



Burlington District Energy

September 20, 2016



Topics

Overview: Markham District Energy
Big Picture Topics
Points of Discussion & Lessons Learned
Specific Keys to Success



Overview: Markham District Energy (MDE)

- Created in 1999
- Owned by the City of Markham
- For-profit corporation
- Competitive business, non-rate regulated utility
- MDE produces hot water, chilled water & electricity
- Advisory services to municipalities & municipal utilities



The decision to create MDE started with the 1998 ice storm, as Markham considered ways to enhance its energy security and community resiliency; while at the same time attracting a major employer to Markham.

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Big Picture: Why is Markham interested in DE?



Financial Performance



Economic Development



Environmental Performance



Community Resiliency

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Overview: Markham District Energy (MDE)

Today:



Energy Plants
4



Distribution Piping
50 km



Building Connections
10 million ft²



CHP
15.5 MW

Property, Plant & Equipment totals **\$160 million**
Markham's equity investment - **\$40 million**

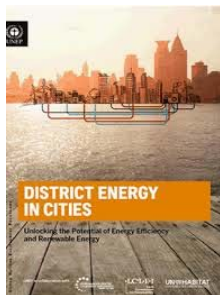
for more information: markhamdistrictenergy.com

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Big Picture: Are Cities moving towards district energy?



The United Nations Environment Programme (UNEP) released a report on February 26, 2015 with this primary conclusion:
“transitioning cities to modern district energy systems could reduce primary energy consumption by 50% by 2050”.

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ENERGY INC.

Points of Discussion

- Mandatory connection?
- Connection fees?
- Is district energy cheaper?
- Outsourcing trends.
- Why should developers care?
- Why should building owners care?
- Why a thermal grid strategy?

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Specific Keys to Success

- **Anchor loads:**
Every successful system needs to start with a major anchor energy load (hospital, data centre, industrial thermal load, large residential development).
- **Minimum density:** Ideally launch with 2 to 3 million ft² developed within a 5-7 year period (lower density if a major anchor is part of the customer base).
- **Distance:**
Total distance from the energy plant less than 3 kilometers.
- **Customer Load Mix:**
Connecting new buildings is optimum. A mix of residential, commercial, institutional and industrial optimizes the utilization of district energy assets.

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Municipal Advantages

- Low cost of capital
- Access to low cost debt and grants (FCM, Gas Tax)
- Long-range investment horizon; City will have a relationship with the buildings connected to the system for 50+ years (regardless of changing ownership and use)
- Best information (and sometimes influence) regarding local development patterns and timing.
- Development incentives for sustainable development.
- Economic development tool.

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Questions & Discussion

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