

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c.15 (Schedule. B);

AND IN THE MATTER OF an application by y PUC Distribution Inc. for an Order of Orders approving or fixing just and reasonable distribution rates and other changes, effective May 1, 2019

INTERROGATORIES

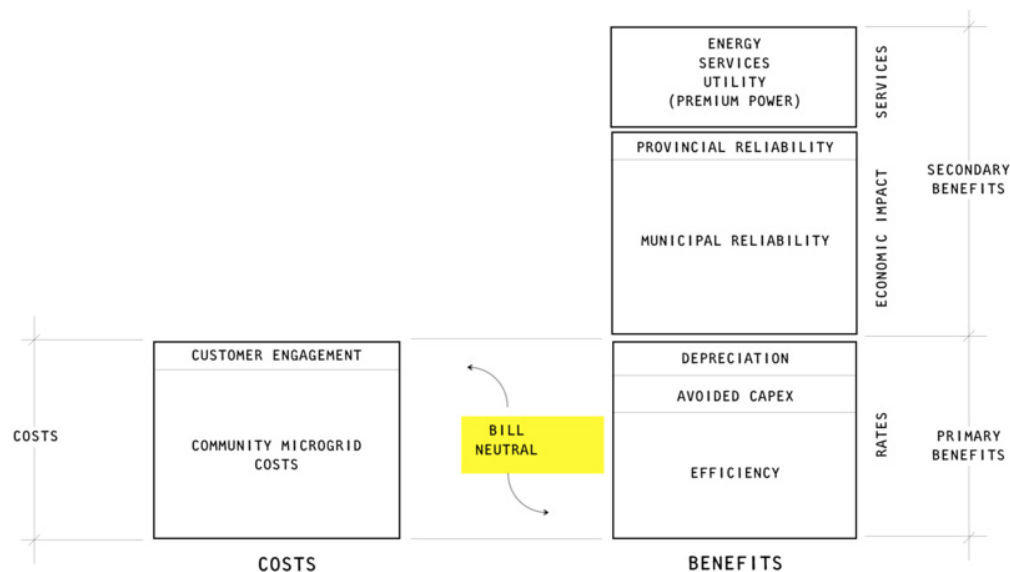
FROM THE

SCHOOL ENERGY COALITION

1. [General] SEC is interested in better understanding the rate impacts of the proposed ICM projects. For a typical school in the GS>50 kW class with 100kW of monthly demand, please confirm:
 - a. The annual total of monthly fixed charges and volumetric charges at proposed 2019 rates, excluding the ICM riders, is \$9,548.16 (\$115.66 monthly fixed charge plus \$6.802/kW demand charge).
 - b. At that level, for a customer with those characteristics, only Hydro One, Toronto Hydro, Algoma Power and Canadian Niagara Power would have higher rates in 2019.
 - c. The Applicant is proposing to increase the charges for that customer for the ICM projects by \$250.44 in 2019 (\$3.03 monthly fixed plus \$0.1784/kW demand), a 2.62% incremental increase.
 - d. The Applicant is proposing to increase the charges for that customer for the ICM projects by a further \$1,163.76 in 2020 (\$14.08 monthly fixed plus \$0.8290/kW demand, bringing the total two year increase – not including the normal IRM increase – to 14.81%.
2. [General] Please confirm that, for a residential customer, the rate increase proposed for the ICM projects, over 2019 and 2020, is \$56.28 per year, over and above any IRM increases in those years.
3. [General] Please confirm that the net increase in rate base being proposed for the ICM projects is \$22,582,045, which is a 24.29% increase in the net fixed assets of the Applicant (currently \$92,962,876 – ICM Model, Tab 6) over two years. Please confirm that the Applicant has never in its history increased its net fixed assets by that much over any two year period. Please advise if the Applicant is aware of any electricity distributor in the Province of Ontario that has ever increased its net fixed assets by 24.29% or more over any two year period. If the Applicant is aware of any examples, please provide details.
4. [Application, p. 5] Please file a copy of the application to NRCan for funding (if it is anything more than Appendix A), and the Contribution Agreement dated December 2018.

5. [Appl., p. 7, 42] Please confirm that the Preliminary Design Reports, the Navigant Report #1, and the Navigant Report #2, were reviews related to a project that is materially different from the Smart Grid Program being proposed in this Application. Please specify what evidentiary conclusions the Applicant believes the Board can reach from reviewing these three documents. Please confirm that neither Leidos nor Navigant has been asked to review the project current being proposed to the Board for approval.
6. [Appl., p. 8, 33] Please provide a detailed list of all projects in the DSP filed in EB-2017-0071 that will be altered, amended, rescheduled, or cancelled as a result of the Smart Grid proposal. For each such project, please provide details of any changes in timing, cost, and other relevant factors.
7. [Appl., p. 9] Please provide, for a typical Residential, GS<50, and GS>50 customer, a comparison of bills each year from 2019 to 2028 both with and without the expenditures on the ICM Projects. Please provide details of all assumptions, and provide all calculations in Excel format.
8. [Appl. p. 10] SEC is seeking to understand how the proposed SSG Project is “innovative”. To assist the Board in that regard:
 - a. Please provide details of all components of the SurvalentONE product suite that are included in the SSG Project, and the purpose and cost of each. For each of those components (e.g. OMS, VVR, IVR, ADMS, etc.), please provide details on the other Ontario electricity distributors that are using that component already.
 - b. Please provide details of all components of the SSG Project that are station refurbishments or replacements, feeder refurbishments or replacements, pole replacements, or any similar distribution infrastructure activity that has been carried out by the Applicant in the past, and the cost of each.
 - c. Please provide details of all components of the SSG Project that are not included in (a) or (b) above, the purpose and cost of each, and the way in which each such component is innovative.
9. [Appl. p. 10] Please provide a list of all assets that the Applicant expects to take out of service prior to the end of their useful life as a result of the SSG Project, and the forecast net book value of each at that time. Please provide details on the accounting treatment of those assets when they are taken out of service.
10. [Appl., p. 10, 59, 62] SEC is seeking to better understand the “performance risk transfer” referred to. In this regard:
 - a. Please explain in detail the purpose of SSG Inc., and confirm that it will be owned by Infrastructure Energy LLC (IE) and Stonepeak Infrastructure Partners (SPIP), and not by the Applicant.
 - b. Please provide a copy of all agreements between the Applicant and SSG Inc.
 - c. Please describe the role of IE in the SSG Project, and the extent to which the Applicant is relying on IE to cover the risks of the project that would otherwise be borne by the Applicant and its customers or shareholders.
 - d. Please provide a copy of all agreements between SSG Inc. and IE relating directly or indirectly to the SSG Project.

- e. Please describe the role of SPIP in the SSG Project, and the extent to which the Applicant is relying on SPIP to cover the risks of the project that would otherwise be borne by the Applicant and its customers or shareholders.
 - f. Please provide a copy of all agreements between SSG Inc. and SPIP (or the North American Grid Modernization Fund) relating directly or indirectly to the SSG Project.
 - g. Please describe the role of Black & Veatch in the SSG Project, and the extent to which the Applicant is relying on Black & Veatch to cover the risks of the project that would otherwise be borne by the Applicant and its customers or shareholders.
 - h. Please provide a copy of all agreements between Black & Veatch and SSG Inc. relating directly or indirectly to the SSG Project, including but not limited to the “Prime Contract” attached as Attachment 16.1 to Appendix J, but not included in the Application.
 - i. With respect to each of SSG Inc., IE, SPIP, and Black & Veatch that is accepting any financial or contractual risk with respect to the SSG Project, please provide their latest audited financial statements, or other similar evidence of their financial ability to protect the Applicant, its customers and its shareholders from risk.
 - j. Please provide a detailed description of what happens if the SSG Project is over budget, or performs worse than anticipated after implementation, to show who bears the cost or other risks associated with that result.
 - k. Please explain why the SSG Project and the North American Grid Modernization Fund are not listed on the SPIP website as among of their active projects.
11. [Appl., p. 11] The schematic below is taken from the website of IE, and is intended to show the costs and benefits of a project like the SSG Project. For each of the components of costs and benefits listed on the schematic, please provide the dollar amount associated with it for the SSG Project, and a reference in the Application to the support for that dollar amount.



12. [Appl., p. 18] Please explain why the information being provided to the Board is still conceptual, if the expectation is that all or part of the SSG Project will be in-service before the end of 2019.
13. [Appl., p. 24] Please explain how the IVR is related to the smart grid, and is innovative.
14. [Appl., p. 24] Please confirm that the SCADA, AMI, and CIS are existing systems, not part of the SSG Project.
15. [Appl., p. 28, 58] Attached to these interrogatories is a story dated July 7, 2018, in Soo Today, which describes the SSG Project:
 - a. The story states that \$14.3 million would be received in “federal and provincial support”.
 - i. Please confirm that this figure was communicated by the Applicant to City Council.
 - ii. Please explain the change from \$14.3 million to \$11.8 million in the Application.
 - iii. Please confirm that no provincial support is applied for or expected.
 - b. The story refers to “calculations released by the energy utility”. Please provide those calculations, and reconcile them with the figures in this Application.
 - c. The story says engineering work will begin in the fall, with construction starting in the spring of 2019. Please confirm that these will both be later, and advise what the current schedule is.
16. [Appl., p. 30] Please extend Table 6 to include 2019, 2020, 2021, and 2022, and to include the forecast expenditures on the SSG Project in both 2019 and 2020.
17. [Appl., p. 35] Please provide details on how the Applicant proposes to report, to both customers and to the Board, on the extent to which the “key deliverables” of lowering energy use and system losses have been achieved.
18. [Appl., p. 35] Please confirm that the Applicant intends to use savings from “operational and capital program efficiencies” not to reduce rates, but for additional OM&A and capital spending “supporting asset management and cost control solutions”.
19. [Appl. p. 37] Please explain why, if this project is in part intended to enhance economic development opportunities in Sault Ste. Marie, “there are no new customers or load growth as a result of the SSG Project”.
20. [Appl., p. 40] If there are no savings due to improved efficiency in 2019, why is any of the project being treated as in-service in 2019.
21. [Appl., p. 42] Please provide a detailed calculation of the costs of the SSG Project that are primarily related to “upgrade PUC Distribution’s grid to the industry standard”, and costs that are to be incurred to implement leading edge or innovative technologies beyond industry standard.
22. [Appl., p. 11, 42] Please confirm that IE and the Applicant prepared the calculations in Table 1, and they have not been reviewed by any independent third party. Please provide the full calculations behind the figures in Table 1, and all assumptions used in generating those figures (except to the extent those calculations and assumptions are in Appendix H).
23. [Appl., p. 59] Please confirm that the Developer referred to is IE or an affiliate of IE. If not confirmed, please advise who is the Developer. With respect to IE:

- a. Please confirm that IE is a new name for Energizing Co., the previously named promoter of the project. If that is not confirmed, please describe the relationship between IE and Energizing Co., if any.
 - b. Please provide a list of all other projects completed by IE, including size, location, nature of project, and other details sufficient for the Board and parties to understand the expertise being provided by IE.
24. [Appl., p. 60] Please provide a complete list of all “capital asset replacement deferrals” expected as a result of the SSG Project, whether or not within the DSP timeframe.
25. [App. H] With respect to the Revised Scope and Benefits Estimate dated November, 2018:
 - a. Please confirm that this document was prepared by internal staff of the Applicant, with the assistance of IE, and has not been reviewed by any independent third party.
 - b. p. 1. Please confirm that Leidos estimated the CVR at 0.5, and that was changed by the Applicant to 0.9. Please recalculate the cost/benefit analysis of the project using 0.5 instead of 0.9.
 - c. p. 2. Please provide a full list of “project scope changes”, the “approximation adjustment” applied to each one, and the dollar impact on the cost/benefit analysis of each of those adjustments.
 - d. Please provide all of the original spreadsheets underlying the calculations set out in this memo.
26. [App. J] Please explain what “Scope will be finalized by Black & Veatch during the formal engineering phase to reflect a not-to-exceed agreement price” means, and when that scope finalization is expected to occur.
27. [App. J, p. 517 of pdf] Please confirm that the items listed in section 4 on this page will be additional costs of the SSG Project. Please provide the forecasted amount of each of these costs, and the method by which the Applicant intends to recover them from customers. Please identify whether any of these costs will be borne by the EPC Contractor or the Developer.
28. [App. J, p. 517-8 of pdf] Please confirm that the Applicant has not yet done an analysis to identify “the impacts of the UDM on the PUC’s organization and processes”. If any work has been done in this area, please provide copies of all documents containing any component of this analysis. Please confirm the costs of any changes set out in Table 20 on page 518 of the pdf are not included in the ICM total provided to the Board. Please provide the forecasted amount of each of these costs, and the method by which the Applicant intends to recover them from customers. Please identify whether any of these costs will be borne by the EPC Contractor or the Developer.
29. [App. K, p. 64] Please add a column to this table showing the dollar amount of each line item that will be paid to or retained by the Applicant to cover internal costs associated with the SSG Project.
30. [App. K, Revised Scope & Cost Estimate] Please confirm that no independent review of the project costs set forth in this memo has been done. If a review has been done, please provide a copy.
31. [App. K, Revised Scope & Cost Estimate, p. 8] Please provide details of the amounts to be paid to IE, totaling \$4,793,000, with a detailed justification for each.

32. [App. K, Revised Scope & Cost Estimate, p. 9] Please provide details on the costs to be retained by the Applicant listed here, including the basis for weekly rates, the time involvement, and all other assumptions used in the calculations, and how the amount going to the Applicant is being accounted for in the ICM cost and customer impacts.

Respectfully submitted on behalf of the School Energy Coalition this May 3, 2019.

Jay Shepherd
Counsel for the School Energy Coalition

PUC proposes spending \$33 million without hiking your electricity bill

A Canadian first, the proposed community-wide smart grid would create \$9 million in work for local contractors and 120 direct and indirect jobs, as well as a much more reliable electrical system

Jul 7, 2018 12:56 AM by: [David Helwig](#)



If approved by City Council, the PUC's smart grid proposal will be developed by former Saultite Glen Martin, chief executive officer and founder of Los Angeles-based Infrastructure Energy LLC. David Helwig/SooToday

Sault Ste. Marie City Council will be asked Monday to approve \$32.8 million in improvements to local electrical distribution infrastructure that PUC Services Inc. says will reduce the frequency and duration of power interruptions and cut power bills.

PUC wants to undertake Canada's first community-wide smart grid project here, led by Infrastructure Energy, LLC – a Los Angeles-based microgrid development firm headed by former Saultite Glen Martin.

Originally an aerospace engineer who worked on the International Space Station project, Martin developed and sold local solar farms on Base Line near Leigh's Bay Road and east of Black Road south of Second Line.

A smart grid uses advanced technology to better control voltage delivered to customers, resulting in what PUC officials expect will be a four per cent energy savings.

The grid allows an electrical distribution system to "self heal" during power interruptions, minimizing size of the outage and number of customers affected.

It also permits decentralized generation and storage of electricity, paving the way for innovations including electric vehicle charging and small-home electrical generation.

Another expected advantage would be a reduction of 2,804 tonnes of greenhouse gas emissions in Sault Ste. Marie.

Al Horsman, the city's chief administrative officer, will tell City Council on Monday that the PUC initiative could result in \$9 million in work for local contractors, 120 new direct and indirect jobs and an additional \$250,000 for local tax coffers.

A downtown centre of excellence is also being proposed to show off the Sault's expertise in smart grid technology.

New York-based private equity firm Stonepeak Infrastructure Partners are proposed investors in the public-private partnership.

Kansas-based Black & Veatch would be contractors on the project.

PUC officials expect to receive \$14.3 million in federal and provincial support for the work.

As for the remaining \$18.5 million needed, Rob Brewer, PUC president and chief executive officer, tells SooToday: "It certainly costs something in terms of building."

"But there's also a significant energy savings as a result of it. By using that energy savings, it basically offsets the entire cost, which is fantastic," Brewer says.

PUC monthly costs for lease payments and maintenance are estimated at \$186,476.

"All these investments that we're making, they're actually paid for by the savings in energy."

"In fact, it actually results in a small decrease to the average customer's monthly bill," Brewer said.

Calculations released by the energy utility show an 11-cent decrease to a typical monthly Sault PUC bill, with reliability gains worth an estimated \$3.38 a month per customer.

City Council approval is required for any single PUC capital expenditure in excess of \$5 million or any capital expenditure in aggregate in excess of \$10 million.

If the project goes ahead, engineering work will begin this fall and construction will start in the spring of 2019.

Project completion is scheduled for early 2020.

Approvals from the Ontario Energy Board and federal and provincial governments will still be needed before the project can proceed.

Monday's special meeting of City Council will be livestreamed by SooToday.

The meeting is scheduled to start at 4:30 p.m. but part of it is expected to be closed to the public and SooToday/Shaw TV cameras.

<https://www.sootoday.com/local-news/puc-proposes-spending-33-million-without-hiking-your-electricity-bill-977898>

[Grid Optimization](#)

Microgrid Evolution: Energizing Co. Gets \$250M for Grid Project Finance

Microgrids are not so micro anymore.

[Eric Wesoff](#) May 11, 2015



Microgrid Evolution: Energizing Co. Gets \$250M for Grid Project Finance

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When a traditional infrastructure asset investor like [Stonepeak Partners](#) is ready to bankroll microgrids with a \$250 million finance facility, it's a sign of the mainstreaming of grid modernization. [Energizing Co.](#) will be the sole project developer for the \$250 million Stonepeak fund focused on microgrids and grid modernization.

But these microgrids are not so micro.

Once the domain of military bases and remote communities, nowadays microgrids conjure up relatively small projects rooted in the public sector -- cities, communities, and campuses maintaining critical services during outages or natural disasters. (GTM Research has defined a microgrid as an independently operable part of the distribution network, including distributed energy sources, loads and network assets, that is controlled within clearly defined geographical boundaries and can operate in grid-connected or islanded mode.)

Really big microgrids

But Energizing Co. is focused on microgrids at community scale -- what the firm calls utility distribution microgrids (UDMs). Instead of hundreds of kilowatts or a few megawatts, one of the UDMs in development in Energizing Co.'s portfolio has a peak load of 145 megawatts and encompasses 32,000 utility meters. In addition to fossil-fuel and hydro baseload, these projects involve integration of distributed generation, electric vehicles (EV) and energy storage assets.

In fact, Glen Martin, CEO of Energizing Co., told GTM, "The challenge here is not technology, it's integration -- and that's our focus."

But UDMs broaden the scope and role of the traditional concept of the microgrid. A microgrid at this scale, along with its numerous interconnect points, is less a microgrid and more like a building block of a more segmented smart macrogrid.

Until now, markets for microgrids for critical infrastructure have been driven by combined-heat-and-power subsidies, PACE programs, and state resiliency funding, particularly in the Northeast. According to a recent report from NYSERDA, *Microgrids for Critical Facility Resiliency in New York State* ([PDF](#)), "Economic constraints (e.g., limited budgets) for municipal facilities are likely to impede implementation of microgrids without funding support from the state, federal government, or other entities."

But Energizing Co. develops these larger microgrids, performing the EPC and O&M work and delivering a turnkey project with a long-term financing option. According to the firm, "We offer a risk-transferred private-public investment model, with an emphasis on revenue-neutral project architectures and direct-to-customer engagement strategies."

It's tempting to call Energizing Co. the [SolarCity](#) of microgrids, since it's financing microgrids, but SolarCity is already fulfilling that role. SolarCity, the largest solar installer and financier in the U.S., already offers "microgrids as a service" and looks to integrate its expertise in distributed renewables, inverters, energy storage, and control software. SolarCity suggests that "any community anywhere in the world vulnerable to power outages and high energy costs" is a potential customer that can be financed with "little to no upfront costs." SolarCity has already built a microgrid "at an undisclosed island location."

Energizing Co. is going after a bigger beast. The CEO said, "The projects are in communities that have overbuilt distributed energy resources. He added that each project has unique drivers. The large microgrid project in Ontario is driven by a need to reduce peak loads and improve

climate resilience, as well as Ontario's mandates. Martin added that the grid modernization underway is a natural product of the aging out of a 1960s growth in utility infrastructure.

Omar Saadeh, senior analyst at GTM Research, notes that the firm looks to be "engaged in large-scale community and utility developments starting at around 100 megawatts in capacity and over \$50 million in costs." It is emphasizing this type of investment at a time when utilities in states like California and Illinois are talking about very similar developments. ComEd is looking to deploy six large-scale community microgrids at a price tag of up to \$300 million.

GTM's Julia Pyper profiled [one of the more advanced microgrids](#) in North America from S&C Electric Company, Schneider Electric and [Oncor](#). The grid-tied system consists of four interconnected microgrids and nine different distributed generation resources: two solar PV arrays, a microturbine, two energy storage units, and four generators. The microgrid can operate at its peak capacity of 900 kilowatts for two hours, and eventually drops to a baseload of 550 kilowatts as solar generation falls off at night and the battery assets drain.

As GTM's Katie Tweed has reported, Massachusetts awarded more than \$18 million to 13 projects across the state to enhance energy resiliency. The money will go to critical facilities for CHP, battery storage, and microgrids. Connecticut has invested more than \$30 million in its microgrid program. New York opened a \$40 million microgrid competition early last year, while New Jersey put up \$200 million for its Energy Resilience bank, which will support distributed energy resources at critical facilities. Maryland has called for utility-run community microgrids with a focus on resiliency. States hit by Superstorm Sandy aren't the only ones putting money into microgrid projects. California announced \$26.5 million in grants last summer for microgrid projects that put renewable integration at the fore.

The U.S. currently has an operational microgrid capacity of 1,050 megawatts, more than 90 percent of which is based on fossil fuels. GTM Research forecasts U.S. cumulative U.S. installed microgrid capacity will exceed 1.8 gigawatts by 2018, with a total value over \$3 billion. In addition to generation providers, the microgrid market creates large opportunities for controller and switching suppliers.

Other finance shops have already taken notice

Energizing Co.'s CEO said, "Philosophically, we are aligned with the decarbonizing of North America's energy infrastructure. Our projects will allow larger penetration of solar, wind and biomass." According to the company's website, the developer recently completed the first phase of a grid modernization project for a city in northern Ontario, Canada. Recently, the firm started a study for a community-scale microgrid in the South Boston Seaport.

GTM Research's Saadeh points out, "Utility microgrid financing gets a bit trickier in regulated markets where rules on distributed generation ownership are more stringent, leading to multiple stakeholder-structured projects and creating additional complexity, risk and costs."

Saadeh also notes that Connecticut's Green Bank "has been very progressive in stimulating private capital participation," adding, "Its C-PACE program offers 100 percent financing for

energy upgrades, including microgrids, and as of October this year, it will allow third-party capital-backed loans to be provided directly to property owners. Big project finance shops such as Hannon Armstrong, Bank of America Merrill Lynch, and Advanced Energy Capital have already taken notice."

<https://www.greentechmedia.com/articles/read/microgrid-evolution-energizing-co-gets-250-million-for-grid-project-finan#gs.8bfik7>