BACKGROUNDER ON URBAN SYSTEMS SITE C REPORT

A Review of the Site C Project
Exploring the Alternatives

1. INTRODUCTION

The District of Hudson's Hope, a community of 1,100 people in the heart of the Peace River Valley, will be impacted

more than any other municipality by the proposed Site C dam. Accordingly, the District has tried to be diligent in monitoring studies and assessments associated with the proposed project. The most exhaustive of those processes was conducted by the Site C Joint Review Panel (JRP) appointed by the provincial and federal governments. Their report was released on May 1, 2014. Given that 457-page report's complexity, the District engaged Urban Systems to conduct a review of the JRP's findings, available literature and other relevant information – to clarify the viability and impact of the Site C proposal. This is a summary of the analysis and findings to date.

2. REPORT OVERVIEW

Hudson's Hope, many communities throughout the Peace and the natural and agricultural land in the surrounding Peace River Valley are all at direct risk from the development of the proposed Site C dam. That being the case, the District of Hudson's Hope retained Urban Systems to review the Joint Review Panel Report, the Site C Environmental Impact Statement and British Columbia Hydro and Power Authority's (BC Hydro) Integrated Resource Plan, with specific direction to answer the following question:

Are the anticipated community and environmental impacts, and high costs of the proposed Site C project justified and absolutely necessary for meeting British Columbia's future electricity needs?

On the first point, the JRP found that the proposed Site C project would result in significant and irreversible community and environmental impacts, including some that may be impossible to mitigate.

On the question of cost, the JRP found that it could not confirm the accuracy of project cost estimates because it did not have the information, time or resources. Assuming the project cost estimates are accurate, the JRP found that the proposed Site C project would have a capacity to supply firm power over a long term at an ultimate cost (in dollars and greenhouse gas emissions) that would be the least expensive of the limited alternatives that the BC government permitted the JRP to investigate.

At the same time, the $7.9-billion price tag would likely make this the largest public project in British Columbia in the next 20 years; and interest charges alone would be more than the $1-billion cost of just one possible alternative. Accordingly, the JRP concluded that a Site C decision would be premature prior to the completion and regulatory approval of a 20-year pricing scenario.

On the question of demand, the JRP made two clear findings:

1. Under BC Hydro's own assumptions, the utility has the ability, through minor changes to existing facilities, to meet demand until at least 2028, removing any urgency to build the proposed Site C project.
2. There has not been sufficient assessment of the effects of rising electricity rates, advancing technology, and energy conservation. The Panel concluded that more work needs to be done and recommended a thorough review by the BC Utilities Commission (BCUC).

In light of these uncertainties, the District of Hudson's Hope, with support from Urban Systems, went on to review 5 alternative energy futures that may have the potential to provide electricity generation in a cost-effective manner to British Columbians.

3. REVIEW OF ALTERNATIVES TO SITE C

Alternative 1: Retrofits and Upgrades

The JRP found that by retrofitting and upgrading the G.M. Shrum hydroelectric dam and by adding a sixth turbine to Revelstoke Dam, BC Hydro could increase capacity by more than 700 megawatts, potentially delaying the requirement for greenfield infrastructure until 2028. BC Hydro also reports other potential infrastructure upgrades that could provide an additional 1,465 megawatts of dependable capacity. A third option, upgrading the Burrard Thermal Generating Station, could produce 6.1 terawatt hours per year (TWh/yr) and 875 megawatts of capacity, compared to 5.1 TWh/yr and 1,100 megawatts at Site C. At $1 billion, the cost of this upgrade would be equal to 66% of the anticipated construction-period interest charges for Site C. Even if BC Hydro budgeted an additional $1.1 billion for carbon credits to offset projected Burrard Thermal greenhouse gas emissions for the next 20 years, this project option would still cost $5.8 billion less than Site C.

Alternative 2: Geothermal

BC Hydro has identified 16 prospective geothermal sites, of which six have an anticipated collective capacity of more than 1,000 megawatts. The BC Hydro Integrated Resource Plan further reports that 4 terawatt hours (TWh) of geothermal power and about 700 megawatts of capacity could be available within the range of $91 to $105 per megawatt hour – slightly less than the $110 estimated for Site C. The JRP further noted that the BC government has prohibited BC Hydro from adequately exploring this alternative; as provincial policy reserves the development of geothermal to the private sector.

Alternative 3: Mix of Renewable Alternatives and Energy Conservation (Demand Side Management)

The JRP identified numerous other renewable energy resources that are available at costs comparable to Site C. But again, the policy preventing BC Hydro from developing these resources has also prevented the relevant analysis of this potential. The JRP also found that BC Hydro had not adequately assessed the potential impact of more ambitious Demand Side Management programs – i.e., efforts to reward or encourage consumers for using less electricity.

Alternative 4: Natural Gas / Cogeneration

Gas-fired generation or co-generation plants fuelled by the abundant domestic natural gas resources of north-eastern British Columbia could reduce or eliminate the need for the proposed Site C project, particularly when combined with renewable energy resources. Yet, BC Hydro has likely underestimated this capacity, calculating that it would run any gas turbines at an 18% capacity factor, even though such facilities could operate at 90%. By comparison, the new Shepherd Energy Facility in Calgary, a cogeneration facility with an electrical energy output and capacity comparable to the proposed Site C project, is expected to have a unitized energy cost of approximately $30 per megawatt/hour versus Site C's anticipated $110 per megawatt/hour. These potential and substantial cost savings once again provide room for investment in carbon emission reduction technologies or carbon credits to offset greenhouse gas emissions.

Alternative 5: Solar Energy and Micro Grids (New Emerging Technologies)

Over the coming years, solar energy, micro grids and other new emerging technologies could well supplant the need for the proposed Site C project and put at risk BC Hydro's ability to pay for this investment over its 70 year amortization period. Three trends could be especially relevant: increases in BC Hydro electrical rates could depress demand; decreases in the cost of solar photovoltaic (PV) modules could increase competition; as could the commercialization of micro grid enabling technologies. These trends are further detailed below:

1. BC Hydro rates are set to increase by 28% in the next 5 years, which will: depress the energy market (as people reduce their consumption); and push BC Hydro unit costs above the cost of current solar photo-voltaic.
2. Solar PV is also increasing in efficiency and dropping further in price. The US Department of Energy has set a solar PV unit energy cost target of $60 per megawatt hour by 2020, significantly below Site C's expected $110 per megawatt hour energy production cost.
3. There are also a host of new technologies that will enhance the capacity of micro grids that could operate more efficiently and cost-effectively than the proposed Site C project, thereby reducing the need to maintain a large transmission infrastructure across the province.

In light of these trends, an investment in a large scale project like the proposed Site C project could expose BC Hydro ratepayers and provincial taxpayers to significant financial risk.

4.0 REPORT FINDINGS

Based on a review of the JRP's findings, available literature and other relevant information, the Urban Systems report concurs with the independent Site C Joint Review Panel: critical questions about the proposed Site C project and viable alternatives remain unanswered.

The evidence suggests that a commitment to this $7.9 billion public investment would be premature before the BCUC undertakes a review of the proposed Site C project costs and long-term energy pricing and re-investigates the comparative costs and benefits of potential alternatives.

Before a final decision is made on the proposed project, the District believes it is appropriate – and urgent – that the provincial government accept and implement recommendations 46,47,48 and 49 of the Joint Review Panel. These recommendations include calling for the BCUC to review: 1) Site C's unit energy costs and revenue requirements; 2) a fully developed long-term pricing scenario; and 3) BC Hydro's load forecasts and demand side management plans. As well, it is essential that the BCUC be given the mandate to complete a thorough review of the comparative costs and benefits of potential alternatives to the proposed Site C project.

Most importantly, the Joint Review Panel has accepted BC Hydro's own estimates that it has readily available generation capacity to meet demand until 2028. This allows time to make a decision on the proposed Site C project based on full information and to fully consider the implications and risks associated with adding almost $7.9 billion, or over 10% to BC's $62 billion debt, to pay for the proposed project.

For more information contact Mayor Gwen Johansson at 250-783-9901 or 250-783-0820.
The full Urban Systems review is expected to be released on Friday July, 11th, 2014.