

South Portland City Council
Position Paper of the City Manager

Subject:

ORDER #71-13/14 – Appropriating \$12,500 from undesignated fund balance and authorizing the City Manager to sign a contract with ReVision Energy, of Portland, ME, to conduct a feasibility study to install a solar PV array at the landfill property. Passage requires majority vote.

Position:

Last November, the City entered into an agreement with ReVision Energy to install solar panels at the Planning and Development Building. Since installation, the City has seen a savings of 19% in electricity costs.

Assistant City Manager Jon Jennings and Planning and Development Director Tex Haeuser have been exploring the possibility of installing a solar PV array at the City's capped landfill. They met with staff from ReVision Energy to discuss conducting a feasibility study on the landfill property which includes electrical engineering, solar suitability engineering and financial. The cost of this study is \$12,500. I would like to fund this from the undesignated fund balance as this expense was not included in the FY14 Municipal Budget.

Following the completion of this study, it is estimated to cost approximately \$60,000 to proceed with the project under one of the ownership models evaluated, the engineering and permitting. We plan to explore the possibility of obtaining grant funds through GPCOG for the engineering and other phases of the project.

Tex Haeuser and Jon Jennings will be at the meeting to discuss the project.

Requested Action:

Council passage of ORDER #71-13/14.


City Manager

To: James H. Gailey, City Manager
From: Tex Haeuser, Planning Director
Cc: Jon Jennings, Assistant City Manager
Sherry Nadeau, Administrative Assistant
Steve Hinchman and Sam Lavallee, ReVision Energy
Date: November 5, 2013
Re: **Landfill Solar Array Site Feasibility Study**

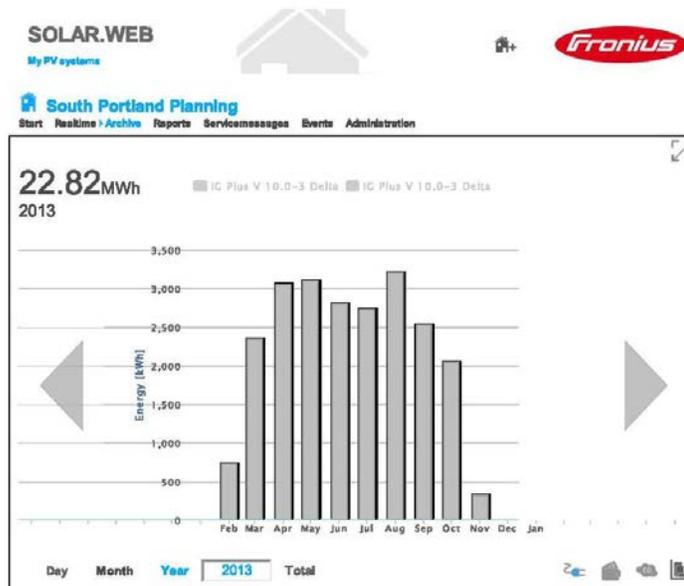
Genesis

City staff would like to explore the idea of using some of the City’s capped landfill for a photovoltaic solar array to generate electricity. We are seeking approval to spend \$12,500 for a feasibility study by ReVision Energy.

Originally the City Planning Department was looking at the undeveloped land between Wainwright Fields and Scarborough as a possible site for a solar array. While in an industrial zone, this area has access problems that would not be an issue for a solar farm. Planning put out a request for expressions of interest which led to meeting with a number of solar developers and installers, including ReVision Energy. Nothing yet has come of the private solar farm, but the effort did lead to the City entering into a power purchase agreement with ReVision for solar electricity generated from a 20 kw set of panels on the Planning & Development roof.

Planning Department Rooftop Solar Experience

At the time it was discussed that this was “an opportunity for the City to get experience with solar and PPAs at a small level which then could lead to larger projects down the road.”¹ To date the Planning rooftop array has generated 22.82 MWh of electricity (see below). This translates into 12.09 tons of CO₂ saved.²



¹ Hamlin Solar Photovoltaic Power Purchase Agreement, Tex Haeuser Memo to James Gailey, November 1, 2012.

² Fronius Solar.Web--<https://www.solarweb.com/Home/System/ad6a8cea-8d64-417d-b0f4-a19d0100a793>

In addition to the environmental benefit, the solar power system has also saved the City money—19% to date compared with the same period last year. The Assessing building (behind City Hall) is included in the comparison because we apply net-metering credits to that facility as well as to Planning. Note also that we currently have 1,604 kwhs of unused, excess electricity generation saved in a “bank” that gets applied to our bills when solar energy production is less than the amount of electricity used (generally in the winter).

	2012			2013			
	Planning	Assessing		Planning		Assessing	
	CMP	CMP	Total	CMP	Revision	CMP	Total
March	\$ 359.65	\$ 135.13	\$ 494.78	\$ 72.58	\$ 239.64	\$ 116.87	\$ 429.09
April	\$ 324.56	\$ 105.95	\$ 430.51	\$ 71.46	\$ 312.57	\$ 10.83	\$ 394.86
May	\$ 307.78	\$ 111.33	\$ 419.11	\$ 71.14	\$ 316.67	\$ 10.83	\$ 398.64
June	\$ 341.77	\$ 115.52	\$ 457.29	\$ 70.97	\$ 286.55	\$ 10.93	\$ 368.45
July	\$ 468.08	\$ 145.84	\$ 613.92	\$ 74.10	\$ 342.20	\$ 11.48	\$ 427.78
August	\$ 385.66	\$ 135.24	\$ 520.90	\$ 76.32	\$ 401.16	\$ 11.48	\$ 488.96
September	\$ 303.89	\$ 97.65	\$ 401.54	\$ 76.38	\$ 316.61	\$ 11.48	\$ 404.47
Total	\$ 2,491.39	\$ 846.66	\$ 3,338.05	\$ 512.95	\$ 2,215.40	\$ 183.90	\$ 2,912.25
					Banked KWHs	Rate	
					1,604	\$0.12544	\$ 201.21
			\$ 3,338.05				\$ 2,711.04
			\$ 2,711.04				
			\$ 627.01	19%	Savings in 2013 compared with 2012		

Recall that we currently are purchasing the solar electricity from ReVision Energy (at 2¢ less than market rate) but will have the opportunity in six years to buy the solar array for \$20,000 (system originally valued at \$76,459). As you can see, taking out the monthly electricity payments to ReVision would make a dramatic reduction in the energy bills—and the life of these systems is estimated to be on the order of 30 - 40 years. Also, any increase in our grid-transmitted electricity costs over this period—a virtual certainty—only increases the savings.

Landfill Solar Array Site Feasibility Study

Having gained experience with the relatively small rooftop array, and as part of the Manager’s Sustainability Initiative, Assistant City Manager Jon Jennings and I sought out ReVision Energy to provide a site feasibility analysis for installing a solar PV array on the City’s landfill. The capped landfill site seemed like a good candidate for a project because it is in the City’s ownership and because DEP officials had indicated that permitting would be possible. (There are many landfill arrays in other states; the technique is to put the panels on pads that do not penetrate the cap.) Jon and I met in July with representatives from Texas Instruments to see if TI would be interested in being an investor in a landfill solar project—TI has the “tax appetite” that can take advantage of solar project tax credits—but after further discussion, including with Scott Hays of Community SunGardens, it became clear that the first step needed is to do a feasibility study to assess the suitability of the landfill site for a solar array and to examine several models for structuring the solar project financially.

As indicated in the proposal, the study has three parts: electrical engineering; solar suitability engineering; and financial. The electrical engineering portion of the study involves working with CMP to see what would be involved in connecting the project to the utility grid and also looking into the feasibility of running new distribution lines directly to off-takers like the Hannaford Distribution facility. The solar suitability portion of the study includes determining the best location and orientation on the landfill for an array, the means that might be necessary to overcome site limitations, and the estimated energy output from the solar project.

The financial section of the study will look at the feasibility of building a solar array that meets the financial objectives of its investors as well as the City's goals for sustainable economic development. It will involve an evaluation of several options for ownership and City participation, including: the City only putting in basic infrastructure and then letting solar entrepreneurs come in and install their own sets of panels; the City owning the array and using much of the electricity to provide energy assistance to low income residents; and a system where South Portland residents and businesses can own or lease portions of the array, with their own meters. (The latter would be useful for folks who want solar panels but may not have good solar access at their homes or businesses.)

The ReVision Energy proposed cost for doing the feasibility study is \$12,500. If the City chooses, after the study is completed, to proceed with a project under one of the ownership models evaluated, the engineering and permitting cost is anticipated to be approximately \$60,000 (the study will provide a better estimate). Engineering/permitting and eventual construction would both follow the City's formal bid process. Jon and I met in September with Jennifer Puser, GPCOG's Energy Planner, and will continue to explore with Jennifer the possibility of obtaining grant funds for the engineering and other phases of the project.

Proposal to Provide Services

The City of South Portland

South Portland Landfill Solar Array Site Feasibility Study



ReVision Energy, LLC

October 2, 2013

I. Executive Summary

The following proposal is in response to a request by the City of South Portland (*hereinafter referred to as “the City”*) to provide a solar Site Feasibility Study for the South Portland Landfill (*hereinafter referred to as “the Landfill”*) located off Highland Avenue in South Portland, Maine. The City has asked ReVision Energy, LLC (*hereinafter referred to as “ReVision”*) to propose a methodology to determine the feasibility of installing a utility scale solar array on top of the capped Landfill.

The methodology ReVision proposes to apply is a three-part study to determine the site feasibility of the project from an electrical engineering perspective, a solar suitability perspective and a financial perspective. The objective of the electrical engineering study is: to determine the feasibility of interconnecting a solar array to the utility grid, including an evaluation of the existing electrical infrastructure provided by the utility both on site and in the vicinity; to determine limitations of the existing electrical infrastructure, if any; to quantify service upgrades that may be required and the costs of such upgrades. The objective of the solar suitability study is: to determine the feasibility of designing a solar array that maximizes energy production, including evaluation of the existing site; to determine the limitations that the existing site may put on the solar project; and to determine the costs to overcome such limitations or the impact of such limitations on energy production by the solar array. The objective of the financial study is to determine the feasibility of building a solar array that meets the financial goals of its investors. The financial study will include an evaluation of ownership structure options, available state and federal incentives and energy off-taker options, and a discussion of the advantages and disadvantages of each such option. If the result of the initial three-part feasibility study indicates that the Landfill is a suitable site for a solar array, then the recommended next step will be to proceed with site-specific geotechnical analysis as required in advance of construction, such services to be provided by an independent qualified engineering firm with land fill experience in New England, possibly in response to a separate RFP by the City.

The Site Feasibility Study will include a report on the findings of the electrical engineering study, the solar suitability study and the financial study. Specifically the report will include recommended interconnection strategy including required service upgrades, a to-scale solar site map showing a rendering of the solar array on the Landfill, a suggested ownership structure, an inventory of available federal and state incentives and a recommended best off-taker strategy. The report will identify both the maximum project size that is feasible and the most economic and timely approach toward the eventual full build out of the Landfill as a Solar Farm.

II. Scope of Work

a. Electrical Engineering

- i. The objective of electrical engineering study is to determine the feasibility of interconnecting the solar array to the utility grid, including an evaluation of the existing electrical infrastructure provided by the utility both on site and in the vicinity, any limitations that the existing electrical

infrastructure puts on the solar project, and service upgrades that will be required and the costs of such upgrades. To complete this work, ReVision will seek cooperation from Central Maine Power and adjacent energy consumers that might be interested in the project. Perform site visit

- ii. Identify existing electrical service including switchgear, transformers, power lines and substation infrastructure. Coordinate with Central Maine Power personnel to complete electrical survey.
- iii. Analyze minimum electrical service, transformer, power line, substation requirements to interconnect solar array to the grid.
- iv. Determine whether existing utility infrastructure is adequate to support transmission of energy generated from solar array onto the grid.
- v. Itemize all necessary utility infrastructure upgrades to support transmission of energy generated from solar array onto the grid.
- vi. Provide cost estimates for necessary upgrades found in (v) for energy transmission onto the grid.
- vii. Provide summary of likely process including scheduling for CMP's interconnection application, system impact study, and review and approval process.
- viii. Explore the feasibility of running new distribution lines directly to nearby industrial off takers such as the Hannaford Distribution facility.

b. Solar Suitability Engineering

The objective of the solar suitability study is to determine the feasibility of designing a solar array that maximizes energy production, including evaluation of the existing site, the limitations that the existing site puts on the solar project and the costs to overcome such limitations or the impact of such limitations on energy production by the solar array.

- i. Perform site visit
- ii. Identify usable solar array space on site, taking into consideration design limitations caused by site obstructions and sloping.
- iii. Perform shading analysis to identify any further design limitations caused by excessive shading, if any.
- iv. Determine ideal array orientation and tilt angle based on design limitations found in (ii) and (iii) above.
- v. Generate a large format to-scale solar array rendering on the landfill site. If GIS software is available, convert this rendering to GIS.
- vi. Perform PV Watts analysis to determine estimated energy output of the solar array.

c. Financial

The objective of the financial study is to determine the feasibility of building a solar array that meets both the financial goals of its investors and the City's goals for sustainable economic development. The financial study will include an evaluation of ownership structure options, available state and federal incentives and energy off-taker options, and a discussion of the advantages and disadvantages of each such option. The financial study will consider various scenarios of participation by the City including: pre-development of portions of the area by the City for future development by solar entrepreneurs; solar developments with the capability of providing energy assistance to low income residents; and options yielding economic and/or sustainability benefits to the City and its residents and businesses.

- i. Identify all available state and federal incentives, state and federal tax benefits, and private/public grant opportunities to support solar development at the Landfill.
- ii. Identify possible ownership structure scenarios and discuss advantages and disadvantages of each (cost/benefits to investors and developers).
- iii. Identify possible energy off-taker options and advantages and disadvantages of each (cost/benefits to energy users).
- iv. Recommend incentives, tax benefits, ownership structure and energy off-taker option that will provide best investment for the City (cost/benefits to City).
- v. Identify potential for project to provide energy assistance to low-income residents.
- vi. Analyze initial cost of solar array, tax benefits, incentives, ongoing revenue streams and ongoing expenses
- vii. Provide complete financial modeling including 30 year detailed projected cash flow.
- viii. Provide scenario comparisons of the most likely development strategies, in order to facilitate the City's decision making process.

d. Geotechnical

If the result of the initial three-part feasibility study indicates that the Landfill is a suitable site for a solar array, then the recommended next step will be to hire a geotechnical engineering firm to perform a geotechnical analysis of the Landfill. As part of the Site Feasibility Study, ReVision will approach a minimum of two such firms in the New England area with a request for non-binding estimations of geotechnical costs.

III. Fee for Services

The fee for services in this proposal is \$12,500.

IV. Schedule

- a. Tuesday, October 2nd: Revision submits finalized proposal and consulting contract to the City
- b. Monday, October 7th: City approves ReVision's proposal
- c. Friday, November 8th: ReVision completes site visits
- d. Monday, December 9th: ReVision submits finalized Site Feasibility Study

V. Conclusion

ReVision thanks the City for the opportunity to provide this proposal for a Site Feasibility Study on the South Portland Landfill. Upon acceptance by the City of the Study proposal and execution of the accompanying Consulting Contract, ReVision will initiate the project. Should you have any questions or concerns, please feel free to contact us using the information below.

Sam Lavallee
PPA Program Manager
Office: (207) 589-4171
Cell: (207) 485-3133
Email: sam@revisionenergy.com

Steve Hinchman
Director of Finance
Office: (207) 443-6924
Cell: (207) 837-8637
Email: steveh@revisionenergy.com

Bill Behrens
Managing Partner
Office: (207) 589-4171
Cell: (207) 322-9977
Email: bill@revisionenergy.com



CITY OF SOUTH PORTLAND

THOMAS E. BLAKE
Mayor

JAMES H. GAILEY
City Manager

SUSAN M. MOONEY
City Clerk

SALLY J. DAGGETT
Jensen Baird Gardner & Henry

District One
MICHAEL R. POCK

District Two
PATRICIA A. SMITH

District Three
MELISSA E. LINSKOTT

District Four
LINDA C. COHEN

District Five
GERARD A. JALBERT

At Large
ALAN R. LIVINGSTON

At Large
THOMAS E. BLAKE

IN CITY COUNCIL

ORDER #71-13/14

ORDERED, that the City Council hereby appropriates twelve thousand five hundred dollars (\$12,500) from the Undesignated Fund Balance Account #14000035-435010; and

BE IT FURTHER ORDERED, that the City Manager be and hereby is authorized to sign a contract with ReVision Energy, of Portland, ME, in the amount of twelve thousand five hundred dollars (\$12,500) to conduct a feasibility study to install a solar PV array at the landfill property.

Said amount shall be charged to the Solar Contract Services Account #10151062-628800-14512.

Fiscal Note: \$12,500

Dated: November 18, 2013

Such personnel shall not be officers or employees of the City, nor have any individual contractual relationship with the City. Consultant further agrees that consistent with its status as an independent contractor, that its personnel will not hold themselves out to be, nor claim to be officers or employees of the City by reason of this Agreement.

5. City's Representative. The City's Planning Director, or his/her authorized designee, shall act as the City's representative in all dealings with the Consultant.

6. Work Product and Documents. City agrees to furnish or provide access to Consultant to any information or material in its possession that is relevant to Consultant's performance hereunder and City staff will cooperate with Consultant. Consultant will not, without City's consent, disclose or permit disclosure to another person, by any officer, employee, or agent or subcontractor of Consultant, of any information or material furnished or generated under this Agreement.

All final documents and reports developed in the completion of the Study under this Agreement shall become the property of the City and be promptly delivered to the City upon request. All working papers shall be and remain the property of Consultant, but Consultant shall make said work papers available to the City upon request and the City shall be provided copies of any or all working papers upon request. The City, however, shall have no right to Consultant's proprietary information, which includes but is not limited to Consultant's development and financial modeling tools and other information developed and used by Consultant in its regular business activities.

Consultant shall be responsible for the protection and/or replacement of any work or material in its possession, including materials provided to them by the City.

7. Exclusive Remedy. The City's and Consultant's sole obligation and exclusive remedy to each other, in the event of an alleged breach or defect in any service provided hereunder is the correction by that party of such alleged breach or defect. If after repeated efforts that party is unable to correct, or if that party fails within reasonable time to attempt to correct and continues not to attempt to correct within (10) days of receipt from the other party of written notice of such breach or defect, the other party shall be entitled to terminate this Agreement and to recover actual damages. Both parties understand and agree that this exclusive remedy allocates risk of service defects between the parties as authorized by applicable law.

8. Indemnification. The City and Consultant agree to indemnify and hold harmless each other from any claims, actions or other proceedings and any losses, damages or liabilities asserted by third parties in respect to personal injury or death to any person, or damage to any property arising out of or based upon any act or omission of the parties in performance of this Agreement. These indemnities shall include but are not limited to any amount paid in settlement of any such claims, actions, proceedings, losses, damages or liabilities and any legal fees and expenses incurred by any indemnitee hereunder in defending or settling any case or controversy thereof. Nothing in this Agreement is

intended, or shall be construed, to constitute a waiver of any defense, immunity or limitation of liability that may be available to the City, its officers, agents and employees, pursuant to the Maine Tort Claims Act or as otherwise provided by law.

9. Limitations of Liability

IN NO EVENT WILL THE CITY OR CONSULTANT BE LIABLE TO THE OTHER PARTY FOR ANY INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OR LOST PROFITS ARISING, WHETHER FORESEEABLE OR NOT, OCCASIONED BY OR ARISING OUT OF THE CITY'S OR CONSULTANT'S BREACH HEREOF OR PERFORMANCE HEREUNDER, DELAY IN PERFORMANCE OR ANY OTHER CAUSE WHATSOEVER. CONSULTANT'S LIABILITY TO THE CITY FOR ACTUAL DAMAGES FOR ANY CAUSE WHATSOEVER, REGARDLESS OF THE FORM OF THE ACTION, WILL BE STRICTLY LIMITED TO THE FEES THAT HAVE ACTUALLY BEEN PAID BY THE CITY TO CONSULTANT PURSUANT TO THIS AGREEMENT.

10. Force Majeure. Neither party shall be in default by reason of any failure in performance of this Agreement if such failure arises, directly or indirectly, out of causes reasonably beyond the direct control or foreseeability of such party, including but not limited to, default by subcontractors or suppliers, acts of God or of the public enemy, U.S. or foreign governmental acts in either a sovereign or contractual capacity, labor, fire, flood, epidemic, restrictions, strikes, and/or freight embargoes.

11. Resolution of Disputes & Choice of Law. Any claim or controversy or claim arising out of or relating to this Agreement, or the formation or breach thereof, shall be settled by arbitration in Portland, Maine in accordance with the Commercial Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof. This Agreement shall be governed by, and construed in accordance with the laws of the State of Maine applicable to agreements made and to be performed within such state without regard to principles of Conflicts of Law.

12. Successors and Assigns. This Agreement shall be binding upon the parties and their respective partners, affiliates, heirs, legal representatives, successors and assigns. No portion of this Agreement or any right or obligation thereunder can be transferred or assigned, in whole or in part, whether by operation of law or otherwise, by either party without prior written consent of the other party.

13. Entire Agreement. This Agreement, together with exhibits attached hereto and any written amendments thereof, constitutes the entire agreement and understanding between the parties with respect to the subject matter hereof and merges and supersedes all prior discussions and writings with respect thereto.

