

**WESTERN ECONOMIC DIVERSIFICATION CANADA  
DUE DILIGENCE REPORT (DDR)**

**Project #:** 000004232                      **Client Legal Name:** Anmore Renewable Energy Foundation

**Program:** Western Diversification Program (WDZ)

**Contact:** Dr. Hal Weinberg  
Mayor, Village of Anmore  
(604) 469-9877

**Client Address:** Village Hall  
2697 Sunnyside Road  
Anmore, British Columbia  
V3H 3C8

**This is not A Start Up Entity**

**Project Address:** Village Hall  
2697 Sunnyside Road  
Anmore, BC  
V3H 3C8 CAN

**Federal Electoral District:** PORT MOODY--WESTWOOD--PORT COQUITLAM

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**Short Project Description:**

Anmore Renewable Energy Project feasibility study

**ELIGIBILITY**

**Detailed Project Description:**

The project will assess the feasibility of producing green hydrogen and clean electricity by developing and integrating three sources of renewable energy and building an affiliated educational and research facility. They are micro-hydro using river-run technology, solar using photovoltaic arrays, and micro-wind using one or more micro-turbines, that are forecast to generate, 250, 100, and 250 kilowatts, respectively, for a total of some 450 kilowatts. Because electricity generated from the renewable sources varies based on available water, light, and wind, the energy will be used to power an electrolyser to produce hydrogen, a storable energy carrier. In turn, stored hydrogen will fuel a modified internal combustion engine and/or fuel cells to generate electricity for the Anmore Renewable Energy Project [AREP] facilities. Excess hydrogen would be made available to fuel hydrogen powered and/or fuel cell vehicles, while surplus electricity would be distributed via a grid connection to the Village of Anmore. The educational/research facility envisioned by the AREP will be used for students, researchers, and group tours, the latter potentially on a cost-recovery basis. Construction would incorporate *Leading in Energy and Environmental Design* principles. One key result of the feasibility study will be a more accurate verification of the potential costs. Another is to identify potential sources of funding for the implementation phases of the AREP. Estimated costs for the development and integration of the three energy systems and the construction of the educational facility are in the \$5-7M range which the Foundation will seek to source from both private and government sources. To date, the Anmore Renewable Energy Foundation has developed a broad consortium of funding and supporting partners for the AREP. These include the BCIT School of Construction and the Environment, the University of Victoria Institute for Integrated Energy Systems, the BC Ministry of Environment, BC Ministry of Energy & Mines, BC Hydro, the BC Municipal Finance Authority, BC Independent Power Producers Association, as well as several private sector interests, eg, Day4Energy. Land for the AREP initiative will be secured on a long-term lease arrangement with BC Hydro at its Buntzen Lake Reservoir Recreation Area, a popular site contiguous to Anmore which attracts about 500,000 visitors annually.

NOTE: An exception to the project start date is recommended as per the WD Policy on Project Start Date to accept eligible costs incurred by the Foundation as at February 1, 2007. The Foundation had raised its portion of project funding by June 2006, including a grant from the Province of BC, received in April 2006. The WD due diligence review had been completed but a decision was placed in abeyance because of the department's visioning exercise. Officials notified the Foundation on July 13, 2006 of the department's position. The Foundation modestly sustained portions of the project not wanting to jeopardize potential WD support, which was required for full project implementation, and anticipated the completion of the visioning process and new departmental priorities and budgets. In early January 2007, officials were directed to re-engage with the Foundation to determine the project status and gauge interest in again working with the department. The positive response from the Foundation led to revised project PAT documentation herein. A letter of caution was issued to the Foundation dated January 11, 2007.

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**Summary Description:**

The project is to conduct a feasibility study to build a small scale, pre-commercial renewable energy system integrating hydro, solar, and wind, to generate electricity and green hydrogen and to construct an educational and research facility in the BC Hydro Buntzen Lake Reservoir Recreation Area. It represents the first phase of the 'Anmore Renewable Energy Project', an ambitious initiative of the Anmore Renewable Energy Foundation [Foundation], a registered charitable trust of the Village of Anmore. The Foundation was created to demonstrate that clean renewable energy can be locally generated to help meet local needs, especially for small remote and First Nations communities, and to help reduce greenhouse gas emissions. Expert consultants will be engaged to manage the project and to carry out the study, including site surveys and environmental assessment, conceptual and physical planning, research and educational programming, industry partnerships, renewable energy components and technology integration, and public consultation. Financial and in-kind support for the project has been secured from several partners including the BC Ministry of Environment, BC Hydro, the University of Victoria, the BC Institute of Technology, the BC Municipal Finance Authority, the BC Independent Power Producers Association, as well as private sector interests. The study will determine the technical feasibility, costs, and next steps for the initiative that are to develop the renewable energy system and construct the educational and research facility. The implementation phase would generate direct economic benefits from locally procured materials, services, and technologies. The project will also benefit small communities considering developing integrated energy systems and help educate students about renewable energy.

**Description and Eligibility of the Proponent:**

The Municipality of the Village of Anmore was incorporated on December 7, 1987 under the *BC Municipal Act*, is one of four independent villages within the greater Vancouver area, and has a population of about 1500, primarily residential. Legal counsel recommended creating a charitable Municipal Foundation of the Village of Anmore under the authority of the *BC Municipal Charter* as the most appropriate vehicle to facilitate the implementation of the Anmore Renewable Energy Project [AREP]. Subsequently, the Municipal Council of the Village of Anmore approved a motion on January 4, 2005 to establish the *Anmore Renewable Energy Foundation* with a mandate to develop the AREP. Subsequently, on June 28, 2005, the Mayor and six Trustees signed the *Trust Deed* which established the Foundation [document on on file]. The deed identifies 'charitable objects', ie, the scope of activities that the Foundation would undertake to realize the AREP, as well as its organizational, administrative, and financial authority. The Foundation is listed in the Canadian Registered Charities, Canada Revenue Agency [reference is on file]. Foundation financial information will be reported in the financial statements of the Village of Anmore.

The six Trustees, their occupations, and relevant experience are: Dr Hal Weinberg, Mayor, Village of Anmore, and Professor Emeritus, Faculty of Applied Sciences, and Director of the Office of Research Ethics, Simon Fraser University, and formerly, ~~Vice President, Research~~, and Director, Board of Directors, Down Syndrome Research Foundation, a two-time WD recipient; Mr Kenneth McEwan, Q.C. is a partner in the law firm of Farris, Vaughan, Wills & Murphy, Vancouver; Mr Lee Vishloff, is Vice President of Research and Development, Argon Security Technologies, in portable mobile wireless surveillance company based in Port Moody, and Director, Board of Directors, TRILabs; Mr Mel Steemson is Operations Technical Manager, BC Hydro Burrard Generating Station; Mr Ken Juvik, is a Watershed Forester, Greater Vancouver Regional District; and, Mr Kevin Pickell is a senior software engineer.

WD BC Payments and Monitoring and Finance confirmed [on file] that the Foundation is an eligible applicant.

**Eligibility of the Project:**

The project is to carry out a feasibility study, the first phase for the implementation of the Anmore Renewable Energy Project. Alternate/renewable energy is one of the priority industry clusters of the strategic innovation goal identified in the *WD BC Regional Office Strategic Business Plan 2005/06 - 2007/08*. Moreover, the potential to provide renewable energy for small and First Nations communities aligns with one of the priority initiatives of the sustainable communities' goal that is to support community alternative energy solutions. As such the project, and the project costs, are eligible for consideration for WD financial assistance.

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**VIABILITY**

**Project Timeline:**

The project is to prepare a feasibility study for the AREP. The work will be implemented in several phases over two fiscal years. Some of the activities will be undertaken concurrently, with March 31, 2008 identified as the target completion date of the final report. Completion dates for project milestones will be influenced by the timelines of the WD funding decision.

**Timeline of Project Activity:**

	<b>Date of Expected Completion</b>
1. Complete Phase 1 - Detailed Conceptual Planning	Jul-2007
2. Complete Phase 2 - Research and Educational Programming	Sep-2007
3. Complete Phase 3 - Detailed Design of Energy Systems and Integration	Jan-2008
4. Complete Phase 4 - Finalize Physical Design	Mar-2008

**Date of Incorporation:**

07-Dec-1987

**Analysis of the Management of the Proponent (History and Capacity):**

The Anmore Renewable Energy Foundation is a new client for WD BC. [The Village of Anmore has received funding from the Infrastructure Works Program, hence it is not a new client to WD.] Dr Hal Weinberg, the long standing Mayor of the Village of Anmore, is the driving force behind the AREP and the Foundation. He has been instrumental in the Village of Anmore, a small and relatively young local government, developing a reputation as a progressive administration. One example is that it was the first local government in BC to implement residential water metering; the AREP represents another initiative. With only a small administrative staff, Anmore does not have the capacity to implement the AREP; hence, the Village created the Foundation.

Foundation Trustees, identified above, have substantial academic, business, and industry experience sufficient to implement the current project.

**Analysis of the Governance of the Proponent:**

Three Trustees, Mssrs Wienberg, McEwan, and Vishisloff, have formed the *Foundation Steering Committee* to provide project oversight and review of the project phases. The Foundation has contracted with Renaissance Power Corporation to provide project management for the feasibility study as well as for the follow-on construction phases of the AREP. [A copy of the contract on file.] While Renaissance Power Corporation is not well known to WD, its President, Mr Doug Colby, is Treasurer and a member of the Executive Committee of the Independent Power Producers Association of BC, a respected industry association and WD recipient [WD 2704].

Additionally, the proponent and Renaissance Power Corporation have developed an extensive network of government, industry, and academic partners whose support and expertise should ensure the successful completion of the project.

**Financial Analysis and Ongoing Sustainability of the Organization:**

Having only recently been formed, the Foundation does not yet generated financial information. Its financial information will be presented in the financial statements of the Village of Anmore, a viable local government which has operated successfully since its incorporation in 1987. Financial statements for fiscal 2005 are on file, but do not reference the Foundation as it was only recently created.

The ongoing viability of the Foundation will be based on the recommendations of the project and its capacity to raise funding for the construction phases of the AREP.

**Financial Analysis of the Project (include information on other partners):**

Project costs total \$220,000 which are predominately to provide for fees to engage consultants with project management and administration, engineering, planning, architectural design, financial

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costing/modelling, public consultation, etc, expertise. An estimated 2750 hours of work are required to complete the project, providing for a blended billing rate of \$80 per hour, considered reasonable for professional consulting fees. A detailed budget itemizing the project activities, estimated hours, and hourly fees per activity has been provided as well as a project schedule for the four components of the feasibility study described in Project Costs. Project management services will be provided by Renaissance Power Corporation, a North Vancouver renewable energy consulting firm, at a rate \$5000 per month, plus appropriate expenses.

The Foundation Steering Committee will review each project component and must provide approval before the project proceeds to the next step.

In early April 2006 the B.C. Ministry of Environment issued a cheque to the Village of Anmore for a grant in the amount of \$75,000 from the Office of the Minister of Environment, the Honourable Barry Penner, which was delivered to the Mayor of Anmore by Mr Iain Black, the Member of the Legislative Assembly for Port Moody-Westwood. Project proponents reported that financial contributions have been confirmed from the BC Municipal Finance Authority, the BC Independent Power Producers Association, and Indigo Energy Systems, for \$15,000, \$4,000, and \$3,000, respectively. Total confirmed funding, including the amount requested from WD, totals \$217,000, leaving a modest \$3000 shortfall. The Foundation is confident it can raise this funding and has every expectation of doing so from several potential sources including academic institutions, local governments, and the private sector.

The University of Victoria and BCIT have committed [letters on file]to provide in-kind support to the project, for their research, technical, and educational expertise. Each organization has documented and valued its contribution at \$15,000, for a total of more than \$30,000 of in-kind support.

BC Hydro has committed a large section of land at its Buntzen Lake Reservoir Recreation Area for the AREP.

**NOT A PROJECT UNDER CEAA**

**Comments Regarding CEAA:**

The project is to conduct a feasibility study, hence it is not an undertaking in relation to physical work as per the CEAA.

**FUNDING**

<b>Planned Project Start Date:</b>	01-Feb-2007	<b>Project Cancellation Date:</b>	31-Mar-2007
<b>Planned Project End Date:</b>	31-Mar-2008	<b>Client Final Reporting Date:</b>	30-Jun-2008

<b>PROJECT COSTS</b>	<u>Project Costs</u>	<u>WD Assistance</u>	<u>WD</u>	<u>%</u>
Assisted Non-Capital				
Phase 1 - Conceptual Planning	50,000	27,000		54%
Phase 2 - Research and Educational Programming	60,000	33,000		55%
Phase 3 - Renewable Energy and Integration Technologies	60,000	33,000		55%
Phase 4 - Physical Planning and Engineering	50,000	27,000		54%
<b>Total Assisted Non-Capital</b>	<u>220,000</u>	<u>120,000</u>		<u>55%</u>
<b>Total Assisted</b>	<u>220,000</u>	<u>120,000</u>		<u>55%</u>
<b>TOTAL PROJECT COSTS</b>	<u>220,000</u>	<u>120,000</u>		<u>55%</u>

**Project Cost Comments**

1. The Minister shall provide a Contribution equal to the lesser of 55% of Assisted Non-Capital Costs and \$120,000.
2. 'WD' in the Statement of Work means the the Department of Western Economic Diversification.
3. 'WDP' means the Western Diversification Program of the Department of Western Economic Diversification.

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**PROJECT FUNDING**

WD Non Repayable	120,000
Other Provincial	
Ministry of Environment	75,000
BC Municipal Finance Authority	15,000
BC Independent Power Producers Association	4,000
Indigo Wind Energy Systems	3,000
Funding to be sourced	3,000
<b>TOTAL PROJECT FUNDING</b>	<b>220,000</b>

**CASHFLOW**

Fiscal Year	WD Assistance	Other Gov't Assistance	Client Amount	Total
2006/2007	20,000	7,500	7,500	35,000
2007/2008	100,000	67,500	17,500	185,000
<b>Total Cashflow</b>	<b>120,000</b>	<b>75,000</b>	<b>25,000</b>	<b>220,000</b>

**BENEFITS**

**Program Activity Architecture:**

**Strategic Outcome:** ENTREPRENEURSHIP & INNOVATION  
**Activity:** Innovation  
**Sub-Activity:** 374 - Community Innovation  
**Expected Result:** Increased technological capacity in a community.

<u>PAA Indicators</u>	<u>Baseline/ Starting Point</u>	<u>Date</u>	<u>Target/Deliverables</u>	<u>Benefit Measurement Date</u>
# studies	0	Feb 2007	1	Mar 2008

**Comments on Benefits:**

The objective of the project is to develop a well researched, high quality feasibility study for the Anmore Renewable Energy Project in order to determine the next steps the implementation of the initiative. Moreover, the study will be made publicly available, which are expected to be beneficial, especially for small communities seeking to develop renewable energy.

<u>Unique Project Indicators</u>	<u>Baseline/ Starting Point</u>	<u>Date</u>	<u>Target/Deliverables</u>	<u>Benefit Measurement Date</u>
# of participating post-secondary project partners	0	Feb 2007	2	Sep 2007
# of project phases approved	0	Feb 2007	4	Feb 2008

**Methodology and Timing:**

As the project is to prepare a feasibility study regarding the Anmore Renewable Energy Project, its benefits will be largely captured in the final report, a copy of which will be provided to WD. As well, an electronic version of the report, or the results of the report, will be made available to the public on the Village of Anmore or related internet site.

Progress on the implementation of the project shall be evaluated against project performance indicators.

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**Horizontal Impact Narrative:**

One of the main objectives in developing the AREP is to test and demonstrate methods for generating renewable energy for small and First Nations communities. The report will confirm the feasibility of developing renewable energy based on integrating three energy sources to produce green hydrogen and clean electrical power.

Project proponents reported that preliminary discussions regarding generating renewable energy locally have been held with several smaller BC communities.

**Horizontal Impacts:**

Impact	Element
Aboriginal	No Impact
Environmentally Sustainable Development	Significant Impact Invest in projects that enable western Canadian communities to improve their environmental, social, and economic sustainability
Francophones	No Impact
Persons with Disabilities	No Impact
Women	No Impact
Youth	Significant Impact

**How does this Project Link to the Strategic Plans and Priorities?:**

Alternate/renewable energy is one of the priority industry clusters of the strategic innovation goal which is identified in the WD BC Regional Office *Strategic Business Plan 2005/06 - 2007/08*. Moreover, the goal of the project and the AREP initiative is to demonstrate how to provide renewable energy for small and First Nations communities. This goal aligns with one of the *Plan's* sustainable communities priorities of helping develop community local and cost-effective alternative energy solutions. Regarding the latter, WD BC developed and implemented the Community Alternative Energy Development Initiative [CAEDI], delivered over 2003-05, which provided support to several community alternative energy planning sessions under stage one and a few subsequent feasibility/planning studies under stage two. Learnings from some of the CAEDI initiative and/or projects may be useful for the AREP.

Additionally, the Province of BC has identified power technologies/alternative energy as an important cluster that has potential for growth and can also help address climate change.

**Other Federal Strategies:**

The project supports federal policies enunciated in Budget 2006 for development of renewable energy sources and made-in-Canada solutions for reducing greenhouse gases.

**RESOURCES**

**O&M Considerations:**

*No Extraordinary O&M expenditures are anticipated.*

**INCREMENTALITY**

**Explain the Incrementality of this Project as it Relates to the Proponent's Normal Activity:**

The Anmore Renewable Energy Foundation was established specifically to implement the Anmore Renewable Energy Project.

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**Would this Project Proceed without WD Assistance? Explain:**

The project would not proceed without WD funding. The Foundation does not have any financial or staff resources to contribute towards the project, nor does the Village of Anmore as it is a very small municipal government. Nonetheless, the Mayor, several Village Councillors, and Foundation Trustees have contributed their substantial and non-remunerated time to both the Foundation and the AREP .

One source of funding the Village pursued in early 2005 was the Federation of Canadian Municipalities *Green Municipal Fund* program for a \$600,000 grant. Unfortunately, in May 2005 the application was rejected for several reasons including GMF program did not support educational and demonstration feasibility studies, there was insufficient municipal contribution, and some technical issues. The application to the GMF was prepared by the Village and individuals supportive of the AREP, the latter on an in-kind basis.

The Foundation has been successful in pursuing and securing funding from the sources identified in Project Funding. As part of the review of the current proposal, other potential federal funding sources were surveyed.

Sustainable Development Technology Canada [SDTC], while a potential funding source, is considered somewhat challenging for the current project and proponent as SDTC uses a two stage application driven process that requires substantial resources to complete as well as a number of months before decisions are rendered.

Another source was the *Hydrogen Early Adopters Program* [H2EA], which is a component of Technology Partnership Canada, the special operating agency of Industry Canada. The H2EA program is more attuned to supporting the implementation of technically advanced projects, not necessarily feasibility studies. Further, as with the SDTC, there is a considerable amount of resources and time required to complete the H2EA application process. Finally, the H2EA budget is considered subscribed until its next replenishment.

The *Knowledge-building, Outreach and Awareness Program* [KOA] delivered by Infrastructure Canada was also considered. KOA program delivery uses a 'call for proposals' process, and the last call was issued in December 2005. While the Anmore proposal may be eligible under the KOA program, it is not known when the next round of funding would be made available.

Based on the above, WD is considered the most appropriate and immediate funding source to help the Foundation pursue and on a timely basis, the opportunity to undertake the AREP feasibility study, including leveraging the financial and in-kind commitments that have been made by the several interested and supportive stakeholders.

**COMMUNICATIONS**

**External:**

The proposal is considered a regular project for the department, with about one-third of its funding provided by the Province of BC. WD Communications would likely consider the project as warranting a routine news release and/or announcement.

**OTHER/KEYWORDS**

**Keywords:** Climate Change, Environmental Technology, Energy

**SPECIAL CONDITION(S)**

**Ongoing Conditions for the Term of the Agreement:**

1. At the sole discretion of the Minister, advances may be provided as deemed appropriate. The Recipient must account for each advance received within 90 days of receiving such advance.
2. Prior to the final disbursement, the Recipient shall provide evidence, satisfactory to the Minister, that the results from the Project are made available to the public.

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23-January-2007

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Special Conditions for Specific Events or Timing:

RISK(S)

Risk Elements	Score (1-5)	Weight	Weighted Risk
Project Complexity	3	0.12	.36
Organization			
Organizational Capacity	2	0.15	.30
Organizational Viability/Sustainability	2	0.15	.30
Funding			
WD Funding Amount	2	0.13	.26
% of WD Funding	2	0.03	.06
Cashflow	1	0.05	.05
Proponent Contribution	4	0.10	.40
Outcomes			
Measurable	2	0.07	.14
Length Of Time To Realize Results	4	0.05	.20
Public Profile	2	0.10	.20
Special Conditions	3	0.05	.15
<b>Total</b>	<b>27</b>	<b>1.00</b>	<b>2.42/5</b>

**Risk Rating: 48.4% LOW**

(Risk Ratings: <=50%=Low; >50% - <70%=Moderate; >=70%=High)

DUE DILIGENCE CONCLUSION

The due diligence is complete, the attached Statement of Work fully represents the project, and supporting documentation is on file as per the QAR.

FRANCO ZANATTA

Date

Recommend approving the project as per the attached Statement of Work. The special conditions satisfactorily mitigate the risks highlighted by the flagged guidepost areas in this DDR."

DENNIS BRUCHET

Date

Reject Project and prepare documentation

DENNIS BRUCHET

Date

Comments:

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**Anmore Renewable Energy Foundation  
Renewable Energy Demonstration Centre Project**

**Progress Reports**

**RECEIVED**

WD-BC

OCT 24 2008

File No. 4232

- 1<sup>st</sup> Progress Report – July 17<sup>th</sup>, 2007
- 2<sup>nd</sup> Progress Report – February 8<sup>th</sup>, 2008
- 3<sup>rd</sup> Progress Report – May 1<sup>st</sup>, 2008
- 4<sup>th</sup> Progress Report – October 22<sup>nd</sup>, 2008

The following is a summary of the activities that have taken place pursuant to the Anmore Renewable Energy Foundation's Demonstration Center Feasibility Study. The updates are organized according to the 4 identified phases or components of the project.

**Phase 1 - Conceptual Planning:**

**(1<sup>st</sup> Progress Report)**

- An architects' rendering of a potential building envelope has been developed by Rol Fieldwalker and was presented to a meeting of the Trustees.
- Included was a floor plan with preliminary functional descriptions of how the space would be used.
- Mr. Fieldwalker estimates a building envelope to cost in the range of \$5MM and we have estimated that the value (cash and in-kind) of the technology and educational components could be another \$5MM.
- A capital campaign consultant – Jodi Norrison - was retained to review the project and match it to the appetites of potential government and non-government funding sources. She organized an unsuccessful approach to the STDC and other government officials. She has reviewed dozens of foundation sources and prepared submissions on our behalf to three of the most promising ones. The conclusion from the consultant's work is that the plan and demonstration center concept needs to be endorsed by higher levels of government in order to be successful on the scale that it has been contemplated.
- The demonstration center concept – down to a fair degree of architectural detail – has been worked to the level that we contemplated. The total cost of \$10MM is beyond the scope of resources currently accessible to the Foundation but with the benefit of the funding in place we are in a position to pursue partnerships and funding sources that may enable the plan to be activated.

**(2<sup>nd</sup> Progress Report)**

- Presentations have been made of the conceptual plan to the GVRD (now Metro Vancouver Environment and Sustainable Region Task Forces)
- Discussions with BC Hydro's Chief Technology Officer and the head of PowerTech – with a view to determining the feasibility of integrating the project into PowerTech's research were held. No conclusions to this point in time.

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### **(3<sup>rd</sup> Progress Report)**

- No further work on conceptual planning in this period.

### **(4<sup>th</sup> Progress Report)**

- No further work on conceptual planning in this period either.
- The architect's conceptual plan (mentioned above) for the renewable energy demonstration center has been distributed to BC Hydro, Metro Vancouver and BCIT – thought to be the most likely partners for such an enterprise. There has been no positive response to date.

## **Phase 2 - Research and Educational Planning:**

### **(1<sup>st</sup> Progress Report)**

- At least as important as the proposed physical plan and building concept is the actual research and demonstration content of the project. Our most recent activities have focused on that aspect of the project.
- A research syndicate has been formed, lead by Dr. Lawrence Pitt of UVic and including the Renewable Energy group from the Engineering Faculty at BCIT – along with private sector participation from Day4 Energy and Elworthy Electric among others.
- BCIT has expressed interest in using the Buntzen site and the demonstration project as a teaching and learning venue.
- The Foundation has sought to be a part of a nation-wide wind energy study that Dr. Pitt is party to at UVic and to that end is offering to support the work of one graduate student to the extent that funds are available to do so.
- The focus of the research at the present time is to quantify the wind and solar power resource that is available to be combined with the micro-hydro resource that has already been scoped out.
- To that end a meteorological tower has been erected near to the proposed site of the demonstration center. Most of the costs related to the initial draw under our grant are related to this part of the project.
- We expect that 6 months of data will give us good information with which to design a renewable power integration test site.
- Aside from an expression of interest on the part of BCIT to anchor a course in renewable energy engineering at the Anmore project – there has been little progress in planning the education components of the project. We expect the completion of this component to be delayed until the end of 2007.

### **(2<sup>nd</sup> Progress Report)**

- Data from the meteorological tower has been extracted and sent for analysis.
- Discussions with BCIT on education components of the Demonstration Project have not progressed any further than the initial indications.
- UVic is considering the assignment of a graduate student to the project – funding for the student is being sought.

### **(3<sup>rd</sup> Progress Report)**

- A conference call occurred to discuss the use of the data and experience to date to

support a graduate student's research at UVic. Further consideration of this was put over until the completion of the solar array and the completion of data gathering from the met tower.

#### **(4<sup>th</sup> Progress Report)**

- A press conference to inaugurate the demonstration solar array outside the Village Hall was conducted on September 9<sup>th</sup>, 2008. The event featured a very complimentary speech by the MP James Moore, and brief remarks by Iain Black, the MLA for the provincial constituency. Also in attendance were the mayors and several council members from the Villages of Anmore and Belcarra.
- George Higgins, a communications professional was retained to organize and facilitate the conference and ensuing press coverage. Very good reporting was achieved in the Vancouver Sun as well as several community newspapers. The cost for Mr. Higgins services, as well as the PA system and other provisions for the event was \$1,500.
- Another \$1,500 was spent to erect an information kiosk in front of the solar array which gives credit to all of the financial and in-kind donors to the project and in particular – Western Economic Diversification.

### **Phase 3 – Design of Energy Systems and Integration:**

#### **(1st Progress Report)**

- The feasibility analysis of the micro hydro resources have been taken to the point that significant capital funding (est. \$1MM to \$1.5MM) is needed for the next phases.
- The met tower mentioned above is both a key part of the research and a necessary preliminary step to designing the full scale wind and solar energy collection facilities that remain the objective.
- We remain in close contact with PowerTech (BC Hydro's research subsidiary) regarding our progress and plans.
- Both PowerTech and BCIT have hydrolizers that are not currently in service and could potentially be employed at the demonstration site.
- Full scale design and costing of the wind / solar energy collection systems will await the results from 6 months to a year's data from the met tower that is now in operation.
- It is still our intention that University of Victoria's Engineering Department (under Dr. Lawrence Pitt) will be responsible for the design of the integrated renewables-to-hydrogen system.
- We intend to finalize the design of the energy systems and their mode of integration on or close to January 31<sup>st</sup>, 2008 by which time we should have sufficient data from the wind / solar tests that we are running.

#### **(2<sup>nd</sup> Progress Report)**

- In the fall of 2007 there was a lot of time and energy put into trying to design and fabricate a supporting structure for the Day4 Solar panels.
- Initial attempts to design and fabricate a bracket that would have enabled the panels to be suspended from the met tower were unsuccessful.
- Furthermore, the lack of a proximate load for the 3kw of power that would be produced by the 20 panels was also a problem with the Buntzen site.

- It was decided (and approved at a Trustees meeting) to move the solar panels to the Village Hall where the power output would roughly correspond to the power required to light the Hall during the day.
- After investigating the potential to mount them on the roof of the hall – which was determined to be infeasible – a special purpose structure was designed and fabricated that will enable the panels to be mounted in a prominent location in front of the Anmore Village Hall.
- This structure is designed for high winds and to prevent vandalism – and will serve to give much needed visibility to the project within the community of Anmore.
- It will be a substantial and permanent legacy of the project – and hopefully a tangible reminder of Foundation's work.
- Construction and fabrication of the array and supporting structure went on through December. Excavation and concrete pouring occurred in January. Assembly of the structure is awaiting some reasonable weather.

#### **(3<sup>rd</sup> Progress Report)**

- Engineering of the base and structure was obtained from AllSpan Engineering and Vovo Engineering respectively.
- Fabrication and painting of the structure was contracted out to MJ Metals and MAACO Collision respectively.
- K. Spence trucking was engaged to assist Westport Construction with the excavation and pouring of concrete for the base of the solar array to be located outside the municipal hall.
- Elworthy Electric was instrumental in providing specifications and assistance in all parts of the project. Many issues related to wind stress, mounting, grounding and interconnection had to be dealt with.
- Doug Colby of Renaissance Power provided oversight and coordination to all aspects of the project.

#### **(4<sup>th</sup> Progress Report)**

- Partial payment of an outstanding invoice from Elworthy Electric was made in the amount of \$4,776.79. Due to technical issues encountered in the construction of the solar array – Elworthy has an accrued bill of approximately \$35,000 for which there are not the financial resources to pay at this time.

### **Phase 4 – Finalize Physical Design (March 31<sup>st</sup>, 2008)**

#### **(1<sup>st</sup> Progress Report)**

- Research into our capital funding possibilities has been completed, as well as a number of applications to government and private funding sources.
- The Foundation entered into a performance-linked engagement with a professional fundraiser and spent \$6,000 on her engagement.
- The agreement with the fundraiser has lapsed but we believe that it produced value in terms of increased knowledge and refined expectations of where the dollars will eventually come from – and has created profile for the Foundation with potential sources of future funding.
- The next steps for the design of the building and the technology components is on track to be completed by the March 31<sup>st</sup> date.

### **(2<sup>nd</sup> Progress Report)**

- Due the delays in the siting of the solar test – which is now going to be a permanent power source at the Village Hall – there have been a commensurate delay in the process of integrating the information into a feasibility report. A request to extend the term of the project by one year has been made in separate correspondence.
- Furthermore, outstanding requests for partnership participation from BC Hydro and Metro Vancouver have not been responded to – in either a negative or positive way.
- The Village itself has volunteered to become a test case for the installation of smart meters with BC Hydro on the condition that the metering data be available to the Village government as well.

### **(3<sup>rd</sup> Progress Report)**

- There has been no more work done on the conceptual design of a demonstration centre. The only expense charged to this part of the project is for the fencing that is required to protect the meteorological tower at Buntzen.

### **(4<sup>th</sup> Progress Report)**

- There has not been any more physical planning of the facility. The only expense charged is the cost of the protective fencing around the meteorological tower.

## **Section Two: Report On “Other Funding Sources For Project”**

### **(1<sup>st</sup> Progress Report)**

All of the other funding sources have been received with the following exceptions:

- The grant from Indigo Wind Energy was reduced to \$2,000 from \$3,000 – in part due to the fact that the costs for erecting the meteorological tower were much higher than expected.
- Funding from ‘other sources’ has not been found yet although applications are in progress.
- We have received approval – based on an expression of interest – to make a formal application to the Vancouver Foundation for funding from one of their community initiative programs.

### **(2<sup>nd</sup> Progress Report)**

- We were not success in our application to the Vancouver Foundation for matching funds for the reason that they did not think there was enough community visibility to the project. We hope the new solar array and a community education program goes some way to allay that concern. Our application can remain active with them for the next round of community grant reviews.
- We do need additional dollars to deal with the higher cost of the stand-alone solar array – however, we believe that structure will be striking enough we will be able to raise funds from some of our key suppliers in return for their ability to use it in their advertising. These discussions will proceed in earnest when the structure is completed.

- University of Victoria and Willis Energy are considering participating in the final report phase which will help wrap up the project for ongoing presentation to potential sponsors.

### **(3<sup>rd</sup> Progress Report)**

- We have received an additional cash donation of \$10,000 from Day 4 Energy to go towards the expenses of the project.

### **(4<sup>th</sup> Progress Report)**

- We have received an additional donation of \$6,000 from Westport Construction and \$8,000 from Metro Vancouver to support the project.

## **Section Three: "Performance Indicators"**

- a) # of studies: By March 31<sup>st</sup> - one. With the completion of the microhydro feasibility study (Pentti Sojman Hydrology) that milestone has been achieved. The wind resource analysis is complete with the conclusion that the trace winds are not strong enough for the demonstration project. The solar project has been operating for over 3 months and showing 3,400 watts of power (in excess of its 3,000 kw design capacity) were generated on a sunny day.

The feasibility of producing hydrogen based upon the measured resources at this time is unlikely.

- b) # of participating post secondary institutions: By September 30<sup>th</sup> – two. With the participation of UVic and BCIT in the research syndicate that was initiated in May – that milestone has been achieved.
- c) # of project phases approved: By February 2008 – all four. We have not declared any of the project phases to be completed at this point in time.

## **Conclusion**

### **(1<sup>st</sup> Progress Report)**

In summary, we are only drawing funds that have actually been expended to this point in time. We are not requesting an advance as the Foundation needs the time to consider the progress achieved to this point in time and plan the next stage of the project.

While the March 31<sup>st</sup> time frame for future draws under this grant is still reasonable – we will not be able to finish the research and education component by the time of that specific timeline (September 30<sup>th</sup>, 2007) and would ask that it be extended until the end of the project (March 31<sup>st</sup>, 2008).

### **(2<sup>nd</sup> Progress Report)**

Again, we are only drawing funds that have been expended in pursuing the objectives outlined in the original budget and not requesting an advance at this time. The March 31<sup>st</sup>, 2008 date has proved to be infeasible given the issues that we have had to deal with as the integrated wind/solar installation proved to be impractical in this case.

We expect that there will be another draw to complete the solar array and will have the matching funding arranged before we do so.

### **(3<sup>rd</sup> Progress Report)**

This draw is primarily to pay for the components of the solar array which was a key renewable energy resource that was to be tested. Many positive consequences have resulted from the decision to move the working demonstration to be next to the Village Hall and its load. The project has engendered a great deal of discussion and awareness around power issues in the community and made very tangible the commitment of the Village to pursue an agenda of energy conservation and greenhouse gas reduction. The assistance rendered by Elworthy Electric and Day4 Energy in particular has been well in excess of any payments that they have received and much appreciated.

### **(4<sup>th</sup> Progress Report)**

This draw is bringing the project close to an end. There may be one more draw as we try to raise funds to pay off approximately \$30,000 that is owed to Elworthy Electric – the electrical contractor for the project who gave very generously of its time over and above the amount that they billed for the project.

The installation of the solar array at the Village Hall – a change from the original plan of having all of the demonstration projects at Buntzen Lake – has proved to be an inspired decision. It provides for much of the time 100% of the electricity requirements for the Village Hall (there was no load at the lake) and generates for the grid under a net metering arrangement when the Hall is not operating.

More significantly – it has the whole community thinking more deeply about the use and production of electricity in our community. It stands as a very striking symbol right at the entrance to Anmore to challenge us all to do more about our power and climate change issues.

This project continues to be an interesting journey for the community. We thank the Western Economic Diversification Agency for their continued support.

This constitutes the narrative portion of our progress report. If you have any questions please contact either of the undersigned.

Thank you,

Hal Weinberg, Chair of the Anmore Renewable Energy Foundation and  
Mayor of the Village of Anmore  
604 469 2987

Report prepared by:

Guy Heywood  
Renaissance Power Corporation  
604 692 2409

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## Grant Agreement

File: 1150-20/WAC-06-179

March 15, 2006

Hal Weinberg, Chairman  
The Anmore Renewable Energy Foundation  
2697 Sunnyside Road  
Anmore BC V3H 4Y6

Dear Dr. Weinberg:

RE: Anmore Renewable Energy and Educational Project

In response to your email of February 17, 2006 requesting financial assistance for the purpose as outlined in this Agreement, I am pleased to advise that the Ministry of Environment (the "Ministry") is able to provide funding of \$75,000.00.

### **PURPOSE**

The Ministry's payment is to provide funds in support of undertaking detailed engineering studies that would underlie a business case for the Anmore Renewable Energy and Educational Project.

The above reflects the description of the project as laid out in the Recipient's Application (the "Application") sent to the Ministry on December 12, 2006 and attached as Appendix 1 to this Agreement.

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**TERMS**

The Ministry's support of the above project is subject to the following conditions:

1. The Recipient will provide a copy of the business case and a description of the first phase of planning for the showcasing green technologies by March 31<sup>st</sup>, 2007.
2. The monies are to be spent only on the project, as specified in the attached Application (or detailed above).
3. Funds will be provided to the Recipient upon receipt of signed agreement.
4. A statement of revenue and expenditures on the project is to be submitted to the Ministry within 60 days of project completion. The authorized signing officers of the Recipient must sign the statement. The Ministry reserves the right to request audited financial statements, including those of any non-arm's length parties that will incur expenses on behalf of the recipient.
5. The Recipient will acknowledge support provided by the Ministry in reports resulting from the project.
6. The Ministry assumes no liability for loss, injury or damage suffered or caused as a result of this project.
7. The Recipient represents that the contents of the Application are true and accurate.

**PROJECT DATES**

The commencement of this performance indicators framework will be February 1<sup>st</sup>, 2006 and completion on or before March 31<sup>st</sup>, 2007. The Ministry, at its sole discretion, may terminate any further funding after this completion date.

**LIAISON**

Unless advised to the contrary, our Ministry contact with whom we ask you to deal on the foregoing matters is Lee Thiessen, Climate Change Manager in the Water, Air and Climate Change Branch at 250-387-6338.

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**ACCEPTANCE**

If the above conditions are acceptable, please indicate by signing and returning the two originals of this Agreement. One original will be provided for your files upon signing by the Ministry.

Please return signed copies to:  
Colleen Nelthorpe, A/Administrative Assistant  
Ministry of Environment  
Water, Air and Climate Change Branch

<i>Mailing Address:</i> PO Box 9341 STN PROV GOVT VICTORIA BC V8W 9M1	<i>OR</i>	<i>Courier Address:</i> 3 <sup>RD</sup> FL, 2975 JUTLAND RD VICTORIA BC V8T 5J9
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IN WITNESS WHEREOF the parties hereto have duly executed this agreement as of  
The        day of                    , 20        .

SIGNED AND DELIVERED on behalf of the Ministry,

\_\_\_\_\_ (Authorized representative)

SIGNED AND DELIVERED on behalf of the Recipient,

\_\_\_\_\_ (Authorized representative)