



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

**CLIMATE ACTION COMMITTEE MEETING
OF THE VILLAGE OF LIONS BAY
HELD ON MONDAY, NOVEMBER 22, 2021 at 7:00 PM
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY
VIA ZOOM VIDEO CONFERENCE**

To join the meeting, click here: <https://us02web.zoom.us/j/85865143016>
To join by phone, dial 778 907 2071 and enter Meeting ID: 858 6514 3016

AGENDA

1. **Call to Order**
2. **Appointment of Recorder**
3. **Approval of the Agenda**
THAT the agenda be adopted, as submitted.
4. **Public Questions & Comments**
5. **Approval of Minutes**
 - A. Minutes from the November 2, 2021, Climate Action Committee Meeting (page 2)
THAT the November 2, 2021, Climate Action Committee Meeting Minutes be approved, as circulated.
6. **Business Arising from the Minutes**
7. **Unfinished Business**
 - A. Solar Panels – J. Povill (Page 7)
 - B. ranking and budgeting of CAC initiatives for the upcoming council strategy session
8. **New Business**
 - A. Air Quality Sensors
9. **Public Questions & Comments**
10. **Adjournment**
11. **Next Meeting - TBD**



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

**CLIMATE ACTION COMMITTEE MEETING
OF THE VILLAGE OF LIONS BAY
HELD ON TUESDAY, NOVEMBER 2, 2021 at 7:00 PM
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY
VIA ZOOM VIDEO CONFERENCE**

MINUTES

In Attendance: Committee:

Staff: Karla Duarte, Municipal Coordinator
Peter DeJong, CAO

Public: 3

1. Call to Order

The Chair called the meeting to order at 7:03.

2. Appointment of Recorder

Norm Barmeier

3. Approval of the Agenda

Moved/Seconded

THAT the agenda be adopted, as submitted.

CARRIED

4. Public Questions & Comments

A. Neville Abbott

N. Abbott questioned whether other fuels have been considered or whether electrification is the only path forward?

C. George responded that clean diesel is 90% less carbon intensive, no less emissions. The City of Vancouver is using it.

PDJ was looking for clarification of carbon intensity. Discussion on definition of carbon intensity ensued.

N. Abbott questioned JP on solar panel report. Report doesn't include current consumption. Grid type payback to be discussed.

5. Approval of Minutes

A. Minutes from the September 21, 2021, Climate Action Committee Meeting

Moved/Seconded

THAT the September 21, 2021, Climate Action Committee Meeting Minutes be approved

CARRIED

6. Business Arising from the Minutes

A. Resolutions from the October 5, 2021 regular Council Meeting

- i. THAT Council directs staff to publish a call for a new Climate Action Committee member in the Village Update.

The Municipal Coordinator noted that publication calling for expressions of interest was done in three consecutive Village Updates and no applications were received. Committee members are appointed by Council.

N. Barmeier noted he would reach out to interested residents to submit an application.

- ii. THAT Council update the POL-2002 -Purchasing Policy to consider the immediate and future impacts of purchases through their consumption and eventual end-of-life stage to reduce environmental impacts; AND

THAT Council directs staff to amend POL-2002-Purchasing Policy to include language similar to that of the District of Squamish, specifically with the following information:

I. Ensures that Suppliers are contributing to the advancement of the community

socially, economically, culturally, and environmentally;

II. Works with current and future Suppliers on reducing GHG emissions in the delivery of goods, services and construction;

III. Encourages (or requires) the use of materials and products that have less embodied carbon; and

IV. Values Suppliers who demonstrate commitment to ethical sourcing and procurement

practices, through corporate social procurement policies or certifications including

but not limited to Fair Trade, Ocean Wise Seafood, CSA, Forest Stewardship Council,

or organic certification; AND

THAT Council directs staff to work with the Committee to provide feedback regarding the proposed changes.

The municipal coordinator provided update on next steps. Staff to provide a report include staff objectives.

PDJ clarified some next steps.

CL added comments about a more holistic approach, to educate both staff and council.

JP touched on dated bylaws.

Discussion on trends and similar community purchasing policies. Social aspects need to be considered. Triple bottom line to be discussed.

District of Squamish at Howe Sound Community forum presented success of their green procurement policy.

Interim solution could be reporting on current purchases.

NB suggested we have an interim revision to the policy which is currently very short (roughly 1 page)

RS asked about what kind of paper is purchased currently. JP suggested we define the word local.

RS provided definition of local being typically 300km.

PDJ suggested some of the language needs to be tailored to work for Lions Bay.

CG should include what is actually purchased.

RS seeking clarity on what the workshop would accomplish.

NB suggested staff bring back a revised policy that captures the spirit of the recommendations by the CAC.

- iii. THAT Council direct staff to provide the Climate Action Committee with the grant application for the Klatt building upgrades for the purpose of investigating synergies with green building upgrades and concurrent grant opportunities.

PDJ provided feedback on synergies with grants, Klatt building and office are not public. Concurrent grants would apply to the hall. Staff is looking into synergies with staff. CAC should take a read through grant application sent on Oct 8th via email.

All lighting will be switched over to LEDs, and a heat pump will be added. PDJ confirmed in-kind labor to support the project, and PDJ suggested that electrical and mechanical engineers will look for GHG reduction. Heat pump is replacing baseboards.

The meeting was extended to 8:30 pm.

- iv. THAT Council receives the Climate Action Committee Recommendations for Council Strategic Planning report; and
THAT Council provides direction to the Committee outlining how the Committee can support the recommended strategic commitments outlined in the report presented at the October 5, 2021 regular Council meeting.

Discussion ensued on formatting the the recommendations for the council strategy session to take place November 30 and December 1. KD can send around the table for the CAC members to add/modify elements to the table.

RS suggests that council use the CAC recommendations and work those into the strategic.

RM added commentary on cost estimates for GHG reduction strategies in order to push them across for implementation.

Strategy development should rest with council.

7. Unfinished Business

8. New Business

i. GHG Reduction Analysis and Roadmap to Net Zero – C. George

CG calculated GHG emissions. Pie chart would suggest that diesel and gasoline should be targeted first. City of Vancouver uses green diesel. How do we tackle gasoline? Mostly ICE engines, which could be electrified.

Heating oil is used in Village Hall only. PDJ suggested we may have issue with generator capacity supporting a heat pump. If we want to get to net zero, we need to reduce this pie chart.

Discussion on technical heating alternatives for heating the hall.

SFU has action on climate teams, SFU works with municipalities on that road map.

Moved/Seconded

THAT the Climate Action Committee recommends to Council THAT Council directs staff to work with the committee to procure quotes on clean energy alternatives and create a roadmap to Net Zero Emissions.

CARRIED

ii. **Solar Panels – J. Povill – tabled for the next meeting.**

9. Public Questions & Comments

A. Neville Abbott

N. Abbott commented on his support for the CAC. Village hall heating in emergency could be accomplished by clean burning fireplace insert. Technical discussion on heat pump cycling ensued.

10. Adjournment

Meeting adjourned at 8:44.

11. Next Meeting – November 22, 2021



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

Type	Request for Further Research		
Title	Return on Investment for Solar Panel Installation on Municipal Buildings		
Author	Jon Povill	Reviewed By:	Name
Date	October 29, 2021	Version	
Issued for	November 2, 2021 Climate Action Committee Meeting		

Recommendation:

(1) THAT the Climate Action Committee recommends to Council THAT Council directs staff to work with the committee to procure additional and updated quotes on solar panel installations on Lions Bay municipal buildings.

Attachments:

Please see accompanying spreadsheets and POFs.

Background and Key Information:

In June of 2021 Alternative Power Systems conducted an evaluation of the power generating capacity, costs, and return on investment for the installation of solar panels on the Lions Bay Municipal buildings.

The findings of the evaluation were that the projected savings relative to BC Hydro rates over the 25 year life of the panels were:

\$53,074.07 for Broughton Hall
\$96,378.91 for the Klatt Firehouse
\$30,785.43 for the Village Office

These savings do not reflect the potential of reduced purchase and installation costs made possible by available grants, which would substantially increase the savings and ROI of the project.



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

Council subsequently declined to accept a delegation presentation of the APS evaluation.

Council Strategy or OCP Considerations: Council has an ongoing goal of reducing costs for comparable goods and services whenever possible.

Financial Considerations:

An initial outlay would be required, but grants should be available to substantially reduce those costs.

Staff time would be needed to work with the CAC to identify and apply for the applicable grants.

Additional bids from competing solar power installers should be sought to insure the Village selects the best provider of services.

Once the panel installation is complete, the Village should realize a substantial annual saving on its electricity costs.

Options:

(1) Do nothing: While this is a potential option which would have no immediate impact on the service, in the long term it is likely to result in significantly higher costs to the Village for electrical power.

It is projected that future BC Hydro rates will continue to escalate in tandem with inflation and substantial cost overruns for the Site C dam construction.

(2) Gather updated pricing from APS as well as additional estimates from other solar installer/providers in order to better determine the true value of potential installation.

(3) Perform further research on what grant funding is currently available for projects of this nature and coordinate the timing of said grant applications with the selection of a solar contractor.



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

Preferred Option 2 & 3:

Costs of materials are rising, as are BC Hydro rates. Grant funding is not inexhaustible. Taking action on this proposal in a timely manner is highly likely to result in greater savings for the Village than delaying.

Legal Considerations: N/A as far as I am aware.

Follow Up Action:

Secure fresh bids from APS and other contractors.

Verify potential savings and life-of-panel ROI.

Verify applicable grants and application requirements and deadlines.

Determine bottom line initial outlay required to complete the installations.

Deliberate and prioritize as needed as part of the budgetary process.

Communication Plan: Maintain ongoing transparency as to the evaluation process, the benefit sought, and any steps toward implementation as further information presents itself.

kW of PV SYSTEM:		15.4 kW													
kWhr Cost:		\$ 0.1178		Levelized cost of energy (25 years):		\$ 0.09984									
kWhr Generation:		12,930.00		SYSTEM COST:		\$ 32,274.53		NET SYSTEM COST:		\$ 32,274.53		Annual consumption:		7,660 kWhrs	
kWhr Generation: a 25 Year Analysis (kWhrs/year - 0.5%)		YEAR:	Savings (4% annual energy cost increase)	Cumulative Savings	Annual ROI	FOR BUSINESS OWNERS ONLY						TAX SAVINGS:			
		TAX SAVINGS YEAR 1:		\$ -											
12,930.00	\$ 0.1178	1	\$ 1,523.15	\$ 1,523.15	4.72%							Net Taxable Income: \$ -			
12,865.3500	\$ 0.1199	2	\$ 1,542.82	\$ 3,065.97	4.78%							Tax Rate: 0%			
12,801.0233	\$ 0.1208	3	\$ 1,545.85	\$ 4,611.82	4.79%							TAXES PAYABLE: \$ -			
12,737.0181	\$ 0.1234	4	\$ 1,571.96	\$ 6,183.78	4.87%							Net Taxable Income /w Renewable Energy Installation: -\$ 32,274.53			
12,673.3330	\$ 0.1234	5	\$ 1,564.10	\$ 7,747.88	4.85%							Tax Rate: 0%			
12,609.9664	\$ 0.1274	6	\$ 1,606.08	\$ 9,353.96	4.98%							TAXES PAYABLE: \$ -			
12,546.9165	\$ 0.1325	7	\$ 1,661.97	\$ 11,015.93	5.15%							SAVINGS: \$ -			
12,484.1820	\$ 0.1378	8	\$ 1,719.81	\$ 12,735.74	5.33%										
12,421.7611	\$ 0.1433	9	\$ 1,779.66	\$ 14,515.40	5.51%										
12,359.6522	\$ 0.1490	10	\$ 1,841.59	\$ 16,356.98	5.71%										
12,297.8540	\$ 0.1550	11	\$ 1,905.68	\$ 18,262.66	5.90%	TOTAL SYSTEM RETURN ON INVESTMENT:						64%			
12,236.3647	\$ 0.1612	12	\$ 1,971.99	\$ 20,234.65	6.11%	25 YEAR INVESTMENT									
12,175.1829	\$ 0.1676	13	\$ 2,040.62	\$ 22,275.27	6.32%										
12,114.3070	\$ 0.1743	14	\$ 2,111.63	\$ 24,386.91	6.54%										
12,053.7354	\$ 0.1813	15	\$ 2,185.12	\$ 26,572.02	6.77%										
11,993.4668	\$ 0.1885	16	\$ 2,261.16	\$ 28,833.18	7.01%										
11,933.4994	\$ 0.1961	17	\$ 2,339.85	\$ 31,173.03	7.25%										
11,873.8319	\$ 0.2039	18	\$ 2,421.27	\$ 33,594.31	7.50%										
11,814.4628	\$ 0.2121	19	\$ 2,505.54	\$ 36,099.84	7.76%										
11,755.3905	\$ 0.2206	20	\$ 2,592.73	\$ 38,692.57	8.03%										
11,696.6135	\$ 0.2294	21	\$ 2,682.95	\$ 41,375.53	8.31%										
11,638.1304	\$ 0.2386	22	\$ 2,776.32	\$ 44,151.85	8.60%										
11,579.9398	\$ 0.2481	23	\$ 2,872.94	\$ 47,024.78	8.90%										
11,522.0401	\$ 0.2580	24	\$ 2,972.92	\$ 49,997.70	9.21%										
11,464.4299	\$ 0.2683	25	\$ 3,076.37	\$ 53,074.07	9.53%										
**Equipment degradation: soiling, aging equipment															

kW of PV SYSTEM:		26.9 kW													
kWhr Cost:		\$ 0.1178		Levelized cost of energy (25 years):		\$ 0.08591									
kWhr Generation:		23,480.00		SYSTEM COST:		\$ 50,431.46		NET SYSTEM COST:		\$ 50,431.46		Annual consumption:		40,164 kWhrs	
kWhr Generation: a 25 Year Analysis (kWhrs/year - 0.5%)		YEAR:	Savings (4% annual energy cost increase)	Cumulative Savings	Annual ROI	FOR BUSINESS OWNERS ONLY				TAX SAVINGS:					
		TAX SAVINGS YEAR 1:		\$ -											
23,480.00	\$ 0.1178	1	\$ 2,765.94	\$ 2,765.94	5.48%					Net Taxable Income: \$ -					
23,362.6000	\$ 0.1199	2	\$ 2,801.65	\$ 5,567.60	5.56%					Tax Rate: 0%					
23,245.7870	\$ 0.1208	3	\$ 2,807.16	\$ 8,374.75	5.57%					TAXES PAYABLE: \$ -					
23,129.5581	\$ 0.1234	4	\$ 2,854.57	\$ 11,229.32	5.66%					Net Taxable Income /w Renewable Energy Installation: -\$ 50,431.46					
23,013.9103	\$ 0.1234	5	\$ 2,840.30	\$ 14,069.62	5.63%					Tax Rate: 0%					
22,898.8407	\$ 0.1274	6	\$ 2,916.53	\$ 16,986.15	5.78%					TAXES PAYABLE: \$ -					
22,784.3465	\$ 0.1325	7	\$ 3,018.03	\$ 20,004.18	5.98%					SAVINGS: \$ -					
22,670.4248	\$ 0.1378	8	\$ 3,123.05	\$ 23,127.23	6.19%										
22,557.0727	\$ 0.1433	9	\$ 3,231.74	\$ 26,358.97	6.41%										
22,444.2873	\$ 0.1490	10	\$ 3,344.20	\$ 29,703.17	6.63%										
22,332.0659	\$ 0.1550	11	\$ 3,460.58	\$ 33,163.75	6.86%	TOTAL SYSTEM RETURN ON INVESTMENT:									
22,220.4055	\$ 0.1612	12	\$ 3,581.01	\$ 36,744.76	7.10%	25 YEAR INVESTMENT				91%					
22,109.3035	\$ 0.1676	13	\$ 3,705.63	\$ 40,450.38	7.35%										
21,998.7570	\$ 0.1743	14	\$ 3,834.58	\$ 44,284.96	7.60%										
21,888.7632	\$ 0.1813	15	\$ 3,968.03	\$ 48,252.99	7.87%										
21,779.3194	\$ 0.1885	16	\$ 4,106.11	\$ 52,359.10	8.14%										
21,670.4228	\$ 0.1961	17	\$ 4,249.01	\$ 56,608.11	8.43%										
21,562.0707	\$ 0.2039	18	\$ 4,396.87	\$ 61,004.98	8.72%										
21,454.2603	\$ 0.2121	19	\$ 4,549.88	\$ 65,554.86	9.02%										
21,346.9890	\$ 0.2206	20	\$ 4,708.22	\$ 70,263.08	9.34%										
21,240.2541	\$ 0.2294	21	\$ 4,872.06	\$ 75,135.14	9.66%										
21,134.0528	\$ 0.2386	22	\$ 5,041.61	\$ 80,176.75	10.00%										
21,028.3825	\$ 0.2481	23	\$ 5,217.06	\$ 85,393.81	10.34%										
20,923.2406	\$ 0.2580	24	\$ 5,398.61	\$ 90,792.42	10.70%										
20,818.6244	\$ 0.2683	25	\$ 5,586.48	\$ 96,378.91	11.08%										
**Equipment degradation: soiling, aging equipment															

kW of PV SYSTEM:		8.38 kW														
kWhr Cost: \$		0.1178		Levelized cost of energy (25 years): \$		0.10628										
kWhr Generation:		7,500.00		SYSTEM COST: \$		19,928.24		NET SYSTEM COST \$		19,928.24		Annual consumption:		12,448 kWhrs		
kWhr Generation: a 25 Year Analysis (kWhrs/year - 0.5%)		YEAR:		Savings (4% annual energy cost increase)		Cumulative Savings		Annual ROI		FOR BUSINESS OWNERS ONLY		TAX SAVINGS:				
				TAX SAVINGS YEAR 1:		\$ -										
7,500.00	\$	0.1178	1	\$	883.50	\$	883.50	4.43%			Net Taxable Income: \$		-			
7,462.5000	\$	0.1199	2	\$	894.91	\$	1,778.41	4.49%			Tax Rate:		0%			
7,425.1875	\$	0.1208	3	\$	896.66	\$	2,675.07	4.50%			TAXES PAYABLE: \$		-			
7,388.0616	\$	0.1234	4	\$	911.81	\$	3,586.88	4.58%			Net Taxable Income /w Renewable Energy Installation: -\$		19,928.24			
7,351.1213	\$	0.1234	5	\$	907.25	\$	4,494.13	4.55%			Tax Rate:		0%			
7,314.3656	\$	0.1274	6	\$	931.60	\$	5,425.73	4.67%			TAXES PAYABLE: \$		-			
7,277.7938	\$	0.1325	7	\$	964.02	\$	6,389.75	4.84%			SAVINGS: \$		-			
7,241.4049	\$	0.1378	8	\$	997.57	\$	7,387.32	5.01%								
7,205.1978	\$	0.1433	9	\$	1,032.28	\$	8,419.60	5.18%								
7,169.1718	\$	0.1490	10	\$	1,068.21	\$	9,487.81	5.36%								
7,133.3260	\$	0.1550	11	\$	1,105.38	\$	10,593.19	5.55%	TOTAL SYSTEM RETURN ON INVESTMENT:		54%					
7,097.6593	\$	0.1612	12	\$	1,143.85	\$	11,737.04	5.74%	25 YEAR INVESTMENT							
7,062.1711	\$	0.1676	13	\$	1,183.65	\$	12,920.69	5.94%								
7,026.8602	\$	0.1743	14	\$	1,224.85	\$	14,145.54	6.15%								
6,991.7259	\$	0.1813	15	\$	1,267.47	\$	15,413.01	6.36%								
6,956.7673	\$	0.1885	16	\$	1,311.58	\$	16,724.58	6.58%								
6,921.9834	\$	0.1961	17	\$	1,357.22	\$	18,081.81	6.81%								
6,887.3735	\$	0.2039	18	\$	1,404.45	\$	19,486.26	7.05%								
6,852.9366	\$	0.2121	19	\$	1,453.33	\$	20,939.58	7.29%								
6,818.6720	\$	0.2206	20	\$	1,503.90	\$	22,443.49	7.55%								
6,784.5786	\$	0.2294	21	\$	1,556.24	\$	23,999.72	7.81%								
6,750.6557	\$	0.2386	22	\$	1,610.40	\$	25,610.12	8.08%								
6,716.9024	\$	0.2481	23	\$	1,666.44	\$	27,276.56	8.36%								
6,683.3179	\$	0.2580	24	\$	1,724.43	\$	29,000.99	8.65%								
6,649.9013	\$	0.2683	25	\$	1,784.44	\$	30,785.43	8.95%								
**Equipment degradation: soiling, aging equipment																

