**Introduction**

- What is CHP
- Why CHP
- CHP and Rookery
- The impact of CHP
- CHP is an opportunity
- Broad benefits
- Timing and strategy

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**What is CHP**

- **Not CHP**
  - Energy in Waste recovered as steam
  - Steam used to drive a steam turbine
  - Turbine drives a generator to produce electricity
  - Electricity supplied to the grid
  - Efficiency optimised as steam condensed

- **CHP**
  - Energy in Waste recovered as steam
  - Steam used to drive a steam turbine
  - Low pressure steam supplied to Heat Exchanger which generates hot water
  - Turbine drives a generator to produce electricity
  - Heat supplied to DH network and electricity to grid
  - Efficiency increased compared to non-CHP option

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Policy context

- CHP
  - UK Waste strategy 2007
  - Planning Policy Statements 1 & 22
  - Resource efficiency
  - East of England plan
  - Regional Economic Strategy
  - Low Carbon Development
    - Draft Core Strategy, North Area (Central Bedfordshire)
    - Bedford Borough Core Strategy

- CHP REPORT INCLUDED AS PART OF THE APPLICATION

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Why CHP

Environmental
- Carbon reduction
- Renewable energy
- Improved plant utilisation

Economic
- Reduced energy costs
- Cost stability
- Revenue balance

Social
- Fuel poverty relief
- Employment generation
- Education and promotion

Economic
- Sustainable Solution

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CHP at Rookery

Production
- CHP facility
- Energy is produced as steam or electricity
- Steam used to generate electricity and hot water

Distribution
- Pumps located at CHP plant
- Pipes installed to distribute steam and hot water
- Pipes network goes to each final user

Supply
- Detached connection at each point
- Use of absorption heating for cooling
- Full control and energy recovery

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Energy demands

- Influencing factors
  - Proximity
  - Scale
  - Energy utilisation
  - Timing
  - Existing or planned development

- Demand hierarchy
  - Existing industrial/commercial users
  - Planned mixed use development
  - Existing public sector
  - Existing mixed use

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Distance limits

Energy Cost (£/MWh)

- 6.00
- 8.00
- 10.00
- 12.00
- 14.00
- 16.00
- 18.00

Pipe length (m)

1,000 2,000 3,000 4,000 5,000 6,000 7,000

Energy Cost (£/MWh)

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The impact of CHP – The end user

- No on site combustion
- Full consumer control
- Integrated energy metering
- Space saving for larger users
- Conventional internal heating systems

The impact of CHP – Households

- CHP is an opportunity
  - Not just about the core CHP scheme
  - Establish the principles
  - Overcome development barriers
  - Establish a local energy business
  - Develop partnerships
  - Long-term commitment
  - Low Carbon development

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Wide ranging benefits

- Reduced CO₂ emissions support sustainable homes initiative
- Lower and stable energy cost to consumers = incentive to buy
- At least neutral cost to developer and builder
- Integrated development of utility connections
- Integrated planning approach and development of non-energy infrastructure
- Opportunities to develop long-term value from energy service provision
- Basis for attracting business to non-domestic development areas

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Strategy

- Identifying potential heat users
- Establishing the key supply requirements
- Promoting the potential for heat supply from the Facility
- Defining the basis for a core CHP scheme
- Securing the commitment needed to facilitate the development of the core CHP scheme
- Establish the commercial structures to deliver CHP
- Implement the core CHP scheme
- Develop and expand the energy business

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Timing

- Agreement to develop & review options – Mar ‘10
- Establish commercial principles – May ‘10
- Select ESCo partner – Jun ‘10
- Define CHP solution – Jul ‘10
- Evaluate CHP impact – Aug ‘10
- Promote CHP to all stakeholders – Sep ‘10
- Finalise commercial offer – Oct ‘10
- Agreement to proceed with CHP – Jan ‘11

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