carbontalks

THE CITY OF CALGARY

Creating and Enabling a Municipal Environment for District Energy

October 31, 2012

DIALOGUE REPORT

Acknowledgements

Carbon Talks is a project of the Simon Fraser University Centre for Dialogue in association with the Beedie School of Business, the School for Public Policy and the School for International Studies. The goal of Carbon Talks is to advance Canadian global competitiveness by shifting to a low-carbon economy.

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The primary author for this dialogue report is Christopher Gully. Comments and edits were provided by Susan Stinson (The City of Calgary), Shauna Sylvester, Claire Havens, and dialogue participants.

In this Dialogue Report

This report details the invitational dialogue "Creating and Enabling a Municipal Environment for District Energy" that was held at Calgary Downtown District Energy Centre on 31 October, 2012. The dialogue session, facilitated by Carbon Talks, was designed to produce actionable plans for the City of Calgary and community stakeholders in promoting district energy as a means of assisting in meeting goals outlined in the Calgary Community GHG Reduction Plan. Background information was provided to dialogue participants in the form of a discussion guide that is available on the Carbon Talks website.

The goal of the dialogue session was to identify barriers and challenges in regard to implementing district energy (DE), exploring best practices, determining what stakeholders need to be involved in the promotion of DE and development of an action plan, and defining what action means to dialogue participants.

A dialogue round on hopes and concerns showed that participants believed DE needs to become considered as a critical piece of infrastructure, but that will require leadership and continued momentum from the community. Opportunities exist in terms of anchor tenants, potential cost savings and profits, but this will require addressing knowledge gaps, promoting the concept of the thermal grid, and ensuring that there is a smooth and appropriate regulatory process. The dialogue also discussed the Downtown District Energy Facility, using it as an example of how the planning and design process can work, and where improvements need to be made or processes need to be simplified.

A scenario planning activity asked participants to design a fictional DE facility and associated infrastructure, based on real sites within Calgary. Participants used this exercise to identify difficulties specific to sites characterized as industrial, residential or multi-unit residential, and MUSH (municipal, university, school, and hospital).

A series of recommendations closed the dialogue, focusing on: education, establishing accountability for emissions reduction targets, connecting additional city buildings, promoting the concept of the thermal grid, and revising provincial micro-generation regulations.

Introduction

On 31 October 2012, Carbon Talks and the City of Calgary convened a dialogue at the Calgary Downtown District Energy Centre titled "Creating and Enabling a Municipal Environment for District Energy." The purpose of the dialogue was to move from discussion to action on the successful implementation of district energy (DE) as a heating and cooling solution in Calgary, as part of the City's efforts to reach its goals outlined in the Calgary Community GHG Reduction Plan. Key questions that were posed to dialogue participants a week prior to the session included:

- *What has led to successful implementation of DE in Calgary in the past, and how can those lessons be applied to future projects?*
- *What changes are needed, and by whom, to enable further implementation of DE in Calgary?*
- *For partners involved in the development of a DE system, what is needed from the City? What is needed from other partners?*
- *What opportunities for collaboration exist, or could be promoted?*

Participants from a variety of backgrounds used the day-long session to discuss these and other questions. The following report represents both the over-arching themes that were raised during the dialogue, and the individual, specific recommendations, ideas, concerns, and background information provided by participants.

The views expressed in this report are solely those of the dialogue participants, and do not necessarily reflect the opinions, future plans, recommendations, or perspectives of the City of Calgary or its administration. Many of the words and phrases used in this report are quotes from the dialogue session, but are not attributed to any individual participant.

This report will serve as a resource for the City of Calgary moving forward with its work in the coming years on the implementation of the City of Calgary Community GHG Reduction Plan.

Methodology

The dialogue featured a mix of roundtable discussions, a guided tour of the district energy facility, a break-out group activity, and a panel discussion. The session was designed to solicit thoughts, opinions, and information from a wide variety of perspectives, guided by the Carbon Talks Rules of Engagement (see Appendix B). The dialogue was designed by Carbon Talks, facilitated by Shauna Sylvester, and documented by Claire Havens, Christopher Gully and City of Calgary representative Susan Stinson. A discussion guide, written by Christopher Gully in cooperation with The City of Calgary, was sent to participants one week prior to the dialogue. This guide provided background information and framed the dialogue.

Throughout this Dialogue Report, a series of charts show the results of a dialogue post-questionnaire that quantitatively measured the views of the invited participants on a variety of issues that were discussed throughout the day. A final dialogue evaluation was also used to gauge to what degree participants felt the dialogue was useful and productive; the results of the dialogue evaluation are presented in Appendix A.

The following table provides an outline of dialogue participants:

Participant Affiliation	**Number**
Industry association	2
Non-government, publicly funded agency	3
Non-profit	2
Municipal government	4
Developer	3
Utility	1
Foundation	1
Total	**16**

Context Setting

The City of Calgary opened the dialogue, noting that the key to this session was to move from dialogue to action. Since 2008, the City has been doing citizen surveys, measuring ecological footprints, and looking for cleaner sources of energy. This is something that is important to the citizens of Calgary, and a necessary component of the Municipal Development Plan (MDP) and the Calgary Community GHG Reduction Plan.

This dialogue was designed to find common understanding on four things:

1. ***What are the barriers and challenges that exist in regards to the implementation of district energy?***
2. ***How can we leverage best practices that are already out there?***
3. ***Who else should be involved in developing an action plan on district energy?***
4. ***What is action, and how can the actions of dialogue participants advance the implementation of district energy?***

Opening the Dialogue

To begin the dialogue, participants were asked to name one hope and one concern regarding the implementation of DE within Calgary.

Participants expressed **hopes** that:

- In 2013, the Downtown District Energy Centre "really takes off" with a number of additional customers signed on
- DE becomes part of business as usual, the default for development, and starts to be seen like any other infrastructure so installation can be as easy as it is with sewer pipe, for example. This will involve a change in the perception of what defines a critical piece of infrastructure for development
- DE is encouraged as a first consideration, and not the last, eventually becoming business as usual for developers
- The framework that the City is trying to achieve with the Plan is to build upon the work of the Calgary Community GHG Reduction Plan to set meaningful and achievable targets, combined with a DE champion emerging among City decision-makers
- We can come up with a Calgarian success story regarding DE so that Calgary can be seen as a leader. Calgary is already seen as the epicentre of energy in Canada, it should embrace that niche and adopt DE to a great extent
- Proper incentives encourage the private sector, recognizing that incentives does not just mean money
- A leader will emerge, promoting better education and access to resources and tools.
- Actions for each sector are clarified

Most participants focused their **concerns** on the lack of leadership, a lack of involvement of the public sector, and a lack of understanding. Specifically, participants were concerned that:

- There are not enough champions leading the charge for DE on Council or in the business community
- The low price of natural gas is throwing off the economics of energy efficiencies
- If action isn't taken fast enough, there won't be the critical momentum necessary. This destroys confidence and reinforces the position of the naysayers
- It's the private sector that needs to move on this, not government
- Concern that there is a lack of understanding on how this is a phase shift for developers: this will require a rethinking of how buildings are built compared to the past twenty plus years
- We lose momentum following this discussion
- We overregulate without addressing financial concerns
- Building owners and investors don't see the value of DE

What does Action Mean?

In both the design process of this dialogue, and during the initial stages of the conversation, many participants expressed that they were hoping for action as an outcome. However not everyone was clear on what exactly action meant in this context.

According to the group, action can mean **going from an idea to execution** via strategies, written plans, and recommendations, ensuring that things get accomplished by people in positions of responsibility, whether that be the City or otherwise. If there is a lack of political will, then such strategies will get shelved.

While the technology is relatively simple, there is a **lack of mechanisms to encourage the adoption** of that technology. Action could mean the creation of something like a feed-in tariff (FIT) program, or some other program that encourages development of DE.

For some participants, action means ensuring that the **Calgary Downtown District Energy Centre is successful**. The City as a customer has been a success, and it needs to show off that accomplishment; if industry is more aware of the potential savings then they are more likely to adopt.

Opportunities Moving Forward

A roundtable session explored the current state of district energy in Calgary, and where opportunities exist for developing of DE. The discussion began with an exploration of how and why DE can be encouraged, before beginning to explore some of the barriers that are preventing more widespread adoption or promotion of DE and connections to DE within the city.

The **municipal, university, school, and hospital (MUSH)** sector is a logical starting point for building out DE. Along this line, there is an opportunity for the City to expand its use of DE among its many public buildings. If the City can show the community that it has saved energy, then the private sector is more likely to follow. Many City buildings, such as libraries and athletic facilities, are adjacent to other high-density amenities and represent opportunities for establishment of DE. This does not however follow the successful pattern from Markham, Ontario, whereby the public sector followed the private by seven or eight years.

For the developer, the conversation is about how to **maximize profits**. If the adoption of any new technology turns out to be difficult or overly costly, those costs get passed to the consumer, eroding affordability and increasing risk. The City will need to recognize those challenges. That said, there are other groups who may have their own motivations for financing a DE system, patient, long-term investors such as pension funds. Tenants and oil and gas firms may have a different set of motivations that may not point toward DE as a solution.

Often a **greater concern than cost can be timing**. If developers can be certain that a DE project can move ahead without eroding their schedule, then they will be more likely to use it. The cost may be $1 million out of a total building cost of $150 million, but a six month delay will still make that investment unpalatable. A fast track process, similar to what has been implemented in Markham, could help by ensuring that developers can quickly and easily connect to DE, making it a more desirable option than traditional heating and cooling. However regulation almost inevitably delays any process, so any new fast-track process would have to prove itself.

Much of this conversation assumed that a DE system is already in place, but if it isn't, then how do we raise the necessary up-front capital? How can we convince a land owner to commit to an agreement to use DE for 10, 15, or 20 years? These are additional risks to consider. Experience has shown us that for young DE systems, the contract-length will typically be short, but after about 10-15 years the developer understands the benefits and looks for much longer contracts on the order of 40 years.

At those sites where DE already makes sense, such as the East Village, there is little that needs to be done to show the opportunity. For other areas that may not have an appropriate built form, how do we work toward building opportunities for DE in the future? This represents both an obstacle and a tremendous opportunity. Most infrastructures in 2015 will be existing building stock rather than new builds, so we should focus on how to **connect those existing buildings**.

Another source of delay is a **"wish-list" of environmental attributes** that are regulated for new buildings. In some jurisdictions this can include green roofs, efficient lighting, or district heating. The longer this list, the more difficult it is for developers, increasing the complexity of their project.

There is a **knowledge gap** when it comes to those who need to make decisions on district energy: Council and committees may need to be reminded of the benefits of DE and why it is a priority. The development of the Municipal Development Plan (MDP) included DE in specific locations, but Council indicated that it was not appropriate to indicate specific technology. There is a real opportunity to educate our leaders as to why DE is important, and what policy and bylaw changes may be necessary to encourage its adoption. This can also help with prioritization within the City itself, as different departments will have different priorities when it comes to community GHG reductions.

We often make **long term commitments** on status quo items without a second thought: there is no question as to whether or not a new building will connect to natural gas. However for technology that is less well-known, long term commitments represent a risk. The dialogue showed us that this is mostly a matter of perception: utilities like electricity are considered long-term, but options for communications like internet and phone for example are expected to be more flexible. There is an opportunity to de-risk DE as a concept, show how it's beneficial on a long time-scale, and encourage people to make the first connections and be early adopters to their benefit. Much of this involves deciding who will put the pipe in the ground. What the industry needs is infrastructure investment in a **thermal distribution network**. It can be argued that the railroad would never have been built on a business case, nor would the electrical distribution network, the TransCanada pipeline, cable networks, and so on. Why should a thermal grid be any different?

Some buildings in Calgary were built decades ago, yet are exhibiting significant emissions reductions due to efficiencies introduced by **experienced and educated building operators**. Without such building operators in place, along with adequate and appropriate training and education, energy efficiency savings are not always realized. That is, though DE may be one part of the energy efficiency puzzle, it should not be considered in isolation of building operations and other energy efficiency measures.

Targets and accountability will help to move DE forward. With a goal in mind, and a type of technology being promoted, then there can be action. At the moment, nobody within the City is accountable for achieving emissions reduction targets.

Any plant over 1 megawatt (MW) has to go through the same **regulatory approval process** as an 800 MW coal-fired power plant; in Ontario that standard was raised to 20 MW. If there is a plan to build a 5 MW DE facility in Calgary, then it is required to do face-to-face consultation with anyone who lives and works within an 800 meter radius, and additional consultation within a 2 kilometer radius. For a $5 million power plant, those consultations could add up to $1 million. There is an opportunity to work with the City and province to modernize this regulation, recognizing that we can have power generation with natural gas. It is reported that efforts at reviewing and revising Alberta's micro-generation legislation are underway.

Hooking up to District Energy

The second roundtable discussion began with an discussion on the history of DE within Canada and Calgary specifically, before moving on to a discussion on the Calgary Downtown District Energy Centre, including how it came to be developed, what lessons were learned, and how it will fit into future plans for the city and community stakeholders

District energy facilities were originally developed in the 1950's for critical buildings to ensure heat security, such as any large hospital or military installation. Since then, it has simply been a matter of Europeans bringing down the cost of the technology and making it commercially viable. This **resiliency to outside threats** is another benefit of district energy, and was exemplified during the 1998 eastern Canada ice storm.

A significant number of DE facilities in Canada can be traced to **tours organized by the Federation of Canadian Municipalities**. Leaders from across the country saw what was going on in places like Denmark and Sweden, saw the benefits, and then came back home and championed projects. Similarly in Calgary, following such a tour in 1998, a motion was brought before Council to do a feasibility study on district energy starting in 2000. The largest issue over the next 7 years was determining how the City was going to pay for its share. Funding was eventually made possible by Canada-Alberta Municipal Rural Infrastructure

Fund, the Government of Alberta, and the City. The current facility is seen as stage one, with City Hall as the first customer; in March 2011, Bow Valley College signed a 25-year contract with ENMAX demonstrating a strong commitment to district energy in Calgary.

Looking back, there are many **lessons to be learned** from this facility. There was a schedule mismatch between the building of the Bow Tower and this facility, meaning a connection to DE would represent a technical risk for them. A loss of momentum in the development of the East Village was also a setback, but the project moved ahead as there was a major customer in place – City Hall – and that enabled the funding from CAMRIF. Ideally any DE facility should hope to sign on 50-60% of its load in advance of construction.

The **lead time before a customer agrees to connect** to a system is about two years. The need now is to educate, raise awareness, and market to potential customers. As GHG reductions are not necessarily a major election issue in Calgary, the awareness around technology such as DE is similarly lacking.

This particular DE facility was designed as a showcase to demonstrate Calgary's commitment to GHG reductions; it could have looked like a concrete bunker at a much reduced cost. The expectation is that the space will become commercial space, and will complement what will grow up in the surrounding area: condominiums, library, hotel, and the Stampede grounds. The design of this building and the plant floor allows for additional vertical development above the existing facility.

In terms of the technology, **natural gas-fired boilers are relatively inexpensive**, as is the fuel. If a different technology was chosen for some reason, such as waste incineration, then the project would likely not move ahead. Emissions reductions may be greater, but the project itself could become unfeasible. The thermal grid is, by definition, technology agnostic. Whether the DE system uses natural gas, biomass, waste heat, or otherwise, the heat can still be shared throughout the grid. In addition, building operators don't need to worry about the heat generation, just as they do not currently worry about electricity generation. The thermal grid will make DE into a plug and play technology.

An **energy-service agreement** can work such that for the life of the contract, the building will never pay more than it would have, had it installed individual boilers and chillers. The agreement tests each year to determine how much energy would have been used on those individual boilers. The question of building operators can also change the economics of the decision – an experienced operator can reduce requirements for heating and cooling, making DE more attractive. Related to this, the concept of a **"green concierge"** or a building operator trained specifically with technical capacity to operate newer buildings with green technology, has also been gaining traction. This knowledge is essential when a building owner is deciding how to retrofit for energy savings: should the boilers be replaced entirely, and what training would be necessary on the new equipment? Can the boilers be retrofitted with new technology to increase efficiencies at a lower cost? Would removing oil boilers and hooking up to a DE

facility be the most economical solution, taking into account an increase in useable floor space? Without the right training and education, these decisions can be confusing. Over the past 18 months, the cost to put one metre of pipe into the ground has more than doubled due to complications with pipe include clearances, depth, and other sources of interference. Where is the business case among all of these considerations?

Finally, another potential barrier encountered in Alberta is the natural gas rebate. Due in part to this subsidy, a biomass energy project in Grand Prairie simply couldn't compete and there was no avenue for using that gas subsidy for the biomass plant. This means that DE was unable to compete, as the playing field wasn't level.

Scenario Planning

To encourage dialogue participants to think creatively, collaborate, and come up with concrete recommendations, a series of three scenarios were presented for their analysis. These three scenarios were based on sites within Calgary where DE has been, is being, or could be considered for development. The plenary was divided into three groups; these groups were given background material on three specific sites which they used to develop a plan that was presented for discussion. Four "expert panelists" playing the parts of a resident, banker, councilor, and developer, followed up each presentation with a series of questions and comments in a mock Dragon's Den style panel. Though participants developed their plans based on the real characteristics of existing sites in Calgary, the results of the exercise presented below are generalized in order to ensure the discussion is relevant to future development plans.

Industrial Site

The thermal grid at this site is acknowledged to exist already, so the goal is to connect the major tenants. For this site, that means the meat processing plant, the airport, a future industrial park, and other industrial areas. The plan will begin with boilers, supplying both heat and power to amenities near the airport, ensuring a steady 24 hour thermal load. Though the boilers would originally be gas-fired, the plan predicts bringing in biomass by rail for a future, supplementary plant. This plan is meant to be flexible and scalable; while it will start off small, it is designed with the potential to grow.

As the airport is under federal jurisdiction, there will be no services supplied directly. The focus would rather be on nearby amenities. Residents and business-owners concerned about rising utility costs would see no changes to their bills, though it is unclear who would be ultimately paying for the thermal grid. As some of this is Aboriginal land, there is an opportunity for building an interpretive centre that will also make use of waste heat.

New Residential (MUSH)

This site exemplifies the MUSH sector: sites with a large anchor customer, usually a municipal building (M), university (U), school (S), or hospital (H). This site mirrors the Markham Central Hospital project. The hospital would be the biggest energy user, so the plan would locate the plant with the hospital. This avoids jurisdictional issues that can arise when running the plant on municipal land. Funding would have to come from government – in Markham, $25 million was provided by the hospital, providing them with a 40 year contract. Though there are big-box retail stores in the area, they are unlikely to want to connect as they generally only have 5 year business plans.

For the first five years the plant would generate 4-5 MW, growing to 10-12 MW; this would require regulatory changes, particularly with regards micro-generation legislation. An energy service agreement would be used to connect customers, and the City could encourage connections through density bonusing and fast-track permitting. Ultimately, without the hospital, this plan is not feasible.

Central Residential (MURB)

This neighbourhood features a light-rail transit (LRT) line running through with multi-unit residential buildings (MURB) on both sides. Though there is already a DE facility at the university, other anchor customers for a new system could be existing retail stores. There are municipal and provincially-owned buildings in the area, so the governments could mandate connections to the system. As in the Industrial area, changes to micro-generation legislation would ensure that over-complex consultations would not be required. Whatever financing gap exists could be covered through a PACE bond, CCEMC funding, City investment, or FCM programs.

Recommendations

Dialogue participants were asked to write down recommendations for each of: City of Calgary, Government of Alberta, Government of Canada, civil society, private sector, and utilities. Their recommendations have been collated and summarized here.

City of Calgary

- Continue to educate and build awareness among Council, planners, permitting and approvals, and the private sector and ensure decisions are taken by an identified DE leader
- Ensure a clear decision-making structure regarding DE at each point in the planning process
- Establish what the GHG baseline is in 2012, calculate quantitatively what a 20% reduction by 2020 means, calculate the potential of DE in contributing to that reduction, and make the City accountable for reaching those targets
- Develop a position on DE for the City's input into amendments to the Municipal Government Act and ensure that policy and implementation plans are aligned
- Give the Municipal Land Corporation an explicit mandate to promote and implement DE in the East Village
- Connect all municipally owned or controlled buildings to the existing DE system within three years
- Prepare a report for Council, with recommendations, on the City's role in developing DE into a utility
- Don't over-regulate DE as has been done with solar
- Demonstrate and show the value of DE from the perspective of a customer

Government of Alberta

- Encourage the Premier to visit a DE facility when overseas
- Connect all provincially owned or operated buildings to a DE system within three years
- Revisit micro-generation legislation to incorporate projects up to 20MW or higher so that DE facilities are not burdened with unreasonable and inappropriate public consultation processes
- Amend funding mandates to allow projects with low-cost and long-term GHG reductions to get support, prioritizing DE over projects like carbon capture and storage (CCS)
- Implement user fees on utility bills to fund energy efficiency and implement lower rates for customers connected to DE systems
- Perform a provincial inventory of buildings connected to DE

Government of Canada

- Require federal buildings to connect to DE systems
- Delegate greater decision-making authority to provinces and cities along with less strings attached to funding
- Invest in new DE infrastructure in the form of a thermal grid, as is done on railroads, highways, and seaways

Civil Society

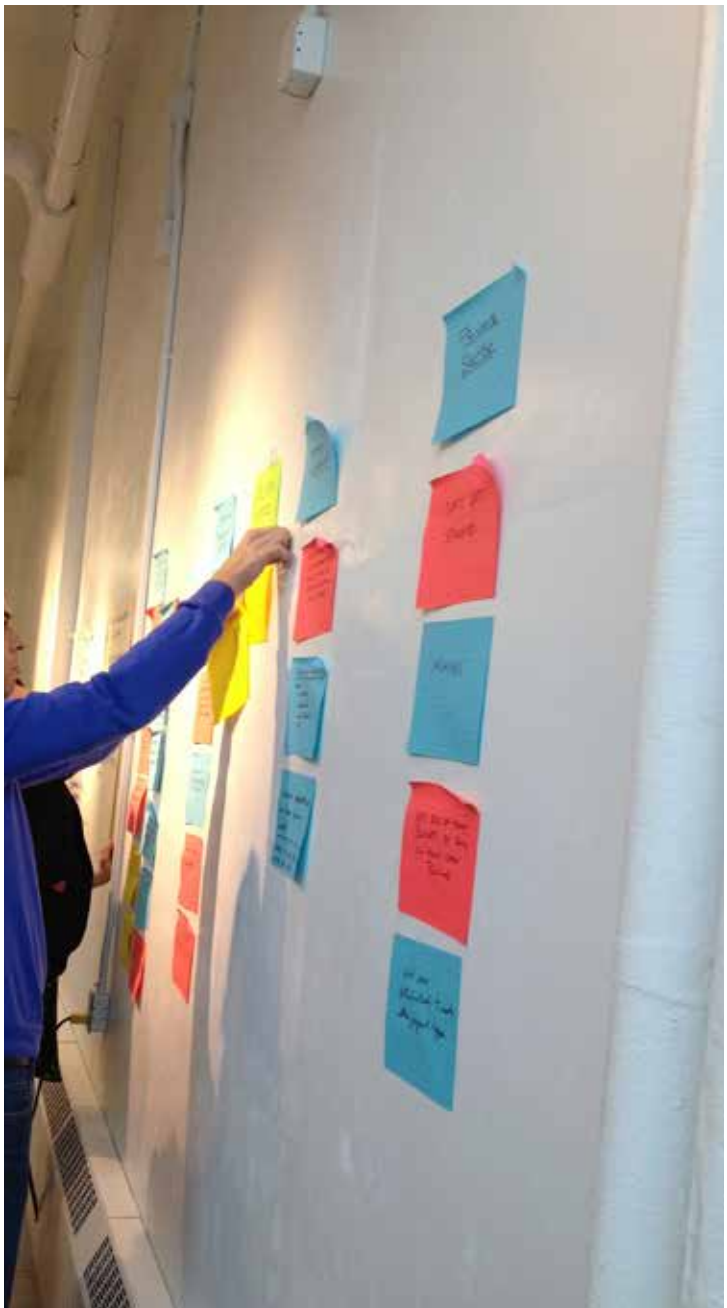
- Continue to make DE and energy efficiency an election issue
- Help to close the educational gap between those responsible for policy and implementation

Private Sector

- Think creatively and innovatively about energy solutions
- Educate and raise awareness of DE and the business case

Utilities

- Ensure third-party evaluation of possible DE in sites identified in the MDP
- Define a “typical” building that can be used by industry to understand connections
- Research the actual benefits of DE as regards: GHG reductions, risks, social and economic benefits, lifecycle accounting, and the business case
- Work with DE champions and academics or environmental groups in order to gain credibility with the public



Next Steps from the City

The largest takeaway for the City from this dialogue was that not only is leadership necessary, but that the City has to make that decision to lead. Until that decision is made, then not a lot of action will take place. From the City's perspective, there is a need for focus: of all aspects of the Plan, some are very specific to district energy. To move ahead, this does not only need to be embraced at the political level, but also at an administrative level. Departments such as Development and Building Approvals, Land-use Policy and Planning, and Transportation Planning are already involved, but more are needed.

Targets have been a difficult aspect of the Plan, so the best solution was a series of desired outcomes. For example, CHP and DE will be considered for most developments above a desired size by 2015. At the moment, energy is not a consolidating mandate for the City; this is considered to be ENMAX's area of responsibility. There needs to be awareness-raising within the City of the importance of energy, with energy efficiency and DE both being part of that opportunity. Ultimately, it is critical to continue this kind of mutually supportive and mutually challenging discussion.

In your opinion, what is the role of The City of Calgary in advancing district energy?

"It has a critical role in creating the conditions (zoning, bylaws, etc) that encourage its use and in providing leadership"

"Walking the walk (installing and connecting); regulatory (franchise fee policy); land developer (require district energy connections to be made when selling East Village lands)"

"Facilitate approval, incorporate district energy within standards"

"Ensure a smooth process for approvals and implementation; initial administration and coordination of overall process; manage a possible revolving fund"

"Partner on any project; assume part of the risk and provide incentives to lead the way"

"Lead by example; facilitate adoption by others by reducing barriers"

"Act as an enabler and help with meeting city requirements"

"Incentives through the application process"

Conclusions

The dialogue "Creating and Enabling a Municipal Environment for District Energy" brought together community stakeholders and experts in district energy to determine how Calgary can use district energy – both existing facilities and future projects – to assist the community in meeting the goals of the Calgary Community GHG Reduction Plan.

A major theme to emerge from the dialogue session revolved around district energy becoming a business as usual decision for development. Just as electricity, gas, and water are considered essential infrastructure, district heating and cooling in the form of a "thermal grid" could also become the norm. This may require changes to the planning and permitting process, along with developing guidelines or best practices for construction, maintenance, and financing of pipe networks.

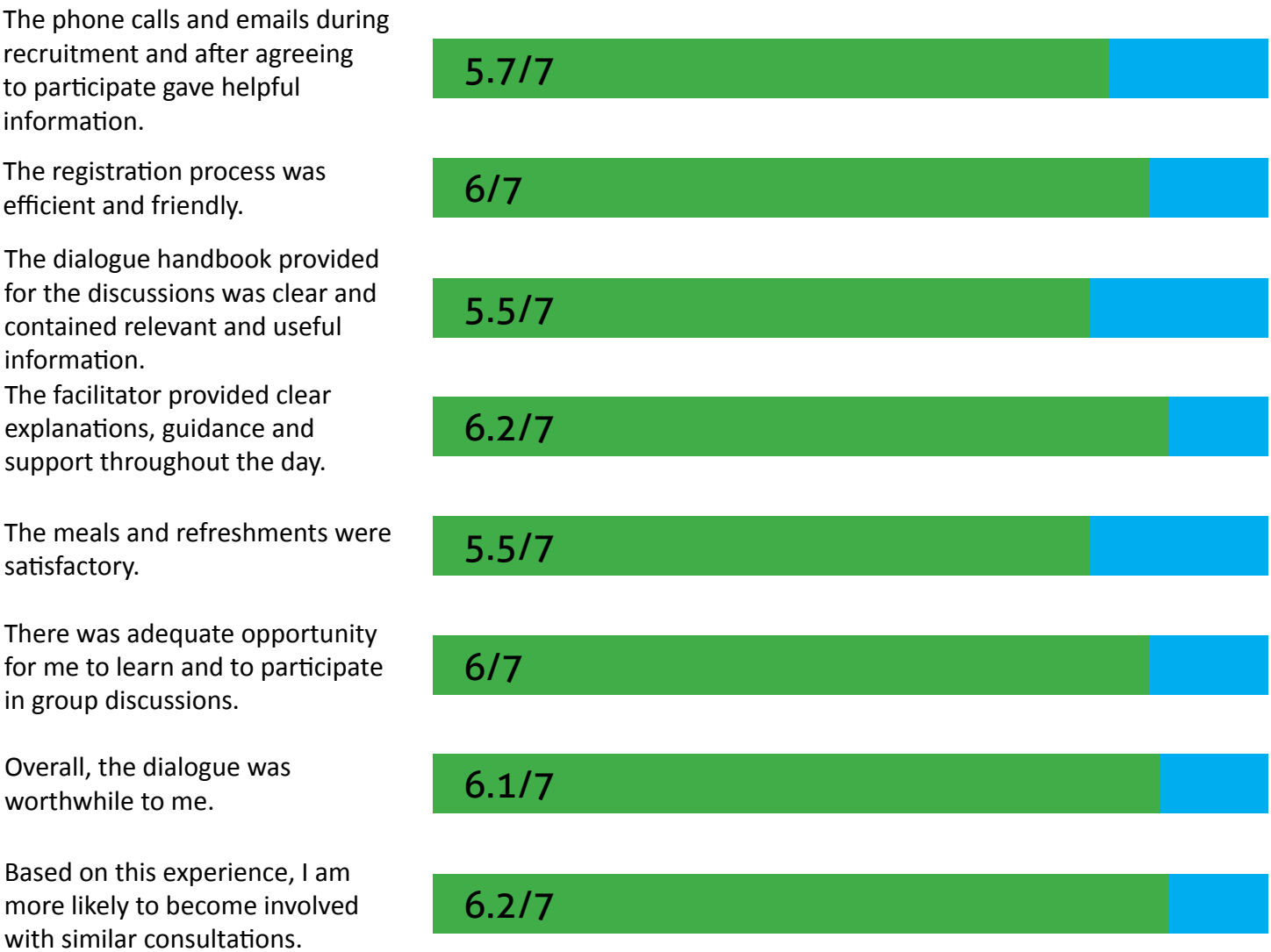
Efforts are already underway to examine and revise provincial micro-generation regulation to include higher capacity projects such as district energy, cutting down on unnecessary consultation processes. Stakeholders who are able to contribute to this process should continue to do so, ensuring that the promotion of district energy is a key component of any revised regulations.

All of these efforts will require a greater level of awareness of district energy, its benefits, and its challenges among community stakeholders, including developers, builders, building operators, private sector energy consumers, City staff, Council, and so on. While individual district energy "champions" already exist at many levels, a broader spread of awareness and information will reduce bottlenecks in the decision-making process and ensure district energy projects receive the support they require to move ahead.

Following this dialogue, work has continued on making plans toward key actions, including appropriate engagement with community stakeholders. Ultimately this dialogue has not only informed the City of Calgary in the development of its work plan for the upcoming year, but encouraged dialogue participants to evaluate their efforts at promoting district energy within their own organizations and networks. Carbon Talks looks forward to Calgary continuing to be an energy leader in Canada, with district energy as a key component of its future infrastructure.

In your opinion, how much potential does district energy have for reducing GHGs in Calgary?

Appendix A - Dialogue Evaluation



Appendix B - Rules of Engagement

1. Chatham House Rule: “participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.”

2. The focus is on dialogue not debate.

3. Hats off: Each participant is here as an individual and is not speaking on behalf of their business or organization.

4. Step up or step back.

5. Cell phones off (or muted).

6. Open Source: The information will be recorded and presented in a report that participants will review. Following the review the report will be available publicly and registered under the Creative Commons.

Appendix C - Dialogue Agenda

8:30 AM	Refreshments and Pre-Questionnaire
9:00 AM	Welcome Jeff Reading, Advisory Committee, Carbon Talks
9:05 AM	Overview of Agenda Facilitator: Shauna Sylvester, Executive Director, Carbon Talks, Simon Fraser University *What is one hope and one concern as the City of Calgary moves to action on district energy?*
9:30AM	Context setting - Sharon Young, City of Calgary *Key steps toward "Creating and Enabling a Municipal Environment for District Energy"*
9:40 AM	Roundtable #1 - Setting the Context *Where are the greatest opportunities to move forward with district energy in Calgary?* *What does your sector need?*
10:30AM	BREAK
10:45AM	Tour of the Calgary Downtown District Energy facility
12:00PM	LUNCH
12:45PM	The Making of the Calgary District Energy facility Pat Bohan, Director, Business Development, District Energy Systems, ENMAX
1:15PM	Simulation Exercise – Planning for District Energy in Calgary 3 sites – small groups
2:30 PM	BREAK
2:45PM	Roundtable #3 – Recommendation for Moving Forward
3:15 PM	Next Steps Linda Harvey, Lead, Air Quality, Climate Change & Energy, City of Calgary
3:25 PM	Final Round, Post-Questionnaire and Closing
4:00 PM	Adjourn

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