





*and whether this unit is the most appropriate resource for the circumstance as per report 3b.*

21-32  
GT2021-02

It was moved and seconded, that up to \$65,000 be approved for the Woss Water Supply Emergency Generator Power Back Up project, Gas Tax Application 2021-02.

**CARRIED**

- b) Manager of Operation's Additions to the Agenda:  
"Preliminary Risk Prioritization Plan for Local and Regional Power Outages"

*The Manager of Operations presented a video showing the prototype lift station battery backup system that was developed by Paul Getman with Gas Tax funds from project GT2020-07. He noted:*

- *Actual pre-assembled batteries are 10kw actual power*
- *On the other side, is the 3 units in the middle, which are the inverters*
  - *These are 3 phased capable— unlike the Tesla backup system*
  - *Can take multiple sources of power*
- *Power Kiosk:*
  - *System is setup so that it is instantaneous; when power goes out, it starts up*
  - *We can monitor status of battery power remaining*
- *This system can draw from other systems, such as solar or wind, before using fuel*
- *This is the first prototype of the backup system*
- *The performance of the system was tested on July 15, 2021 as shown on a real time graph presented; it worked as expected without a hitch*
- *Will optimize the unit with added climate control within the cabinets to maximize performance of the batteries; cabinets have been insulated and have small heaters*

*Also noted:*

- *In additional to buying infrastructure, we are working on a plan for prioritization of where our needs are and guidance on how to use this infrastructure*
- *This document describes how we want to go forward in developing this plan:*
  - *Strategic infrastructure investment*
  - *Emergency planning*
  - *How to use this investment as effectively as possible*
- *Identified key services/responses impacted by power outages*
- *Each service has common and unique vulnerabilities*
- *Did this analysis for all the different systems*
- *Took a look at each individual service at the community level:*
  - *Identified the electrical infrastructure*
  - *Hyde Creek Sewer Collection is dependent on each property owner having pumps and surge tanks; therefore, they can go for quite awhile before reaching a crisis of releasing untreated effluent (would be in storage tank on properties)*
- *Can use these templates for various services/areas*

*Chair requested that a copy of this document be sent to Directors after the meeting*

21-33

It was moved and seconded, that the Preliminary Risk Prioritization Plan for Local and Regional Power Outages" be received and filed.

**CARRIED**

- c) Administrator's Reports (August 12, 2021)  
i) Application for Gas Tax-Community Works:  
Connected Coast Last Mile Internet Connectivity

*Also noted:*

- *Reports from last EA meeting are being brought back for consideration; and since the press release is not public yet, the reports have been combined into one application that do not reference grant approval status.*

- Will provide 700 households in five rural communities with high speed internet
- It is the individual homeowner's decision on whether or not to connect
- This week in the related Coal Harbour Last Mile High Speed Internet Project 2019-08 was now 'lit up'
- Default ISP and agreement is with CityWest (partnered with Connected Coast)
- Will also provide resiliency to emergency planning and services

21-34  
GT2021-03

It was moved and seconded, that the Gas Tax Application 2021-03 for funding for up to \$190,000 be provided to the Rural RDMW/Connected Coast Last Mile Fibre Optic System subject to the following conditions: 1) funding is confirmed from other identified sources; 2) that the associated draft agreement be recommended to the RDMW for consideration to proceed to a final agreement with Citywest.

**CARRIED**

ii) Internet Funding through Gas Tax

*Also noted:*

- This is the associated report to the above Gas Tax Application for the Connected Coast Last Mile Internet Connectivity
- This will provide the baseline information to show whether or not we've met the objectives in GT2021-03

iii) Recreational Funding Donation for Rebuilding Village of Lytton

*Discussion:*

*Area D Director suggested same lump sum (ie \$500) per Electoral Area*

*Area C Director:*

- Prefers the individual electoral area for population amount, including the reserve population
- Can decide at this meeting and then have a cheque to the Village of Lytton

*Administrator:*

*Clarified that it would be one cheque on behalf of each electoral area, using most current census data (2016) and inclusive of on-reserve population, (noting that Electoral Area A may still be 'in the hole')*

*Directors Comments:*

***Include a motion to challenge our municipalities and other local governments to step up as well? Agreed that this could be shared as an attachment to an email from UBCM samples.***

21-35

It was moved and seconded, that a donation of \$3,413 be made to the Village of Lytton on behalf of the Regional District of Mount Waddington Electoral Area Directors to help rebuild their village; and that a letter be sent to other BC Local governments suggesting that they consider making similar donations based one dollar per capita as per the 2016 census.

**CARRIED**

21-36

It was moved and seconded, that the Administrator's Reports be received and filed.

**CARRIED**

**Next Meeting** – To be announced

**Adjournment:** The meeting adjourned at 12:28 pm

**CERTIFIED CORRECT**

\_\_\_\_\_  
SECRETARY

\_\_\_\_\_  
CHAIR



**REGIONAL DISTRICT OF MOUNT WADDINGTON**

2044 McNeill Road, P.O. Box 729, Port McNeill, B.C. V0N 2R0

Phone: 250-956-3161 or 250-956-3301 fax: 250-956-3232

**APPLICATION FOR GAS TAX-COMMUNITY WORKS**

**NAME OF APPLICATION: RDMW Local Service Power Outage Resiliency Project**

**LOCATION AND ADDRESS OF PROPOSAL:**

**COMMUNITY**

**IN ELECTORAL AREA: A&B (C&D)**

If **REGIONAL**  Regional Wide Service or  list Impacted Communities and areas

**SERVICE:** Coal Harbour, Sointula **RDMW Land Tenure:** Existing Easements and Fee simple

**TYPE OF APPLICATION:**

- Local Roads/Bridges  Public Transit  Drinking Water  Wastewater  Solid Waste
- Community Energy Systems  Recreational Infrastructure  Cultural Infrastructure  Tourism Infrastructure
- Disaster Mitigation  Capacity Building

**NEW DEAL FUNDING REQUIRED** Project Budget Attached  Community Support Attached

Including contingencies, up to **\$327,000** is being requested.

Description	Quantity	Estimated Unit Price	Total Price (incl contingencies)
Inverter	(CH)9 S(12)	CH(\$60,000) S(\$66,000)	\$126,000
3.2v LIFEPO4 Cells	352	CH(\$45,000) S(\$40,000)	\$85,000
Wiring, fittings, sub components and adaptors	1	CH(\$14,000) S(\$14,000)	\$28,000
Aluminum Fabrication of Kiosks & Battery Enclosures	1	8 x Kiosks \$2,000 Battery Box \$200	\$28,000
Assembly and Contract Electrician	8	PG Labour (\$40,000) Electrician (\$10,000) \$5,500	\$55,000
Shipping	1	\$5000	\$5,000
<b>Total Before Taxes</b>			<b>\$327,000</b>

**PROJECT DESCRIPTION:** (See attached maps for proposed sites served)

The unincorporated communities of the North Island are increasingly being challenged by power outages. An example would be Coal Harbour and Sointula’s waste water collection systems which are served by a network of 9 lift stations which compensate when terrain prevents gravity from exclusively moving sewer water to the waste water treatment plants. During power outages, these lift stations require emergency power the 5 hp pumps to continue to function and prevent escapement of the wastewater into public space. Currently the response to power outages is to use a portable genset to operate individual lift stations one by one which only partially achieves environmental responsibilities as a lift station may over flow while the genset serves another location. The traditional solution is to set up emergency gensets at each lift station which, in addition to the initial capital costs, also requires extra operational and maintenance costs.

The Regional District has developed and field tested the design of lithium battery emergency power sources that are primarily charged using BC Hydro’s grid and can run a lift station for 24 hours before needing to be recharged. The 25 kw gensets currently used to power the lift stations can be redirected to power other equipment for the communities they serve, including the sewage treatment

plants which currently directly discharge into the receiving environment during outages. Should the power outage be of an extended duration, smaller gensets can be used to recharge the batteries if necessary in such a manner that there would be little risk that the lift stations' operations would be impaired eliminating the risk that a sewer system would have any escapement.

Because the lithium battery emergency power supplies will have minimal moving parts as opposed to gensets, maintenance and expected service life should result in lower operating costs to the sewer services. There will also be lower environmental liabilities as there will be no risks for fuel leakages. Finally, the battery systems over a longer period of time could be used to source power from alternative sources such as wind, solar etc. as the input current will only need to recharge the batteries, not directly drive the pumps.

Where infrastructure power demands make current battery technology impractical, installing genset plug ins can quickly resume essential services. This project will quickly accelerate the implementation of the (currently draft) North Island Power Resiliency Plan which sets priorities to protect key local government infrastructure. A key component of that (attached) document is to have the capacity to share any mobile resources with neighbouring communities experienced localized outages or during regular maintenance of their systems. The recently approved Woss mobile generator was sized appropriately to potentially operate any of the RDMW sewage treatment plants as well as the Coal Harbour Water treatment plant. This infrastructure will be interchangeable for increased functionality and applicability to existing solar backed systems; in addition, data can be logged and tracked to provide fine tuning for efficiency gains from greater system understanding.

If possible, this project will be seeking other grant opportunities to absorb some of the costs and reduce the demand on the Gas Tax funding as well as looking for additional spending efficiencies.

**COMMUNITY WORKS OBJECTIVES ADDRESSED BY PROPOSAL:**

Better performance of operations reduces costs and foster greater reinvestment in the infrastructure plus back up system will create greater community resiliency when dealing with power outages; as per measurable outcomes, below.

**TEST OF INCREMENTALITY**  *This project could not have been considered if New Deal funds were not available.*

**MEASURABLE OUTCOMES (expected benefits)**

- Reduced risk of environmental impacts & associated health risks from lift station overflows and or direct discharge of untreated sewage during power outages
- Reduced GHG impact from using fossil fuel generators during outages as well as operating and maintenance cycles
- Greater capacity and resilience during emergencies by having interchangeable and complementary systems directed towards areas of greatest need

**FOR OFFICE USE ONLY**

Copy to Finance  
Finance File Number: \_\_\_\_\_

STAFF LEAD: Patrick Donaghy, Manager of Operations

DATE RECEIVED: September 21, 2021

PROJECT NUMBER:

CONSIDERED BY NEW DEAL COMMITTEE ON: September 21, 2021

MOTION NUMBERS:

DECISION:  Approved  Approved subject to:  
 Not Approved

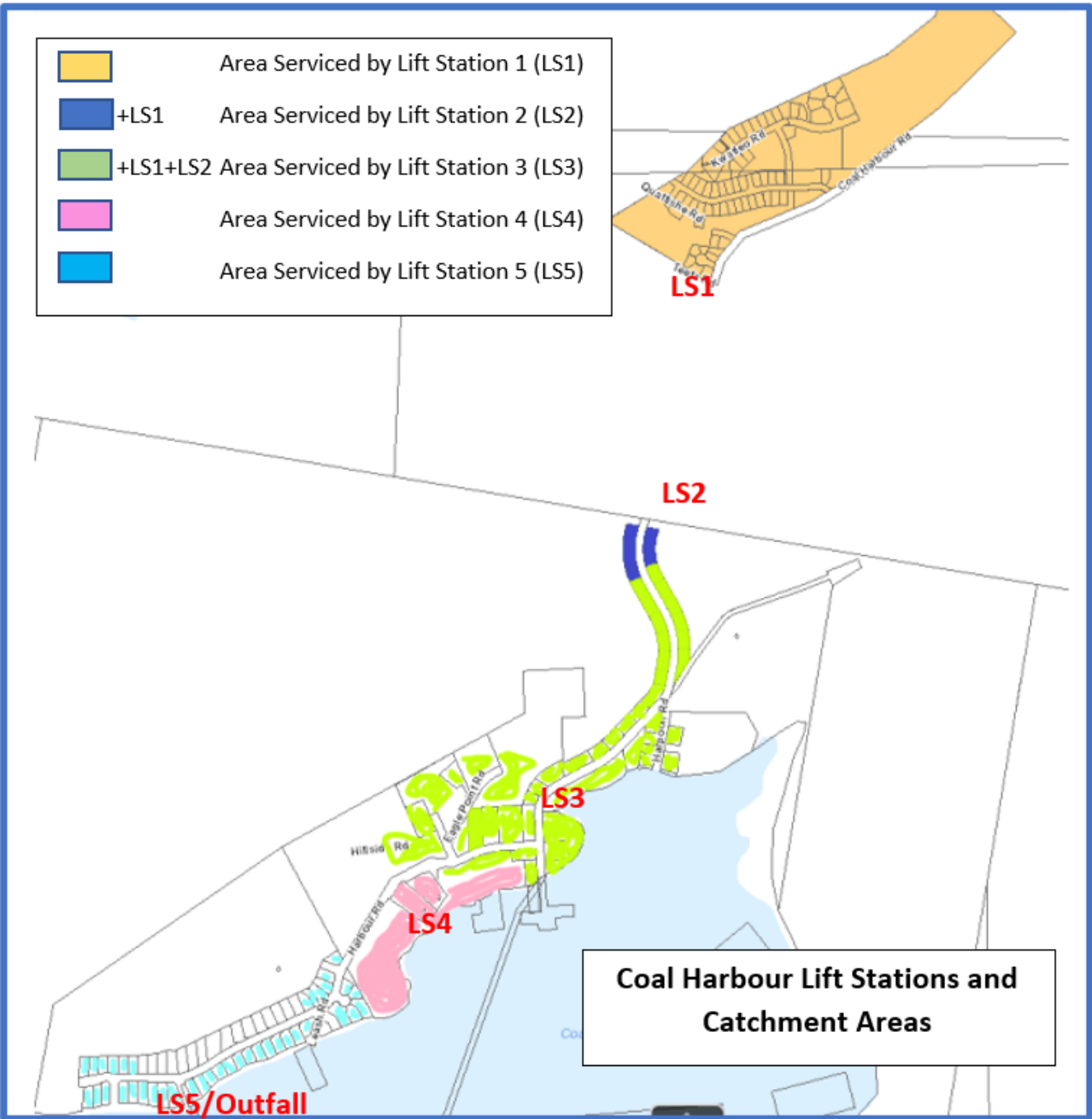
BUDGETED PROJECT COST: \$327,000

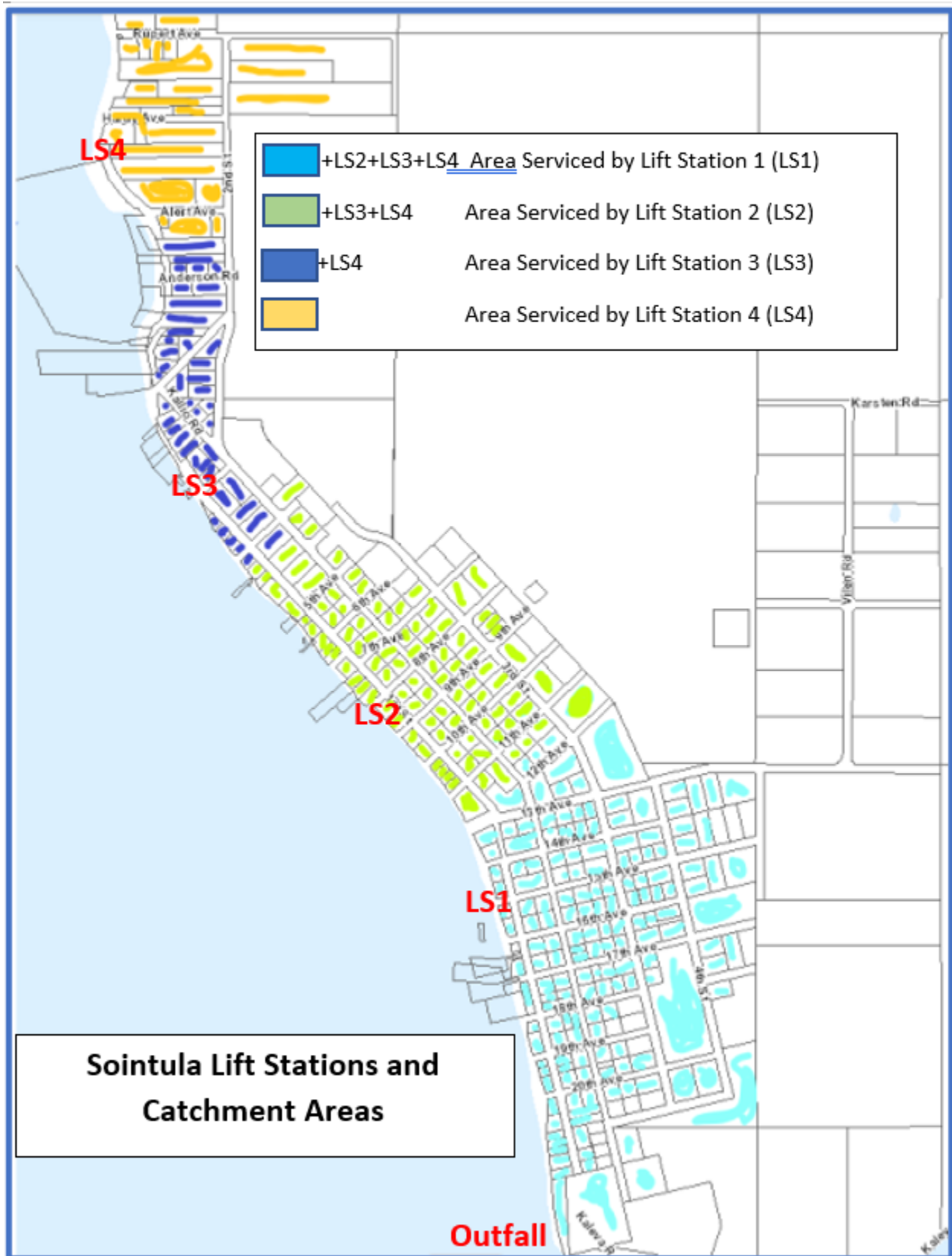
NEW DEAL APPROVED FUNDING: \$

PROJECT CERTIFIED COMPLETED:

ACTUAL PROJECT COST: \$

DATE CONFIRMATION PROVIDED TO UBCM:







# Preliminary Risk Prioritization Plan for Local and Regional Power Outages

*By Operations Manager Patrick Donaghy, September 1, 2021*

The Regional District of Mount Waddington (RDMW) and all incorporated/unincorporated communities within its boundaries have a long history of managing for the disruption of power outages of varying durations. This experience will likely be taxed to even greater extent in the future as climate change is projected to result in greater intensity weather events which will stress the North Island/Provincial power grid to even higher levels. Providing critical power to essential services and emergency infrastructure is an essential priority to local government in attaining resiliency especially over a long term horizon with uncertain resources.

To effectively respond to this challenge, the RDMW will be developing a Power Outage Risk Prioritization Plan (PORPP) that will be reviewed and amended in an iterative basis that will focus on the two following sub-strategies:

- Strategic infrastructure investment through objective prioritizations
- Emergency planning that provides guidance in how infrastructure can be utilized most effectively

While the plan is in its initial conceptual phase of development, staff at the RDMW are working on the process of how to accomplish the PORPP.

## 1. Identify Key Services/Responses Impacted by Power Outages

At the community level, local government are the primary service providers of essential services of which the RDMW delivers the following:

- Potable water
  - Woss water service
  - Coal Harbour water service
- Waste water disposal
  - Woss sewer system
  - Sointula sewer service
  - Coal Harbour sewer service
  - Hyde Creek sewer service
- Solid waste disposal
  - Woss solid waste service
  - Coal Harbour solid waste service
  - Malcolm Island solid waste service
  - Winter Harbour solid waste service
  - Quatsino solid waste service
  - 7 Mile Regional Landfill
- Fire Protection/Emergency Response
  - Woss fire protection service
  - Sointula fire protection service

- Coal Harbour fire protection service
- Hyde Creek fire protection service
- Emergency Social Services Reception Centers (Hyde Creek, Coal Harbour, Woss, Sointula, Quatsino, Winter Harbour)
- Community Wharf (Quatsino)
- RDMW Administration Office
- Chilton Regional Arena

## 2. Service Risk/Vulnerability Factors

Each service type has some common and unique vulnerabilities that pose risks to their associated communities. The risk factors associated with power outages for each service type are itemized as follows:

- Potable water
  - All RDMW water systems are dependent upon electrical power to source water from supplies to make them accessible for communities' uses
  - Some water services' water sources are not potable and must be processed prior to consumption which relies of electrical power
  - All water systems have the ability to cache potable water (cisterns, water tanks) in a way that can make it accessible to the public for their consumption
  - Leaky distribution systems increase water use without any public benefit
  - Conservation measures can reduce excessive consumption and improve system resiliency
  - Water systems are the main source of water for use in suppression of fire by the fire departments.
- Waste water disposal
  - Most RDMW waste water systems are dependent upon electrical power to process contaminated sewage prior to release into the receiving environment or risk violating federal and/or provincial regulations.
  - Most RDMW waste water systems are dependent upon electrical power to transport a majority of sewage from where it is generated to the process facility which makes it safe to being released into the receiving environment.
  - Sewage entering into the collection system is difficult to impossible stop due to multiple sources
  - Escapement of sewage from sub or non-functioning collection system poses health risks to the public and the environment as well as reducing quality of life in the impacted community
  - Leaky collection systems increase flow without any direct benefit to the public.
  - Collection systems have the ability to cache sewage (lift stations, sewage tanks, etc.) in a way that can delay the need for processing and the risk of escapement.

- Solid waste disposal
  - Most community recycling depots and transfer stations are not dependent upon electrical power other for lighting when open during the evenings.
  - 7 Mile Landfill is dependent upon electrical power to collect revenues for the processing of solid waste and processing of information
  - 7 Mile Landfill is dependent upon electrical power to process many recycled materials prior to shipping out of the RDMW
  - 7 Mile Landfill is dependent upon electrical power in the processing and monitoring of leachate generated from disposed of waste
- Fire Protection/Emergency Response
  - All RDMW fire halls are dependent upon electrical power to keep functioning (lighting, communications, maintenance of equipment, etc.)
- Emergency Social Services Reception Centers
  - All existing and proposed locations for reception halls are heavily upon electrical power to provide heat/cooling, lighting, communications, food and comfort to displaced people
- Community Wharf
  - Wharfs are dependent upon electrical power for lighting to allow for safe operation at night
- RDMW Office
  - Majority of administrative functions (planning, communications, analysis, coordination, revenue/expense processing, etc.) are dependent upon electrical power.
- Chilton Regional Arena
  - The arena is totally dependent upon electrical power for its operation from ice making, lights, administration, etc.

### 3. RDMW Community Services Power Infrastructure. Current Status

The following tables outlines current power requirements of community infrastructure for RDMW administered services:

Community	Service	RDMW Electrical Infrastructure	Comments
Regional	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• 7 Mile Landfill Scale Office</li> <li>• 2 Recycling Balers</li> <li>• Staff Trailer</li> <li>• Electric Forklift</li> <li>• Polaris Electric Vehicle</li> <li>• Leachate Treatment System</li> </ul>	<ul style="list-style-type: none"> <li>• Has small genset for scale office that has not been totally reliable in the past</li> </ul>
	Administration	<ul style="list-style-type: none"> <li>• Regional District Office in Port McNeill</li> </ul>	<ul style="list-style-type: none"> <li>• Backup battery system that is supported by roof top solar panels</li> <li>• System is also primary power system for main computer network and communications</li> </ul>
	Arena	<ul style="list-style-type: none"> <li>• Chilton Regional Arena</li> </ul>	<ul style="list-style-type: none"> <li>• Totally dependent upon electrical power for operations</li> <li>• Past energy conservation efforts have driven down electrical power needs creating greater resiliency</li> <li>• One of the largest concentrations of solar panels are located on the arena roof                             <ul style="list-style-type: none"> <li>• Potential source of electrical energy if means available to tap and transport it to where needed</li> </ul> </li> </ul>

<b>Community</b>	<b>Service</b>	<b>RDMW Electrical Infrastructure</b>	<b>Comments</b>
<b>Coal Harbour</b>	Potable Water	<ul style="list-style-type: none"> <li>• Water Treatment Plant</li> <li>• Quatse Lake Pump House</li> </ul>	<ul style="list-style-type: none"> <li>• No back up power</li> <li>• Water storage tanks provide over two days of water supply during power outages</li> </ul>
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>• 5 Lift Stations</li> <li>• Waste Water Treatment Plant</li> <li>• 30 kw Emergency Mobile Generator</li> </ul>	<ul style="list-style-type: none"> <li>• Prototype battery provides power to Lift Station 2 during outages</li> <li>• Lift Stations 1, 2 &amp; 3 highest priority due connections serviced</li> <li>• Treatment Plant needs power to treat sewage has no backup power</li> <li>• Lift Station 4 could be serviced by same backup system as Treatment Plant</li> <li>• Currently emergency mobile generator can only power on lift station at a time creating higher chances of sewage escapement into community space and environment</li> </ul>
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• None (Only Curbside Collection by Contractor)</li> </ul>	
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>• Fire Hall</li> </ul>	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>• None (Potential Coal Harbour School Gym)</li> </ul>	<ul style="list-style-type: none"> <li>• No current agreement with SD85 for use of school gym</li> </ul>

<b>Community</b>	<b>Service</b>	<b>RDMW Electrical Infrastructure</b>	<b>Comments</b>
<b>Sointula</b>	Potable Water	<ul style="list-style-type: none"> <li>• None (Provided by Improvement District)</li> </ul>	Some properties are not served by the community system and Property owners may have their own back-up systems Provides water to Sointula Fire (RDMW Local Service)
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>• 5 Lift Stations</li> <li>• Waste Water Treatment Plant</li> <li>• 30 kw ? Emergency Mobile Generator</li> </ul>	<ul style="list-style-type: none"> <li>• Lift Stations 1 &amp;2 highest priority due connections serviced</li> <li>• Treatment Plant needs power to treat sewage has no backup power</li> <li>• Currently emergency mobile generator can only power on lift station at a time creating higher chances of sewage escapement into community space and environment</li> </ul>
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• Malcolm Island Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>• Could be powered by backup system of Treatment Plant which is adjacent</li> </ul>
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>• Fire Hall</li> </ul>	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>• AJ Elliot School Gym</li> </ul>	<ul style="list-style-type: none"> <li>• No current agreement with SD85 for use of school gym</li> <li>• Propane Backup generator exists though status uncertain</li> </ul>
<b>Woss</b>	Potable Water	<ul style="list-style-type: none"> <li>• 2 Wells</li> <li>• Proposal for Emergency Mobile Generator</li> </ul>	<ul style="list-style-type: none"> <li>• No back up power</li> <li>• Cistern provides one day of water supply during power outages</li> </ul>
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>• None (System all gravity based with controls powered by solar)</li> </ul>	
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• Woss Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting mostly powered by solar panels</li> </ul>
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>• Fire Hall</li> </ul>	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>• Woss Community Hall</li> </ul>	<ul style="list-style-type: none"> <li>• No backup power but heat pump provides energy efficient heating and cooling</li> </ul>

<b>Community</b>	<b>Service</b>	<b>RDMW Electrical Infrastructure</b>	<b>Comments</b>
<b>Hyde Creek</b>	Potable Water	<ul style="list-style-type: none"> <li>No Service</li> </ul>	Property owners may have their own back-up systems
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>Waste Water Treatment Plant</li> </ul>	<ul style="list-style-type: none"> <li>Sewage tanks at each property connection provides over a day of caching potential</li> <li>Unless property owner has personal genset powering grinder pump, no sewage will be sent to Treatment Plant during an outage.</li> </ul>
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Private Service Only</li> </ul>	
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>Fire Hall</li> </ul>	<ul style="list-style-type: none"> <li>Fire Hall has backup battery supported by solar panels on roof</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>Hyde Creek Community Hall</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has electric furnace and kitchen</li> </ul>
<b>Winter Harbour</b>	Potable Water	<ul style="list-style-type: none"> <li>No Service</li> </ul>	Property owners may have their own back-up systems
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>No Service</li> </ul>	“ “
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Winter Harbour Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>No electrical needs</li> </ul>
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>No Service</li> </ul>	
	Emergency Social Services	<ul style="list-style-type: none"> <li>Winter Harbour Community Hall</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has electric base boards</li> </ul>
<b>Quatsino</b>	Potable Water	<ul style="list-style-type: none"> <li>No Service</li> </ul>	Property owners may have their own back-up systems
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>No Service</li> </ul>	Property owners may have their own back-up systems
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Quatsino Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>No electrical needs</li> </ul>
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>Quatsino Fire Hall</li> </ul>	
	Emergency Social Services	<ul style="list-style-type: none"> <li>Quatsino School</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has electric base boards</li> </ul>
	Community Wharf	<ul style="list-style-type: none"> <li>Berg Cove Wharf</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has lighting</li> </ul>

## 4. Emergency Planning for Effective Infrastructure Utilization

During power outages, the greater the duration, the corresponding greater impact on communities. Fortunately, most power outages are resolved with 24 hours historically but multiday disturbances have occurred with some communities such as Coal Harbour and Sointula being disproportionately impacted. If resources were unlimited, power outage infrastructure could be acquired so that loss of the power grid would have no impact on operations.

A more realistic goal is to identify those components of essential services that will immediately impact the community at the onset of power loss and establish backup infrastructure to minimize impact. This analysis will also need to account for how essential the service is. A comparative example would be the provision of potable water has a greater priority than the collection of solid waste which may only be collected every other week.

As essential as the purchase of infrastructure to manage power outages is preplanning that maximizes the use of said infrastructure. Having a good template can simplify this preplanning,

- a good example can be found in those communities that have a potable water service and therefore must have an up-to-date Emergency Response Plan (ERP).
- ERPs could provide an easily adaptable format for all communities regarding in developing plans to responding to power outages as this specific risk scenario is already contained in the ERPs.

At a higher level of risk management, planning needs to account for the fact that some communities are more exposed to the risk of power outages than others. While all communities should have a level of self-sufficiency in meeting the challenges when the electrical grid fails, inter community support can reduce the impact while economizing on the infrastructure investment in meeting the challenge.

- Currently the North Island communities with fire protection services have a region wide mutual aid agreement that could be easily adapted to manage the sharing of resources.
  - The Fire Protection agreement protects against risks associated with damage and the consumption of consumable resources but provides an efficient avenue for support for disproportionately impacted communities.
  - The agreement could be enhanced by laying out standards for the infrastructure which would facilitate the use of power outage infrastructure when tasked to other communities than the ones they are based in.
    - These standards could include having standardized plug in sizes for portable generators and technical guidance documents for the infrastructure.



### 5. Current and Recommended Emergency Response to Power Outages by Service

Community	Service	RDMW Electrical Infrastructure	Comments
Regional	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• 7 Mile Landfill Scale Office</li> <li>• 2 Recycling Balers</li> <li>• Staff Trailer</li> <li>• Electric Forklift</li> <li>• Polaris Electric Vehicle</li> <li>• Leachate Treatment System</li> </ul>	<ul style="list-style-type: none"> <li>• Has small genset for scale office that has not been totally reliable in the past</li> </ul>
	Administration	<ul style="list-style-type: none"> <li>• Regional District Office in Port McNeill</li> </ul>	<ul style="list-style-type: none"> <li>• Backup battery system is supported by roof top solar panels; provides direct power to EOC computers &amp; communication system</li> <li>• Includes generator plug ins for extended outages when solar power may be insufficient</li> <li>• Can also provide power for electric vehicles</li> </ul>
	Arena	<ul style="list-style-type: none"> <li>• Chilton Regional Arena</li> <li>• Zamboni is battery powered so can operate independently</li> </ul>	<ul style="list-style-type: none"> <li>• Past energy conservation efforts have driven down electrical power needs creating greater resiliency</li> <li>• Connection to existing solar panel array to battery backup system is now underway; will power offices, kitchen and back-up reception area</li> <li>• Can also provide power for electric vehicles</li> <li>• Potential source of electrical energy if means available to tap and transport it to where needed</li> </ul>

Community	Service	Current Power Outage Response	Recommended Power Outage Response	Recommendation Status
Coal Harbour	Potable Water	<ul style="list-style-type: none"> <li>• Maintain above ground tanks at full water level</li> <li>• Implement water use reduction guidance, including public notification, should store water be reduced to less than 60% of full capacity</li> <li>• Seek back up power should store water be reduced to less than 40% of full capacity</li> <li>• Maintain constant vigilance for leakage of potable water in distribution system</li> </ul>	<ul style="list-style-type: none"> <li>• Install emergency genset plug in to pump house and water treatment plant</li> <li>• If power outage not affecting Woss, consider sourcing Woss portable genset through mutual aid.</li> <li>• Follow current power outage response protocol</li> <li>• If battery prices were to decline sufficiently, consider installing emergency battery backup</li> </ul>	<ul style="list-style-type: none"> <li>• Will apply for Gas Tax funding</li> <li>• Not implemented</li> </ul>
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>• Operator rotates between lift stations using portable genset to power the pumps to forward sewage towards the waste water treatment plant.</li> <li>• Waste water treatment plant is unpowered resulting in limited treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Install emergency back batteries in lift stations 1, 2, 3 &amp; 4 with potential to operate the pumps for a day at normal use.</li> <li>• Install emergency genset plug in to waste water treatment plant which will also power lift station 5.</li> <li>• Once emergency outage infrastructure installed, use mobile genset to power waste water treatment plant and lift station 5</li> <li>• If power outage has lasted over 12 hours and resumption of power is uncertain, seek gensets to power up lift station emergency batteries. Gensets can be much smaller as they</li> </ul>	<ul style="list-style-type: none"> <li>• Will apply for Gas Tax funding</li> <li>• Lift station 2 battery system installed.</li> <li>• Other emergency power outage infra structure not implemented</li> </ul>

			only need to generate 12-30 kwh over a 24 hour period to keep the lift station operating	
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• None (Only Curbside Collection by Contractor)</li> </ul>		
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>• Fully installed</li> <li>• Can also provide power for electric vehicles</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>• None (Potential Coal Harbour School Gym)</li> </ul>	<ul style="list-style-type: none"> <li>• Attain agreement with SD85 for use of school gym</li> <li>• Install emergency genset plug in to Coal Harbour school gym</li> <li>• Consider emergency battery system capable of meeting power needs for 24 hours</li> <li>• Consider installing heat pump instead of furnace with fan system prevent stratification of air column</li> </ul>	<ul style="list-style-type: none"> <li>• With agreements implemented apply for funding accordingly</li> </ul>

Community	Service	Current Power Outage Response	Recommended Power Outage Response	Recommendation Status
Sointula	Potable Water	<ul style="list-style-type: none"> <li>Improvement District has backup generators</li> </ul>	<ul style="list-style-type: none"> <li>Have a mutual aid agreement with RDMW to utilize sewer generator if needed</li> </ul>	
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>Operator rotates between lift stations using portable genset to power the pumps to forward sewage towards the waste water treatment plant.</li> <li>Waste water treatment plant is unpowered resulting in limited treatment</li> </ul>	<ul style="list-style-type: none"> <li>Install emergency back batteries in lift stations 1, 2, 3 &amp; 4 with potential to operate the pumps for a day at normal use.</li> <li>Install emergency genset plug in to waste water treatment plant.</li> <li>Once emergency outage infrastructure installed, use mobile genset to power waste water treatment plant.</li> <li>If power outage has lasted over 12 hours and resumption of power is uncertain, seek gensets to power up lift station emergency batteries. Gensets can be much smaller as they only need to generate 12-30 kwh over a 24 hour period to keep the lift station operating</li> </ul>	<ul style="list-style-type: none"> <li>Will apply for Gas Tax funding</li> <li>Emergency power outage infra structure not implemented</li> </ul>
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Malcolm Island Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>Could be powered by backup system of adjacent Sewage Treatment Plant</li> </ul>	<ul style="list-style-type: none"> <li>Need standardized plugs</li> </ul>
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>Can also provide power for electric vehicles</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>No current agreement with SD85 for use of AJ Elliot School Gym</li> <li>Backup generator exists though status uncertain</li> </ul>	<ul style="list-style-type: none"> <li>Attain agreement with SD85 for use of school gym</li> </ul>	<ul style="list-style-type: none"> <li>Implement agreement with SD 85</li> </ul>

Sointula (cont.)			<ul style="list-style-type: none"> <li>• Install standardized emergency genset plug in to AJ Elliot school gym</li> <li>• Consider emergency battery system capable of meeting power needs for 24 hours</li> <li>• Consider installing heat pump instead of furnace with fan system prevent stratification of air column</li> </ul>	
<b>Woss</b>	Potable Water	<ul style="list-style-type: none"> <li>• 2 Wells</li> <li>• Maintain above ground tank at full water level</li> <li>• Implement water use reduction guidance, including public notification, should store water be reduced to less than 60% of full capacity</li> <li>• Use back up power should store water be reduced to less than 40% of full capacity</li> <li>• Maintain constant vigilance for leakage of potable water in distribution system</li> </ul>	<ul style="list-style-type: none"> <li>• Approval for 60 kw Emergency Mobile Generator</li> <li>• Reservoir tank provides one day of water supply during power outages</li> <li>• Complete sharing protocols for gensets with Coal Harbour and Hyde Creek</li> </ul>	<ul style="list-style-type: none"> <li>• Purchase mobile generator</li> <li>• Complete wiring for both wells using standardized genset plugs</li> </ul>
	Sewage Disposal	<ul style="list-style-type: none"> <li>• None (System all gravity based with controls powered by solar)</li> </ul>		
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>• Woss Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting mostly powered by solar panels</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>• Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>• Fully installed</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>• Woss Community Hall</li> </ul>	<ul style="list-style-type: none"> <li>• Install standardized plugs and connectors for heat pump</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

Community	Service	Current Power Outage Response	Recommended Power Outage Response	Recommendation Status
<b>Hyde Creek</b>	Potable Water	<ul style="list-style-type: none"> <li>No Service</li> </ul>		
	Waste Water (Sewage) Disposal	<ul style="list-style-type: none"> <li>Waste Water Treatment Plant</li> </ul>	<ul style="list-style-type: none"> <li>Sewage tanks at each property connection provides over a day of caching potential</li> <li>Unless property owner has personal genset powering grinder pump, no sewage will be sent to Treatment Plant during an outage.</li> </ul>	Develop protocols & Install standardized plugs and connectors for mobile generators for extended outages
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Private Service Only</li> </ul>		
	Fire Protection/Emergency Response	<ul style="list-style-type: none"> <li>Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>Fire Hall has backup battery supported by solar panels on roof</li> </ul>	<ul style="list-style-type: none"> <li>Fully installed</li> </ul>
	Emergency Social Services	<ul style="list-style-type: none"> <li>Hyde Creek Community Hall</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has electric furnace and kitchen</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Winter Harbour</b>	Potable Water	<ul style="list-style-type: none"> <li>No Service</li> </ul>		
	Sewage Disposal	<ul style="list-style-type: none"> <li>No Service</li> </ul>		
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Winter Harbour Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>No electrical needs</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
	Fire Protection	<ul style="list-style-type: none"> <li>No Service</li> </ul>		
	Emergency Social Services	<ul style="list-style-type: none"> <li>Winter Harbour Community Hall</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has electric base boards</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Quatsino</b>	Potable Water	<ul style="list-style-type: none"> <li>No Service</li> </ul>		
	Waste Water Disposal	<ul style="list-style-type: none"> <li>No Service</li> </ul>		
	Solid Waste Disposal	<ul style="list-style-type: none"> <li>Quatsino Recycling Depot</li> </ul>	<ul style="list-style-type: none"> <li>No electrical needs</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
	Fire Protection	<ul style="list-style-type: none"> <li>Quatsino Fire Hall</li> </ul>		
	Emergency Social Services	<ul style="list-style-type: none"> <li>Quatsino School</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has electric base boards</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
	Community Wharf	<ul style="list-style-type: none"> <li>Berg Cove Wharf</li> </ul>	<ul style="list-style-type: none"> <li>No backup power but has lighting</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>