SSEG/CBE

Low Carbon Scottish Housing for Real

18th June 2009

Session C: Retrofit – Barriers and Opportunities

Scope for district level solutions: Case Studies and Analysis

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Renew

co-operative energy services

Scope for district level solutions

Outline of presentation

- Introduction to district heating/CHP
- Examples in UK
- Policy Analysis
- Structure and Funding
- The Opportunity

Introduction to district heating/CHP

- DH…DHC…"Trigeneration": DHC/CHP
- Comparative efficiency
  - Coal fired power station: 38% at power station
  - Gas fired power station: 48% at power station
  - Coal and gas: deduct 10% for transmission losses
  - Combined with gas combi boilers: c50% overall

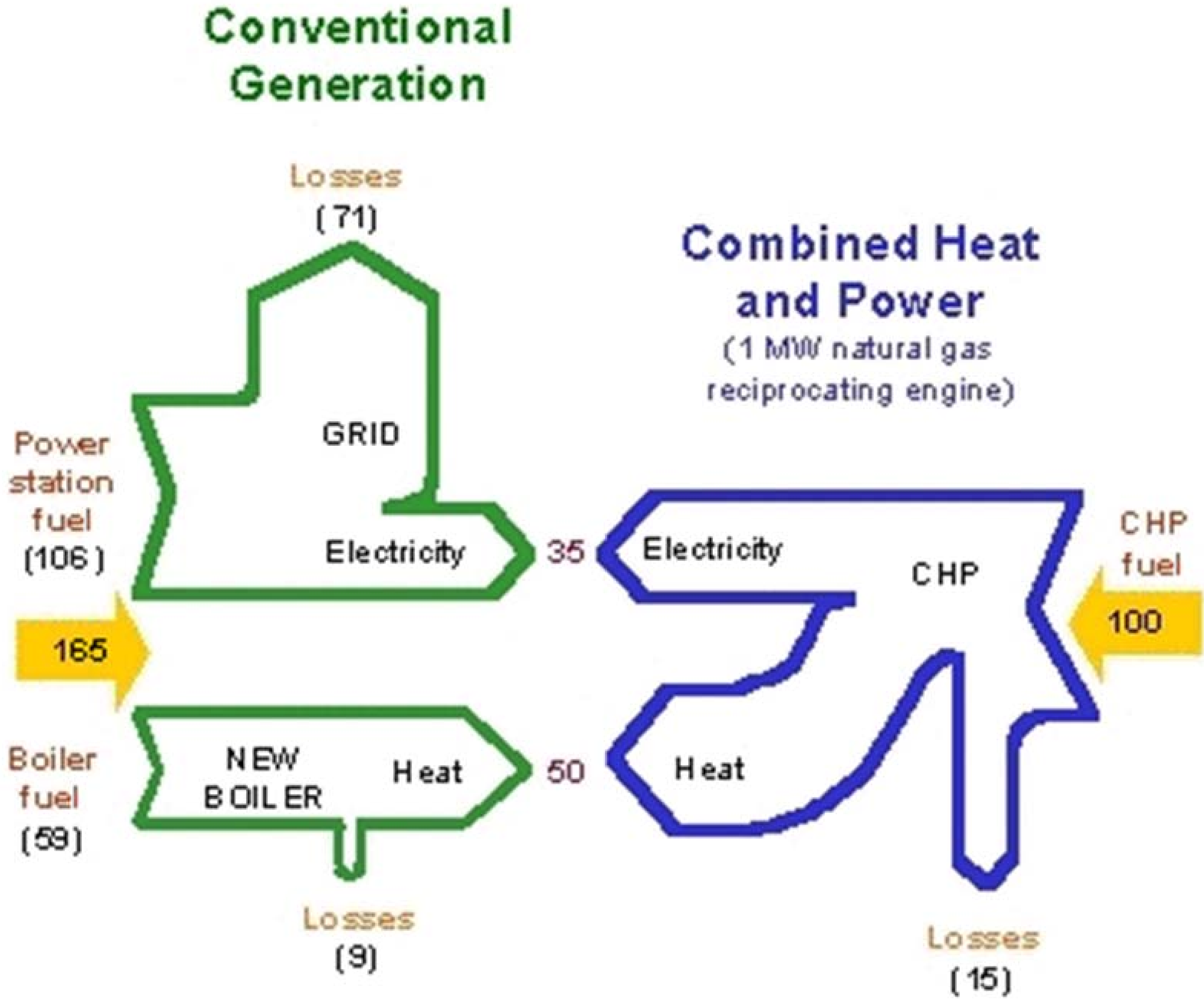
  CHP: up to 85%

  [Source for this slide and following graphic: PB Energy Solutions]

Energy sources for DHC/CHP

Larger DH networks in Scandinavia may use many different energy sources, e.g.

- Fossil fuels
- Biomass
- Municipal and other waste
- Geothermal
- Wind


Conventional Generation
Losses
(71)
GRID
Power station fuel (106)
Electricity
35
165
NEW BOILER
Heat
50
Boiler fuel (53)
Losses
(9)
Combined Heat and Power
(1 MW natural gas reciprocating engine)
Electricity
CHP
CHP fuel
100
Heat
Losses
(15)

Examples in UK

- Aberdeen Heat and Power
- Clydebank HA
- Pimlico
- Southampton
- Sheffield
- Slough

Policy Analysis

DECC February 2009

- DH heat market share in UK: c4%
- DH heat market share in Sweden: c60%
- Barriers include diverse stakeholders and need for long term contracts

Policy Analysis 2

Early Opportunities for DH:

- Pre 1919 homes
- Pre 1975 flats
- High rise flats with electric heating
- Areas with low cost energy sources

Poyry/Faber Maunsell/Aecom study for DECC April 2009

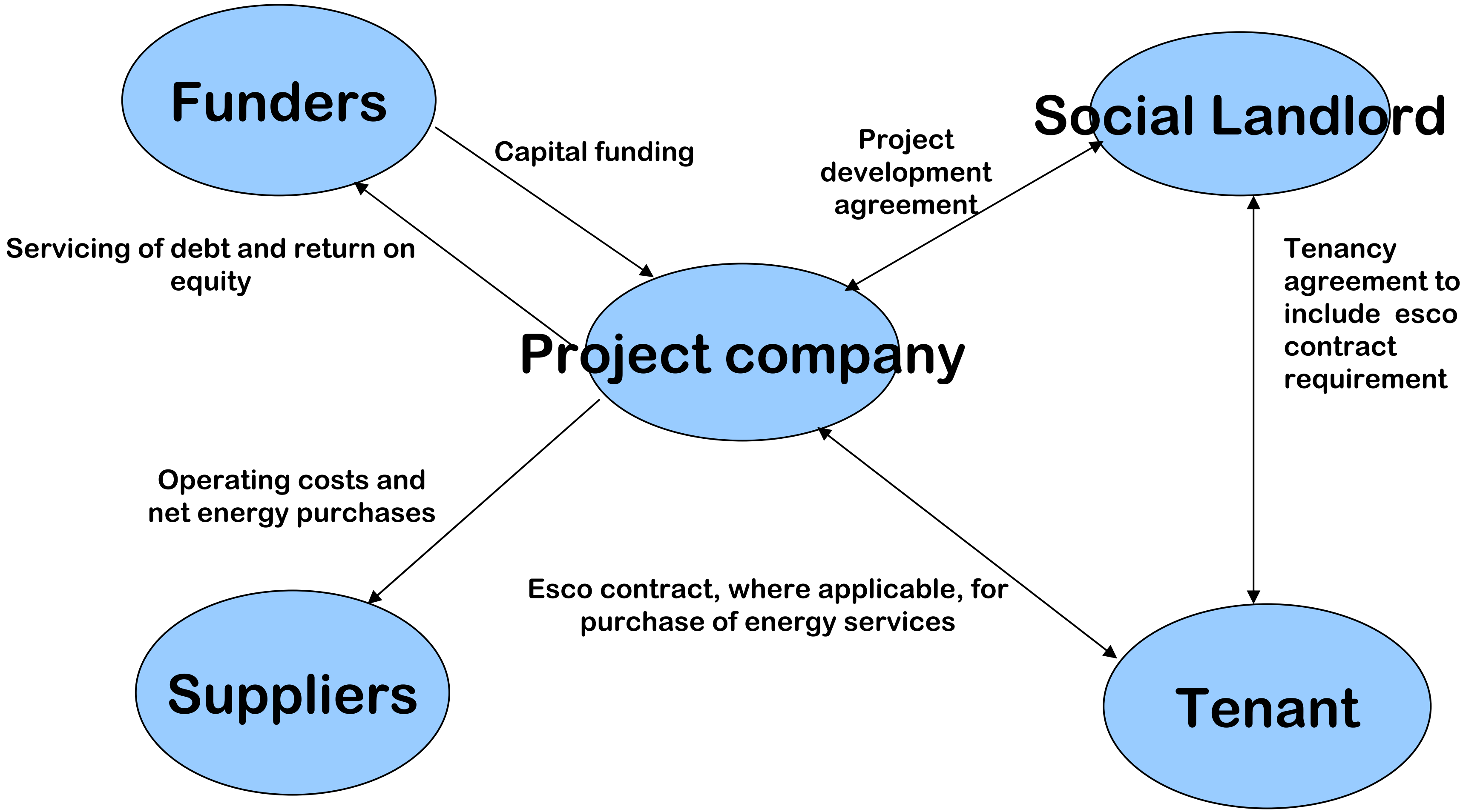
DH potential: 3.3 – 7.9m households

Extra 6-14% of total heat market

Structure and Funding

- Economics of sustainable energy
  - Option appraisals: whole life economics v. capital constraints
  - The economic logic of the esco model
  - But stakeholders are rightly nervous about getting locked in long term to one supplier
- Options: find the money, choose an option with low upfront cost, esco
- Esco options: go it alone, private deal, co-op esco
- Go it alone esco – time, effort and money required; limited scale economies
- Private esco – esco goal will, reasonably, be to generate shareholder value for esco owners
- Co-op esco – esco goal: to maximise customer/community value
- Funders: mix of debt and equity funders: long term project capital
- Intro: Renew – who we are, what we do: Local, Homes, Micro, Wind

Renew
Esco Business Model – social housing example



The Opportunity

- Climate change demands a big shift in our energy mix
- District Heating/CHP should be a big part of the new mix: focus first on denser urban areas, larger new builds and areas with local heat source: e.g energy from waste
- The esco model, particularly the co-op esco, provides a practical means to fund this

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