



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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**CLIMATE ACTION COMMITTEE MEETING  
OF THE VILLAGE OF LIONS BAY  
HELD ON WEDNESDAY, AUGUST 25, 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/82036182090>  
TO JOIN VIA PHONE, DIAL 778-907-2071 AND ENTER MEETING ID: 820 3618 2090

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**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 June 23, 2021, Climate Action Committee Meeting (Page 5)**  
THAT the June 23, 2021, Climate Action Committee Meeting Minutes be approved, as circulated.
  - B. Minutes from the July 28, 2021, Climate Action Committee Meeting (Page 9)**  
THAT the July 28, 2021, Climate Action Committee Minutes be approved, as circulated.
- 6. Business Arising from the Minutes**
  - A. Anti-Idling signage – signs currently on order**
  - B. Priorities of Committees from items in categories**
  - C. Approved Resolutions from Council from the July 6, 2021 meeting:**  
THAT Council directs staff to work with the Climate Action Committee to support research on retrofits for buildings and to provide information on current data to create a baseline for Lions Bay.

**7. Unfinished Business**

**A. Renewable Energy Category**

- i. **Solar Panels on Municipal Buildings:** Jon Povill lead  
Discussion on hosting an information session and preparing a report for recommendation to Council  
**Priority:**  
**Action:**
  
- ii. **Ice Stupas for water supply:** Jon Povill lead (Page 12)  
J. Povill to provide update from hydrological engineer, Mike Paget, if available  
**Priority:**  
**Action:**
  
- iii. **ZEVIP (Zero-emission vehicle infrastructure program) update:** Norm Barmeier lead  
**Priority:**  
**Action:**
  
- iv. **Diesel for yard trucks:** Clara George lead – Committee Recommendation to Council required  
**Priority:**  
**Action:**

**B. Public Engagement and Education Category**

- i. **FireSmart Program:** Greg Weary lead  
**Priority:**  
**Action:**
  
- ii. **Metro Vancouver Wood Burning Bylaw:** Committee to provide ideas on education around this bylaw  
**Priority:**  
**Action:**
  
- iii. **Waste Management:** Village has partnered with Recycle BC  
**Priority:**  
**Action:**
  
- iv. **Resident Survey**  
**Priority:**  
**Action:**

**v. Communication and Education ideas**

**Priority:**

**Action:**

**C. Planning Category**

- i. Natural Asset Inventory:** Greg Weary lead and tie in with FireSmart Education program

**Priority:**

**Action:**

- ii. Climate Action Toolkit:** Ruth Simons to research

**Priority:**

**Action:**

- iii. OCP Amendment and Associated targets:** baseline Village data was presented at the May 25<sup>th</sup> regular Council meeting and CAC to present a report to Council to influence Carbon Neutrality goals

**Priority:**

**Action:**

- iv. Climate Action Plan**

**Priority:**

**Action:**

**D. Finance Category**

- i. Small Community Energy Efficiency Upgrade Grants and Loans**

**Priority:**

**Action:**

- ii. Funding**

**Priority:**

**Action:**

- iii. Infrastructure Grants**

**Priority:**

**Action:**

- E. Information requests to staff** (information requests only for items requiring research. Does not surpass recommendations from the Committee to Council)

**8. New Business**

- A. Committee Structure, Roles and Ability to meet Objectives.**

- 9. Public Questions & Comments**
- 10. Adjournment**
- 11. Next Meeting - TBD**



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

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**CLIMATE ACTION COMMITTEE MEETING  
OF THE VILLAGE OF LIONS BAY  
HELD ON WEDNESDAY, JUNE 23, 2021 at 7:00 PM  
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY  
AND VIA ZOOM VIDEO CONFERENCE**

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**MINUTES**

In Attendance: Christina Lee, Norman Barmeier, Greg Weary, Jaime Cunliffe, Ruth Simons, Jon Povill, Clara George

Regrets: Rebecca Loco Mayo

Staff:

Delegations: 0

Public: 0

**1. Call to Order**

Councillor Cunliffe called the meeting to order at 7:00 p.m.

**2. Appointment of Recorder**

Councillor Barmeier was appointed as the recorder.

**3. Approval of the Agenda**

Moved/Seconded

THAT the agenda be adopted as submitted.

**CARRIED**

**4. Public Questions & Comments**

Ruth Simons:

- Discussion ensued on climate neutrality and 2012 OCP amendment as it relates to carbon neutral goal.
- CAC has an opportunity to influence council priority setting in December 2021 for 2022.
- ACTION: Bring CAC report to kick off carbon neutrality goals.

**5. Approval of Minutes**

**A. Minutes from the June 2, 2021 Climate Action Committee Meeting**

Moved/Seconded

THAT the June 2, 2021 Climate Action Committee Minutes be approved, as circulated.

[CARRIED?]

**6. Business Arising from the Minutes**

Discussion on Help Cities Lead ensued.

Discussion on potentially locating EV charger near store or office as well as exploring each of the parking lots as potential alternative or additional spots. Chargers in lots would enable other power requirements, like food trucks etc. to be met.

RS may have information on revenue associated with EV chargers at the City of Squamish.

Need to explore Plug-in BC further.

Natural Asset inventory discussion was tabled for now and will be discussed at next meetings.

Discussion on Infrastructure grant ensued. Funds projects between 100K-3M. A baseline of potential projects need to be established with support from staff to identify potential projects. Question around replacement of oil furnace in municipal hall was raised. Replacement of oil furnace with heat pump and associated costs were discussed. Any studies associated with retrofits like environmental studies or heat loss studies may be covered by the grants. Question around power upgrade to support EV near hall was also discussed as a potential option.

JP has estimates for solar panels.

Program has a rolling intake until 2026.

ACTION: CAC to ask for staff time to support pulling a grant application together.

Carbon offset discussion ensued, ocean and forrest garner lots of potential credits of LB.

CAC to ask for complete listing of internal combustion engines from staff.

CAC to ask council for procurement policy to look at ways to make it “greener”

CG to look into clean fuels grant.

**7. Unfinished Business**

- C. OCP Amendment and Associated Targets –
- D. Resident Survey –
- E. Climate Action Plan – On hold
- F. G. Weary: Natural Asset Inventory – information report
- G. Climate Action Tool Kit –
- H. C. George: Renewable Diesel Fuel use by Works Yard – Renewable diesel information requested from staff – next steps towards feasibility of adoption
- I. Transfer Station – materials WCS will not pick up
- J. Solar panel on Municipal buildings – Jon to get an estimate from an expert
- K. EV charger initiative and status – information report attached
- L. Food truck power – Application for food trucks has been developed, which requires food truck to outline how they plan to mitigate impacts.
- M. Beach Event power
- N. Baseline Village data – GHG baseline data report from staff attached (presented at the May 25, 2021 regular Council meeting)
- O. Village actions to date – same as above
- P. Small community energy efficiency upgrade grant/loans
- Q. Infrastructure improvements
- R. Communication/Education
- S. Finance/Funding

**8. New Business**

**9. Correspondence**

**CARRIED**

**10. Public Questions & Comments**

NONE

**11. Adjournment**

**12.**

**Moved/Seconded**

**THAT the meeting be adjourned**

**CARRIED**

The meeting was adjourned at 8:20 p.m.

**13. Next Meeting – TBD**

**Date Approved by Committee: July 23<sup>th</sup> 7pm**

DRAFT



THE MUNICIPALITY OF THE VILLAGE OF LIONS BAY

**CLIMATE ACTION COMMITTEE MEETING  
OF THE VILLAGE OF LIONS BAY  
HELD ON WEDNESDAY, JULY 28, 2021 at 7:00 PM  
COUNCIL CHAMBERS, 400 CENTRE ROAD, LIONS BAY  
AND VIA ZOOM VIDEO CONFERENCE**

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**MINUTES**

**1. Call to Order**

Jaime Cunliffe called the meeting to order at 7:00 p.m.

**2. Appointment of Recorder**

Norman Barmeier was appointed as the recorder.

**3. Approval of the Agenda**

Moved/Seconded

THAT the agenda be adopted as amended.

**CARRIED**

**4. Public Questions & Comments**

No public participation

**5. Delegations**

Metro Vancouver – Esther Berube, Division Manager, Air Quality Bylaw and Regulation Development, Roger Quan, Director of Air Quality Policy and Climate Change, and Julie Saxton, Air Quality Planner – Wood Burning Bylaw

Roger Quan, Julie Saxton, and Esther Berube.

Julie presented a slide show on Metro Wood Burning bylaws.

Opened up the floor to public questions for the presenter:

Mayor McLaughlin made comments and asked about which jurisdiction fall under new bylaw. Summer restrictions don't make distinction between Urban and Rural, however winter months do make a distinction between Urban and Rural.

Ruth Simons thanked presenter and noted that local retailers can only sell CSA and EPA approved. Provincial regulation requires all new wood stoves to be compliant with USA EPA standards. A stove purchased within last 3 years is likely compliant.

Recommendation to let public know that stove purchased within X years is likely

compliant. Roger Q noted Metro is working on further educating public around these bylaws.

Josephine Wright built house in 1981 and installed wood burning unit in 1985. What is considered low income household? Why is Lions Bay excluded altogether, since we don't have natural gas. We have woodburning or electric as a choice. Heat pumps are impractical or expensive with no real pay back. Living in an area where wood or electricity is the only choice. The bylaw feels discriminatory due to lack of reasonable alternatives. The subsidy of \$400 is negligible. Generally, feels LB should be excluded and feels the policy is discriminatory

J Saxton provided definition of low income, essentially same to definition that utilities use.

R Quan provided background on bylaw adoption and 7-year extension for Lions Bay in order to recognize unique situation in Lions Bay. Also recognizes the \$400 subsidy is marginal.

O Ganske making comments on capital cost associated with chimney replacement, chimney flues built in the past would likely not be permitted. Looking for clarification on grandfather clause. Metro discussed the concept of phasing to slowly move region into compliance. OG expressed concern around older existing units becoming illegal. OG suggests phasing should be forward looking only, not retro-actively. How are architecturally significant fire places maintained?

R Quan maintains the program is forward looking.

Extended meeting to 8:30

## **6. Business Arising from the Minutes**

Councillor Barmeier updated CAC on staff support for retrofit grant for municipal hall.

Anti-idling signage update – have any signs been added? Would be good to have them in parking lots. NB to ask for inventory of signs. JP suggested school kids make anti-idling signs for the school parking lot. PDJ looked into whether there are signs in stock or not.

Stupas – updated on next steps and will be looking into costs. Seems feasible.

JP is looking to get motion from CAC that council take up a presentation by solar panel companies to get information on costs and benefits. JP to put motion on the table that a solar panel delegation make a presentation to council. Might be conflict of interest to invite private company.

RS would suggest that committee could pull together information package – **move to unfinished business for next meeting.**

Meeting extended to 8:45

CAC feels we need to further education around Metro Vancouver Burning Bylaw – **move to unfinished business for next meeting.**

Village already committed to educating residents around Metro Burning Bylaw; should this be a CAC task or staff task.

**7. Unfinished Business**

Greg updates on natural assets update. Watershed is major natural asset; signed up and completed BC Fire Smart course. Total 8-hour commitment. GW will volunteer to integrate FireSmart education into emergency planning efforts. Basics of BC FireSmart Program could be easily integrated. PDJ suggested that a draft of the fire protection plan could be circulated.

**8. New Business**

Klatt building grant update – opportunity to see if any energy improvements are being incorporated.

**9. Public Questions & Comments**

**10. Adjournment**

Moved/Seconded

THAT the meeting be adjourned.

**CARRIED**

**11. Next Meeting – tentatively August 25<sup>th</sup> at 7pm.**

23 August 2021

Proposal Number: P0601-1

Mr. Jon Povill  
Climate Adaption Committee

## **COST ESTIMATE ICE STUPA SCOPING STUDY LIONS BAY, BRITISH COLUMBIA**

Paget Engineering Inc. (Paget Engineering) is pleased to provide the scope and cost estimate for the task of conducting an Ice Stupa Scoping Study in Lions Bay, British Columbia. The following is a summary of the tasks and a cost estimate (excluding taxes).

### **Background**

Jon Povill requested Paget Engineering provide support on determining if Ice Stupas, which store water through the winter in conical-shaped ice heaps, could be used above Lions Bay to provide a slower release of meltwater throughout the summer. The meltwater could be used to supplement Lions Bay's current water supply system in late summer with minimal infrastructure requirements. Ice Stupas typically store up to 1000 m<sup>3</sup> of water but have stored significantly more. Additionally, Jon requested that the pathway to project completion be defined.

The temperatures above Lions Bay downloaded from the [ClimateWNA Map](#), together with a day degree melt model, indicate the melting of Stupas above Lions Bay may provide meltwater until the end of July and possibly even to mid-August. This estimate is not based on site-specific data, so it will need to be refined.

To determine the feasibility of Ice Stupas construction above Lions bay, the following studies are recommended:

### **Scoping Study**

The purpose of the study is to determine if Ice Stupas can become a viable climate adaption project for Lions Bay and identify areas of concern that require further detailed study. The scoping study will involve the following tasks:

- Create a basic outline of the required project scope and anticipated benefits.
- Reach out to people involved in other Ice Stupa projects to review the climates and designs that have led to successful project completion. This will ensure that the climate in Lions Bay would apply to Ice Stupa implementation.
- Using topographic maps and satellite images, review site selection possibilities to propose up to 3 possible locations.
- Using existing available climate data, summarise temperature, solar radiation, and snowpack data applicable to potential Lions Bay Ice Stupa locations.
- Review if the source water is sufficient to construct an Ice Stupa at proposed locations.
- Create a preliminary project schedule that includes order-of-magnitude capital and operating costs.

- Present a Go/No-Go recommendation: Abandon the project as un-economic or un-feasible; or continue into a feasibility study.
- Assess the level of confidence and completeness in existing climate and hydrological data; and identify areas requiring further detailed study (geotechnical, hydrogeological, hydrologic, environmental, etc.). The study will also include plans and estimated costs for the next project stage (feasibility study).

The Scoping Study is a desktop study that does not include any onsite fieldwork.

### **Feasibility Study**

The purpose of the Feasibility Study is to collect the site-specific data needed to ensure that climate, source water, and proposed location are aligned to make Ice Stupas a feasible climate adaption method for Lions Bay. The feasibility consists of several studies conducted in order such that if a no-go recommendation results from one of the studies, further studies will be stopped. The Feasibility Study may include the following tasks (depending on the results of the Scoping Study):

- Field review of proposed construction locations, to choose a final location.
- Site climate monitoring.
- Site water monitoring for source water to be used for Ice Stupa construction.
- Slope stability study at proposed Ice Stupa construction location.
- Review of any permitting requirements.
- Possible construction of a small experimental Ice Stupa.
- Communication with the Municipality of Lions Bay to determine the most beneficial method of meltwater delivery to Lions Bay (i.e., direct pipeline vs. water being allowed to infiltrate into the groundwater supply from the Ice Stupa).
- Determine the infrastructure requirements of the Ice Stupa. This includes a winter water collection system, Ice Stupa piping design, and water distribution system to Lions Bay.
- Costs  $\pm$  30% with a 20% contingency.

### **Detailed Design**

A continuation of work from a favourable Feasibility Study decision. The purpose of a detailed design is to provide construction drawings and a detailed list of materials for costing and procurement. The construction cost estimate will be refined to  $\pm$  5% with a 20% contingency. Additionally, any permits required would be applied for during this phase of the project.

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## Costs

The cost estimate of this proposal covers the Scoping Study outlined above. It does not include any aspects of the feasibility study, detailed design, or construction. The following is a summary of the cost estimate (excluding taxes):

Task	Cost Estimate
Review of other Ice Stupa projects	\$ 1,400
Site selection analysis	\$ 1,400
Climate data analysis	\$ 1,400
Source water analysis	\$ 1,400
Costs estimate	\$ 1,400
Reporting	\$ 4,900
<b>Total</b>	<b>\$ 11,900</b>

Note: Due to this proposal's possible variation of costs, costs will be assessed at an hourly rate with written notification of any exceedances being communicated before work being completed.

We would appreciate receiving a signed copy of a PO before work starting. The total cost estimate for the tasks outlined is \$11,900 (excluding taxes).

Should you have any questions regarding this submission, please do not hesitate to contact Mike Paget. Paget Engineering looks forward to the opportunity to provide your community with consulting services.

Yours truly,

PAGET ENGINEERING INC.



Mike Paget, BSc., P.Eng  
Owner, Senior Water Resources Engineer



Labour
Mike Paget, Senior Water Resources Engineer

**Details of Fees and Expenses by Task**

Phase	Task	Task Description	Task Total	Hours
			Rate	
			\$	140
1000	1	Review of other Ice Stupa projects	\$ 1,400	10
	2	Site selection analysis	\$ 1,400	10
	3	Climate data analysis	\$ 1,400	10
	4	Source Water analysis	\$ 1,400	10
	5	Costs Estimate	\$ 1,400	10
			Reporting	\$ 4,900

Notes: A 10% mark-up on all expenses will be added to all invoices

Costs will be assessed at an hourly rate with written notification of any exceedances being communicated prior to work being completed.

**Summary**

Labour Cost	Expenses	Grand Total
\$ 11,900	\$ -	\$ 11,900