Welcome to the webinar. We will begin at 12pm.

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Investment  
Bank**

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# Business Models and Financing of Low Carbon Projects

Vivienne Cockburn

Director of Corporate Services and Low  
Carbon

23 October 2014



# Delivering Value for Money

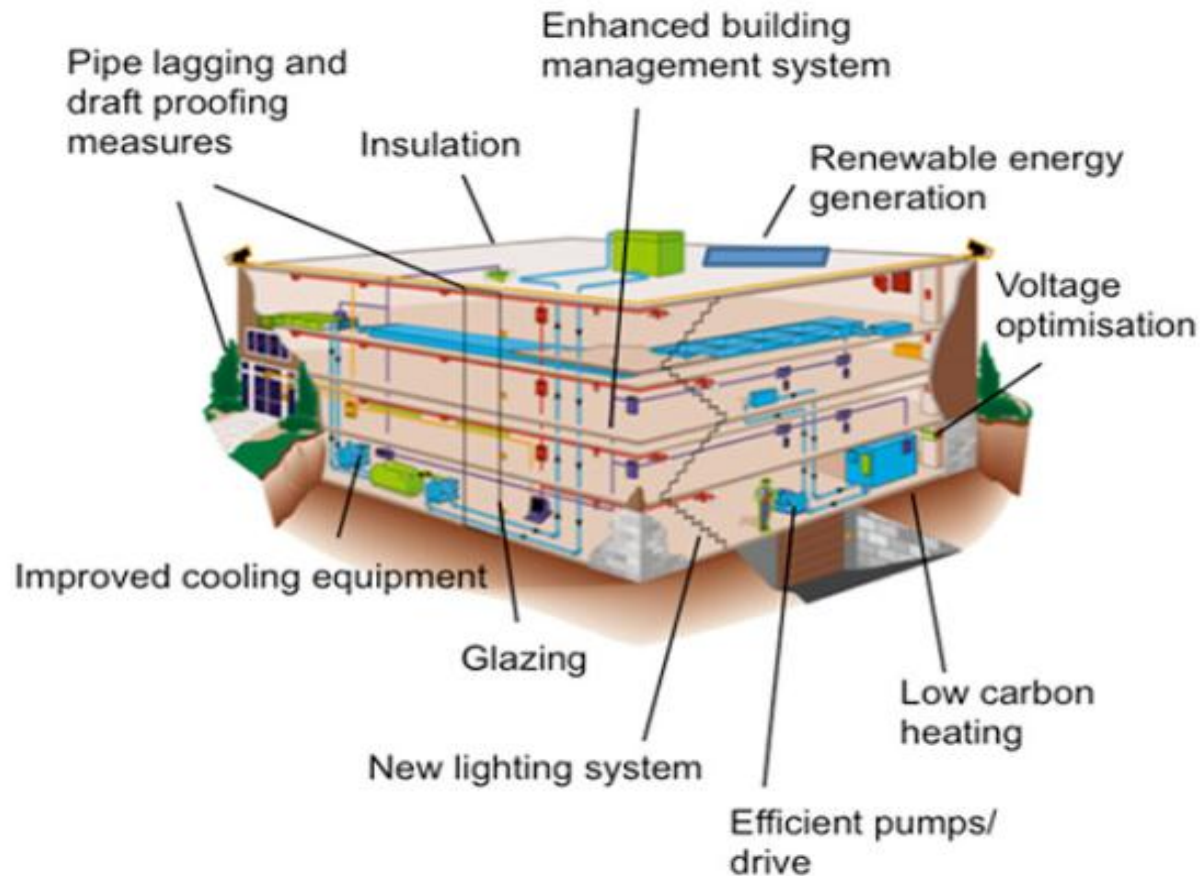
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“to facilitate investment in the public sector estate to help deliver **Scotland’s Climate Change Targets** in a manner which delivers **energy cost savings**, supports **local economic development** and **improves the existing estate** for the benefit of users. “

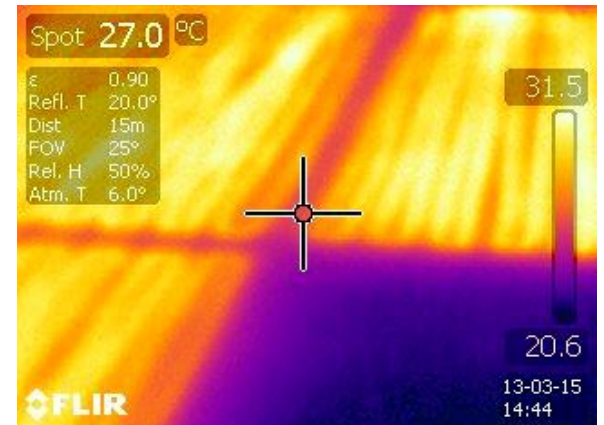


# What is Non-domestic Energy Efficiency?



# Glasgow City Council – pilot feasibility study

- AM&T
  - Pre-requisite for understanding energy use
- Wall / Roof Insulation
- Double Glazing
- BMS / Controls
- Boiler Upgrade
- Lighting Upgrade



# Barriers to investment

- 1 limited budgets
- 2 building often needs refurbished
- 3 interaction with existing FM contracts
- 4 competing priorities



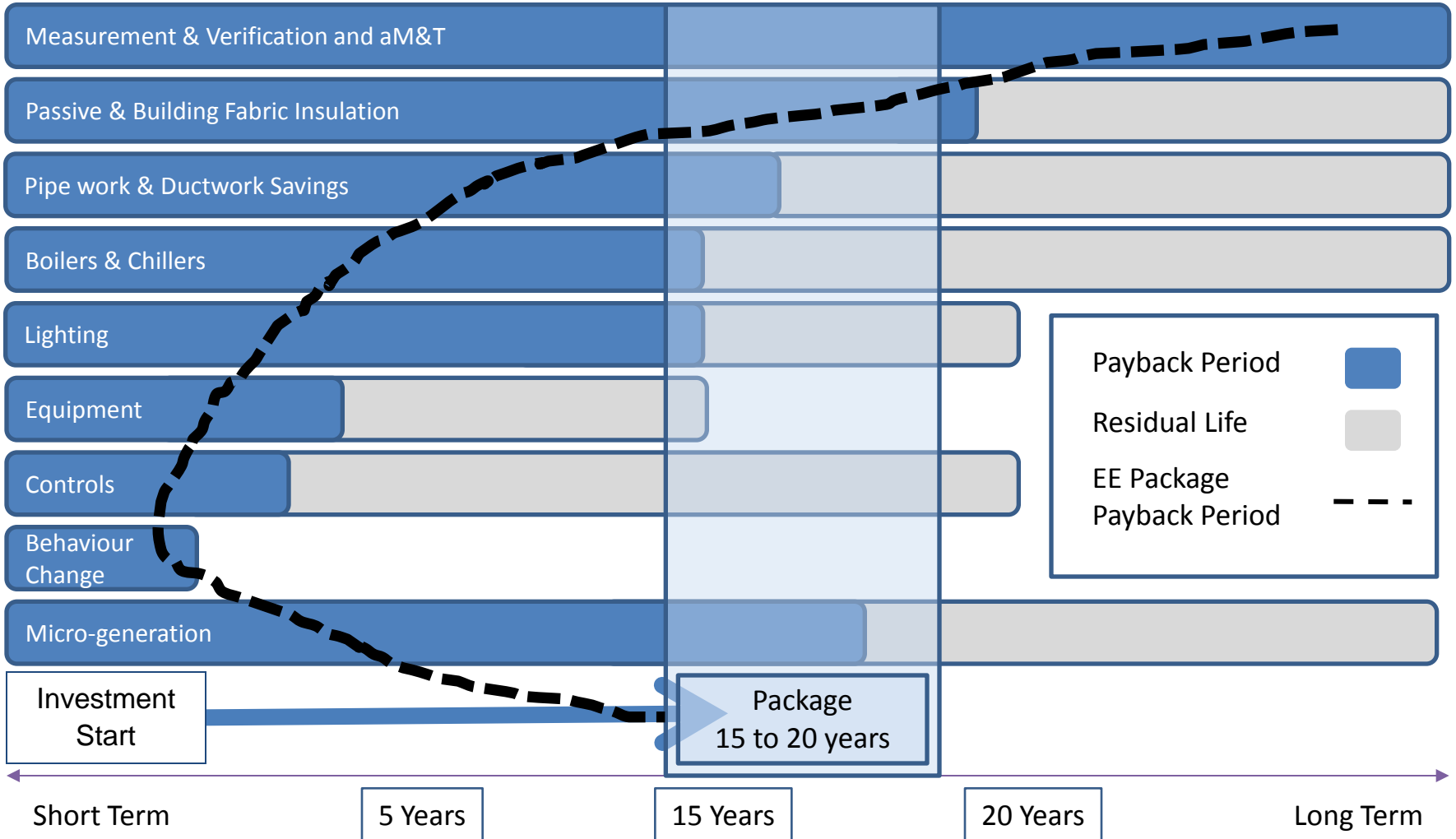
- Supplier installs energy efficiency measures and guarantees energy savings
- Level of savings agreed before signing
- Investment in NDEE:
  - Self Funded; or
  - Access private finance
- Rationale: spend to save
- Likely duration:
  - 5 years  $\leq$  Contract  $\leq$  15 years





# Package Payback Period vs Individual Measures

(illustrative only)



## Assuming Private Finance @ 6.5%

- Capital Cost                   £3.8m
- Energy Savings               >30%
- Financial Savings           £5.9m – total  
                                      £3.1m - NPV
  
- Pay back pre-finance       8.4 years
- EPC Term                     17 years
- Asset life                     25 years
- CO<sub>2</sub> savings                41,158  
                                      tonnes

## Assuming PWLB @2.0%

- Capital Cost                   £3.8m
- Energy Savings               >30%
- Financial Savings           £7.9m – total  
                                      £4.5m - NPV
  
- Pay back pre-finance       8.4 years
- EPC Term                     13 years
- Asset life                     25 years
- CO<sub>2</sub> savings                41,158 tonnes

## Assuming Private Finance @ 6.5%

- Capital Cost £40.3m
- Energy Savings >30%
- Financial Savings £62.9m - total  
£33.3m - NPV
  
- Pay back pre-finance 8.4 years
- EPC Term 17 years
- Asset life 25 years
- CO<sub>2</sub> savings 436,000 tonnes

## Assuming PWLB @2.0%

- Capital Cost £40.3m
- Energy Savings >30%
- Financial Savings £86.1m - total  
£47.3m - NPV
  
- Pay back pre-finance 8.4 years
- EPC Term 13 years
- Asset life 25 years
- CO<sub>2</sub> savings 436,000 tonnes



- NDEE Framework
- Project Support

# Our ask of you?

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# Think big!



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# Delivery structures for district heating



23 October 2014

Paul Moseley, Associate Director  
Scottish Futures Trust

# Delivery structures



Option	Description	Risk allocation	Example
1	Entirely public sector funded, operated and owned	Public sector retains all risk	Purchase contracts for equipment only
2	Public sector led, use of private sector contractors	Private sector assumes construction and possibly operation risk	Purchase turnkey asset delivery contract, possibly with maintenance and/or operation
3	Private sector invests/takes risk in some elements of the proposed activity	Private sector takes risks for discrete elements	As 2 with increased private sector operational risk, and payment or investment at risk
4	Joint venture, equal share in project with a private sector partner	Most risks are shared	Joint Venture – both parties investing and taking risk
5	Public funding to incentivise private sector activity	Public sector support only to economically unviable elements	Power Purchase Agreement
6	Private sector ownership with public sector promise in element of the project	Public sector underpins key risks	Public sector guarantees demand or credit risk
7	Private sector ownership with only involvement from public sector in facilitation role	Private sector risk beyond early stages development	Public sector makes suitable site available and grants lease/licence/royalty arrangement
8	Total private sector owner project	Private sector carries all risks	No or minimal public sector role

Public

Private

# Typical district heating models

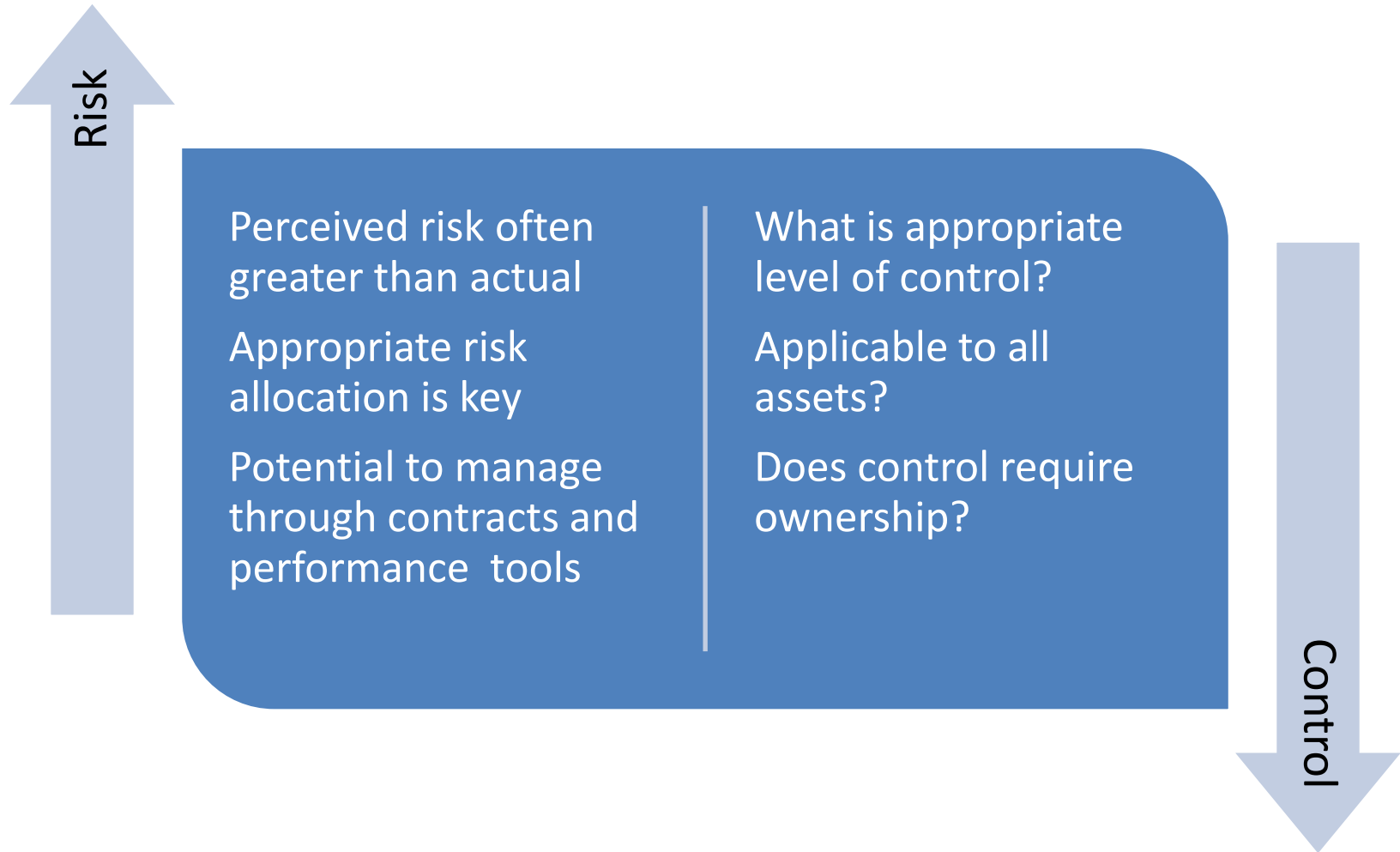
Delivery Structure	Description	Example
Wholly owned public sector	<p>Public sector organisation leads the development of the project and takes full financial risk.</p> <p>Elements of the construction and operation are outsourced through turnkey asset delivery contracts.</p>	<p>Aberdeen Heat and Power Dunfermline Islington / Bunhill</p>
Wholly owned private sector	<p>Private sector led development with private sector entity taking full financial risk for the project.</p>	<p>Birmingham Leicester Kings Cross</p>
Housing scheme	<p>Residential Social Landlord led project, with RSL taking financial risk for the project.</p> <p>Elements of the construction and operation are outsourced through turnkey asset delivery contracts.</p>	<p>Cube Housing Association</p>



## What influences the delivery structure?

- Stakeholder drivers & objectives
- Desire for control
- Appetite for risk
- In-house capacity and capability
- Commercial viability
- Access to capital / finance
- New build or retrofit
- Scale & project phasing
- Legislation & regulation
- Exit strategy





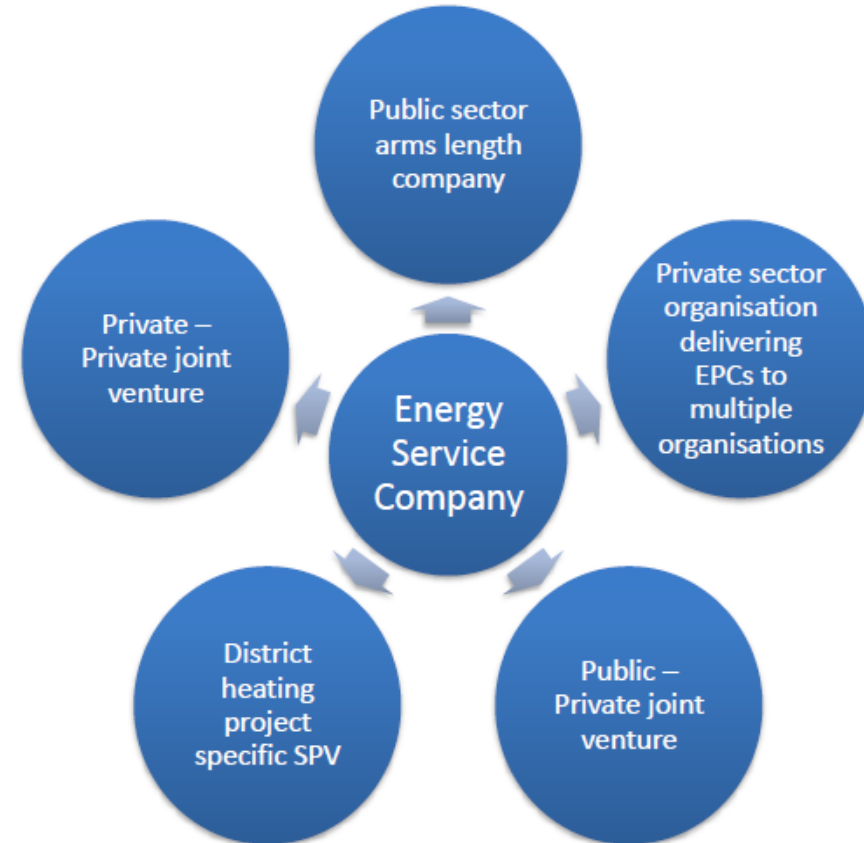
## Delivery structure must be developed alongside funding strategy

- Significant upfront capital investment to develop heat networks
- Limited public sector capital & competing priorities
- May need to attract external finance (public or private)
- Main asset (pipework) has a long useful economic life (40+ years)
- Difficult to finance network without long-term heat supply agreements
- Unregulated market can make revenue streams difficult to guarantee
- Project returns are often marginal, with conflict between meeting the strategic aims of a project and creating a commercial market offering
- Project development / transaction costs high relative to size of project
- Consider bundling smaller schemes to spread risk and reduce overall cost of capital



## An ESCO is JAA!

- Public sector arm's-length vehicle
- Private sector EnPC concessionaire
- Project specific special purpose vehicle
- Joint venture (public-public / public-private)
  
- Form follows function
- Consider advantages – focus, risk transfer(?)
- And disadvantages – administration, cost, tax
- Governance arrangements are critical



# Meeting public sector objectives

Option	Description	Ability to meet public sector objectives	Requirement for public funding
1	Entirely public sector funded, operated and owned	High	Yes
2	Public sector led, use of private sector contractors	High	Yes
3	Private sector invests/takes risk in some elements of the proposed activity	Medium-high	Yes
4	Joint venture, equal share in project with a private sector partner	Medium	Yes
5	Public funding to incentivise private sector activity	Medium	Yes
6	Private sector ownership with public sector promise in element of the project	Medium-low	No
7	Private sector ownership with only involvement from public sector in facilitation role	Low	No
8	Total private sector owner project	Low	No

Public



Private

## What will influence the direction of travel?

- Continuing scarcity of public sector capital
- Increased public sector capacity to deliver
- Increased connection of public sector assets
- Increased public-to-public collaboration
- Strategic approach: over-sizing / future proofing and bundling of schemes
- Regulation – e.g. planning policy, renewable incentive schemes, power purchase
- Increasing use of energy service companies
- Longer term: separate ownership & control of generation, transmission & distribution assets



# Summary

