Clean Energy Program

APPLICATION FOR PRE-DEVELOPMENT FINANCING

Per Solicitation No. 2004-GP-03

Pre-Development Financing (2004-GP-03) **Application Cover Sheet**

1. Primary Applicant Wampanoag Tribe on Gay Head (Aquinnah)	2. Partners (if any) One World Energy
3. Short Title of Project Wâpan Project	4. Project Type (check one) Feasibility Study Pre-Development
5. Brief Summary of Project Will Study the feasibility of placing wind turbines on tribal lands in Aquinnah, MA	
6. Funding Sought $50,000	7. Total Estimated Cost of Project $100,000 (feasibility study) $5,000,000 (total project)

Applicant Information

8. Name of Contact Individual Durwood Vanderhoop		9. Title Grantsman/Planner	
10. Mailing Address 20 Black Brook Road			
11. City Aquinnah	12. State MA	13. Mailing Zip 02535	14. Street Zip 02535
15. Telephone 508 645-9265 x116		16. Fax 508 645-3790	
17. Contact e-mail address Durwood@wampanoagtribe.net		18. Applicant Web Address www.wampanoagtribe.net	

19. Type of Entity (circle or highlight all that apply)

For-profit company/corporation Not-for-profit organization Individual

State govt. agency/authority Federal government Local government

Manufacturer – renewable tech. Manufacturer - other technology Professional/trade association

Consumer or public interest group Environmental interest/advocacy group Foundation

Electric distribution company Natural gas distribution company Energy service company

Power plant developer Power generator Electricity broker

Competitive Power supplier Aggregator or Buyers Group Cooperative

Architect Engineer Builder or real estate developer

Academia: K-12, Post-secondary Research organization Financial institution/group

Generating Facility and Site Information

20. Name of Proposed Generating Facility Uhuru Wâpan		
21. Site Address 20 Black Brook Rd		
22. City / Town Aquinnah	23. State MA	24. Mailing Zip Code 02535
25. Site Owner Contact Person Paul Reeves	26. Contact e-mail address upepo11@aol.com	
27. Owner Telephone Number(s) 617 935-1386	28. Fax 617 442-6404	
29. Electric Utility Service Territory or Provider NSTAR		
30. Percentage of RECs from the Generating Facility to be sold in accordance with RET Ratepayer Benefit for 10 years: ____30___% See Section 4.2.5.3 of the Solicitation: Massachusetts RET Ratepayer Benefit Requirement for more information. Note: 30% will be the assumed percentage if left blank.		

1. Project Summary

The Wampanoag Tribe and One World Energy are planning to investigate the technical, community reaction and economic viability of installing distributed wind energy at the Wampanoag tribal lands on Martha's Vineyard. The wind feasibility study will analyze and evaluate the site, wind resources, permitting issues, visual and community impact and the project economics. It is envisioned that wind turbine(s) ranging from 850 kW to 2.1 MW in size would be well suited to the site and the total project size may range from 1.7 to 6 MW.

The wind resource/production research data, community reaction to the proposed wind farm permitting issues and the project economic forecasting based on collected wind resource and production data on available wind turbines will be analyzed to determine if the potential wind project is viable. The wind feasibility project will conclude with a description of the potential project's viability based on the above mentioned items and next steps in the pre development process for a successful wind project on the site.

2. Project Description

2.1. Applicant and Project Team

a. Applicant

The Wampanoag Tribe *of* Gay Head (Aquinnah) is Massachusetts' *only* federally acknowledged Tribe and has been since 1987. The Wampanoag people have lived for at least 10,000 years on Martha's Vineyard establishing a way of life based on fishing, hunting and agriculture.

Almost all new employment opportunities for this area are of a seasonal nature simply because of the resort community that the island has become, which has left many Tribal member no choice but to leave the island and look for more affordable housing and better paying jobs. This in numerous ways this has suppressed the Tribe's social and cultural growth but fortunately the Tribal membership continues to grow, now 1100 strong.

Over the years the Tribe has repeatedly demonstrated its ability to administer federal grants and contacts successfully from agencies including the Department of Housing and Urban Development, Environmental Protection Agency, Bureau of Indian Affairs and Indian Health Services, not to mention State and private foundations.

b. One World Energy

One World Energy was founded by Paul Reeves, a twelve-year veteran in the renewable energy industry. Mr. Reeves has extensive experience in the wind-power industry working as a consultant to Distributed Generation Systems Corporation (DISGEN) and for the US Department of Energy as liaison to Communities of Color for wind development and renewable energy utilization. He has also worked under agrant from the Massachusetts Renewable Energy Trust where he developed plans to educate and created renewable energy ownership models for communities of color. Currently Mr. Reeves is the renewable energy specialist for the American Association of Blacks in Energy and the Black Farmers Association.

c. The Productivity Factor, Inc.

As a SOMWBA-certified minority vendor and new entry into the renewable energy field, The Productivity Factor will assist One World Energy in the overall management of the assessment, and if appropriate, pre-development and development processes associated with the overall success of the project. With project development and operations experiences on several continents, over the last three decades, Ralph Jordan brings a myriad of team building, problem solving, and quantitative analyses expertise garnered in public and private endeavors. As a certified facilitator and process improvement specialist who has worked with numerous community organizations, The Productivity Factor's presence on the team assures a structured and formal approach to critical thinking and decision making.

d. Jeff Paulson & Associates

Jeff Paulson is the principal in his own law firm in Minneapolis, and has been practicing in the area of energy law for over twenty years. He was employed at NSP from 1994 to 1998 and while there worked on the development of the Lake Benton I and Lake Benton II projects, among others. Since 1998 his practice has focused on representing clients developing and owning renewable energy projects of all sizes, including most of the wind projects recently built in Minnesota. He has extensive experience in leasing and site acquisition, project ownership structures, permitting, construction and turbine contracting, PPA and interconnection agreement negotiation, and negotiation of financing terms and documents.

e. HDR

HDR is an architectural, engineering and consulting firm that excels at managing complex projects and solving challenges for clients.

As an integrated firm, HDR provides a total spectrum of services for our clients. Our staff professionals represent hundreds of disciplines and partner on blended teams nationwide to provide solutions beyond the scope of traditional A/E/C firms.

f. Wind Logics, Inc.

Wind Logics Inc. (formerly SSESCO), a world leader in atmospheric modeling and analysis, has developed innovative methodologies for assessing long-term financial risk associated with wind energy development. The Wind Logics technology suite includes a range of advanced physics-based computer models that are tuned and integrated, ranging from larger-scale weather models to nonlinear wind field models to detailed models based on computational fluid dynamics when required. We can use these models in the appropriate combination to answer your questions regardless of whether your location is on a flat plain or in an area of complex terrain. The Wind Logics models are state-of-the-art, including advanced treatment of things like varying thermal effects during the day and its impact on wind steering through the detailed terrain. ind Energy.

2.2. The Proposed Generation Facility

This is a development plan for a proposed 4+ megawatt wind energy generation facility to be located on the Island of Martha's Vineyard on land owned by the Wampanoag Tribe. The facility would be owned and operated by a local community energy cooperative developed by the tribe. The project will be developed in accordance to an agreement between One World Energy and its team and the Wampanoag Tribe. One World Energy's team has had experience in developing similar small commercial wind facilities in the Midwestern U.S. and structuring their ownership to benefit local communities or charitable endeavors. A summary of wind projects developed by the One World's Energy team, including community-based projects, is attached.

2.2.1 Energy Resources and Technologies

Wind resources in Vineyard and Nantucket Sounds are very favorable. Quantitative evidence in support of this statement with respect to this specific project will be produced as part of the feasibility study being proposed in this grant application.

The feasibility study will also evaluate turbines in the 850 KW to 2.1 MW range. Such turbines are available from several manufactures including GE Wind, Suzlon, Vestas, Gemesa and Bonus/Siemans.

2.2.2 Project Location

The Wampanoag Tribe of Gay Head (Aquinnah) owns approximately 481 acres of land in twelve parcels on the island of Martha's Vineyard, Massachusetts. Most of these parcels are located in the town of Aquinnah on the western tip of the island. Figure 2.2.2 is a map of Aquinnah with tribal lands in red. One parcel is approximately 196 acres in size and is interior to the island. The Wampanoag Community Center is on this parcel at approximately 70.80 West Longitude, 41.33 North Latitude. It is on this 196 acre parcel that we plan to site wind turbines.

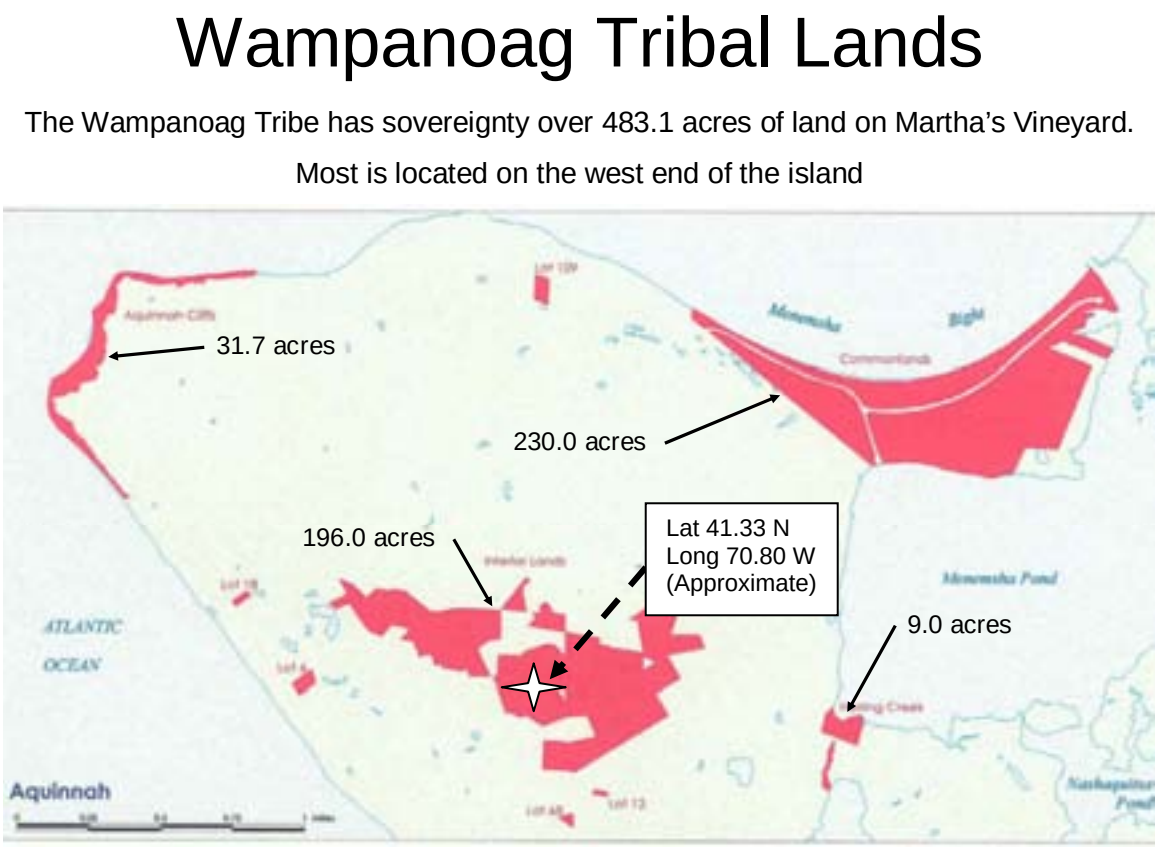

Figure 2.2.2

2.2.3 Site Owner Commitment

The Wampanoag Tribal Council adopted Resolution #2005-17 reproduced below. This resolution clearly commits the Tribe to studying the feasibility of “harnessing wind energy on tribal lands.”

2.2.4 Utility Company to be involved

The utility company is NStar and we have just opened up a dialogue with them. They would like us to come back when we have a more definitive understanding of the siting for our proposed turbine sites

2.3 Project Development Strategy and Status

2.3.1 Prior Feasibility Studies

The wind speed map available on the web site of the Massachusetts Technology Collaborative has been studied. Figure 2.3.1.a shows the section of the wind speed map for the Aquinnah area. Figure 2.2.2 shows the location of tribal lands in Aquinnah. Correlating these two maps and referring to the wind speed key in Figure 2.3.1.b, one can see that the inland tribal holdings are in an area with a mean wind speed between 16.8 and 17.9 mph.

Figure 2.3.1.a

Figure 2.3.1.b

2.3.2 Projected Development Strategy

Our development strategy the wind feasibility study consists of three main tasks each divided into subtasks.

Task 1: Wind Resource, Production and Siting Study

Subtask 1.A: NREL Tall Test Tower

The National Renewable Energy Laboratory (NREL) of the US Department of Energy sponsors an anemometer and test instrumentation loan program for Native American Tribes. With the assistance of NREL, Native American tribes can verify whether wind conditions at their proposed site will support a wind turbine facility. We already have a verbal commitment from NREL's Tony Jimenez that a tower presently in Washington state will be sent to the Wampanoag Tribe as soon as we get funding support.
(A letter formally requesting the loan of a Tall Tower has been sent to NREL. A copy is included as Attachment D.)

Subtask 1.A.1: Prepare Application to NREL for Tall Test

Subtask 1.A.2: Shipping Costs

Subtask 1.A.3: Assembly and Erection

Subtask 1.A.4: Data Recording and Maintenance

Subtask 1.A.5: Disassembly

Subtask 1.B: Wind Logics, Inc Subcontract

Wind Logics Inc. (http://www.windlogics.com) is a world leader in atmospheric modeling and analysis. We formally have requested Wind Logics to submit a proposal to us for analytically evaluating the wind resources at the proposed turbine site on Martha's Vineyard. Reproduced below is the proposal and quotation that Wind Logics has responded with.

Task 2: Community Outreach and Partnership Building

Subtask 2.A: Educational Materials

Produce education materials that describe the wind project to the community surrounding the proposed wind project; provide information in education materials that will empower community and tribal group members to make well-informed decisions concerning support of our wind project.

Subtask 2.B: Develop Partner Coalitions

Hold a kick-off event to introduce potential community partners to the project. Build partnerships with other organizations committed to developing wind energy on the Cape and Martha's Vineyard.

Subtask 2.C: Organize Community Forums/Meetings

Cultivate community support by encouraging community participation in the planning process; Inform and educate community on the attributes and benefits of renewable energy resources, benefits to Martha's Vineyard residents, environmental health issues, and the connection with the proposed wind project.

Task 3: Wind Resource Data and Economic Forecasting Analysis

The objectives of these activities will be to (i) identify the permitting and transmission conditions that need to be satisfied for the project to proceed and (ii) develop a project pro forma that reflects expected project costs, revenues, expenses and financing.

A series of pro formas modeling various combinations of scenarios (turbine models, revenues, financing options) will be generated to find the optimal Project components and financial structure.

Subtask 3.A: Permitting and Transmission

Subtask 3:A.1: Permitting

Permitting requirements will be identified and factored into siting and design decisions. It is expected that the pre-permitting process will likely involve the community outreach and education activities described above.

Subtask 3:A.2: Transmission

Activities will include identification of potential interconnection points with

the transmission system that will allow delivery of the Project's output to the offtaker(s), and initiation of system interconnection and transmission studies with ISO-New England and affected transmission utilities to obtain necessary interconnection approvals and estimated interconnection costs. Given the location of tribal property, the range of interconnection options will be limited.

Subtask 3.B: Projected Project Costs, Revenues, Expenses and Financing.

Subtask 3.B.1: Develop Projection of Revenues

Subtask 3.B.1.a: Wind Resource Analysis

As noted, a meteorological tower will be installed to measure site specific data. Wind Logics will be engaged to perform an analysis using publicly available wind data to assess the wind resource at the site both generally and in order to micro site turbines. Several turbine models will be analyzed by Wind Logics using the manufacturer's power curve and wind resource data to compute expected gross production from each turbine at applicable sites.

By applying expected losses for transmission and transformation of the gross production, and losses from operating conditions for each turbine, a net production estimate can be obtained that approximates the amount of energy actually deliverable to the offtaker at the point of delivery. These net production estimates for various turbines and project configurations can be used as the starting point for calculating revenues in each scenario.

Subtask 3.B.1.b: Power Sales

Potential purchasers of the electricity to be produced will be identified along with likely pricing terms based on negotiations and market data. Some research to this effect has already been conducted. Using the expected pricing stream, the revenues associated with electricity sales for each year of the Project can be established

Subtask 3.B.1.c: REC Sales

Similarly, potential purchasers of the renewable energy credits will be located. Several prospective purchasers have already been contacted, and the market is very active. An analysis of the various offers will be incorporated into various pro formas to assess the

best option for the Project.

Subtask 3.B.2: Develop projection of Ongoing Expenses

Subtask 3.B.2.a: Operating Expenses

. Wind generation facilities typically incur certain operating expenses, each of which needs to be explained and included in the expense section of the pro formas. Expense items commonly include:

- Warranty payments – payments to the manufacturer for turbine warranty service
- Operation and maintenance service – payments to the manufacturer for the first five years of O&M service and to other O&M suppliers thereafter, including any necessary reserves for replacement
- Insurance – CGL, property, mechanical breakdown and similar insurance costs
- Taxes – including applicable sales, property and production taxes
- Lease payments – if a lease is required, the expected annual payments will be negotiated
- Electrical usage – costs for station auxiliary
- Miscellaneous fees – accounting and management fees

Using these estimates, available operating cash can be calculated for each year.

Subtask 3.B.2.b: Debt Financing

Depending on the available operating cash and expected project costs and equity investments (see below) various levels of term debt can be modeled, along with possible interest costs, to ascertain the level of interest expense the Project can manage with applicable debt service coverage ratios. The resulting interest expense can be incorporated into each pro forma.

Subtask 3.B.3: Develop Projection of Capital Costs

Project costs will be estimated for all major project components, including:

Subtask 3.B.3.a: Turbines

Quotes for available turbines suitable for use at the site will be

obtained. By comparing the cost of each turbine and its associated equipment and foundation and installation to its expected production and expenses, the optimal turbine for the Project can be determined based on production relative to cost. Other factors in turbine selection will include financial strength of the manufacturer, available O&M support infrastructure and turbine availability. Turbine costs will include towers and all freight to site, as well as commissioning services.

Subtask 3.B.3.b: Foundations

Once specific sites are located, soil borings can be taken and analyzed by the civil engineers for indicative design of the foundations for the turbines. The foundation costs for required steel, concrete and labor at the site can be estimated.

Subtask 3.B.3.c: Electrical

Depending on specific turbine locations and the location of the interconnection point, and related voltage levels for transmission cable, costs for pad transformers, underground cable and related transmission (and, if applicable, substation) costs can be identified.

Subtask 3.B.3.d: Erection and Installation

The availability and cost of cranes of sufficient size, with related installation services, will be analyzed and cost estimates obtained.

Subtask 3.B.3.e: Miscellaneous Costs

Permitting, legal, environmental studies and other soft costs will be estimated based on Project requirements.

A total Project cost estimate for each turbine model and related configuration will be computed and used to assess financing options.

Subtask 3.B.4: Delineate Various Financing Options

All financing options will be explored including (i) simple ownership by the tribe or the tribe with one or two partners; (ii) broader community ownership models, including cooperative structures such as those used by

Minwind Energy and other Midwest entities; and (iii) use of the Minnesota "flip" model in which an outside equity investor is brought in for an initial period of time to capture the full value of federal production tax credits and other tax benefits prior to a "flip" date at which time majority ownership of financial benefits reverts to local owners. It is expected that, economically, the simple ownership model may be preferable in these circumstances, assuming adequate cash is available on the part of the owners. However, broader community participation may be beneficial or necessary to obtain local approvals, and an outside investor may be necessary to assure availability of turbines for the Project. As a result, all scenarios will be modeled.

NOTE: The task breakdown above is used to define the "tasks" in the budget forms of Section 5.

2.3.3 Business and Financial Structures

A specific financial structure will be developed under Subtask 3.B.4 above.

2.3.4 Anticipated Markets

One World Energy has received indication from the General Service Administration that because of One World's 8(a) minority owned status; the GSA will buy all of the power that One World can broker to it. Also locally, the Cape Light Compact is an interested buyer of green energy. Further definition of markets will be done as part of Subtask 3.B.1.b above.

2.4 Project Risks

At this early stage of the project development cycle, there many unknowns associated with project. While initial thoughts suggest that the project is certainly worthy of further consideration and ultimately may have a bright future, the purpose of this feasibility study funding request is to put these concerns to rest:

a. Community Acceptance

   To elaborate on this particular point, the history of the wind farm proposed for Nantucket Sound by Cape Wind Associates, LLC shows the opposition that a proposed wind turbine installation can encounter. Intrinsically, the Wampanoag proposal should not elicit such vehement resistance because:

It is much smaller (at most 5 turbines compared to 130).
It will not be offshore with potential interference with marine navigation or aquatic life.
It will be owned by a community based organization rather than a for-profit corporation.
It will not be on public land.

None the less, it is only prudent to approach permitting authorities, watchdog organizations and the public thoughtfully and with an awareness of concerns these people can have. To this end, we propose allocating significant resources to Community Outreach and Partnership Building.

b. Federal, state, and local environmental approvals
c. Sufficient wind resources
d. Proximity and capacity of transmission infrastructure
e. Cooperation of the local utility company

Upon completion of this feasibility analysis portion of the project, we are highly confident that we will have had positive resolution to all of these concerns.

2.5 Project Benefits

2.5.1 Energy

There is little likelihood that electric energy demand will decrease in the future. Replacing electric energy produced by burning fossil fuel with electric energy produced from renewable resources is clearly of great benefit.

With respect to Martha's Vineyard specifically, NSTAR transmits electric energy to the island from the mainland by three 25 KV underwater cables. NSTAR has some concerns with the ability of these cables to reliably support the Vineyard's electric needs. Electricity generation on the island itself will lessen the load on these transmission cables.

2.5.2 Environmental

One graphic way to demonstrate the environmental benefit is to place next to each other a picture of the Canal Electric Generating station and a simulated picture of wind turbines on the Wampanoag's land. Gasses of various types and particulate emissions on the one hand and nothing being added to the air as it passes over the blades of the turbines on the other.

2.5.3 Economic

The technology of modern large (megawatt range) turbines produces electricity at rates that are becoming competitive with fossil fuel generation. Add to that the value of

Renewable Energy Credits and Production Tax credits and one has a profitable business.

Beyond production costs, pollution free wind generation of electricity will reduce the "hidden costs" of conventional electric generation such as medical expenses due to illnesses aggravated by air pollutants and adverse economic consequences of global warming.

3 Project Plan

3.1 Work Plan

The work plan is defined by the tasks of section **2.3.2 Projected Development Strategy**. The scope of these tasks can be seen from their costing in section **5. Budget.**

3.2 Schedule

A preliminary Microsoft Office Project Gantt Chart is included as Attachment B. Microsoft Project will be used throughout the Wâpan Project to track and manage the project.

The task of longest duration is the tall tower anemometer testing because this type of testing is done so as to cover all seasons of the year. It is expected that a positive conclusion regarding the feasibility of this project will be reached without the need for the anemometer test results thus enabling a Feasibility Study Report to be issued by about mid July, 2006.

Anemometer testing will continue for a full year and the results will be included in the project's Final Report. The usefulness of this data is expected to be that when added to the analytic conclusions of the July Feasibility Study Report, it will make an even more powerful case to convince investors in the merits of the project.

3.3 Deliverables

Copies of educational materials as they are developed under Subtask 2.B

Quarterly reports 3/1/06, 6/1/06 and 9/1/06

Final Report 12/1/06

Feasibility Study Report 7/17/06

4 Management Plan

In order to complete this project, the team will be utilizing a thirty-step methodology. The methodology (see attached) divides the project into the following four phases:

Phase I	Planning	Grey	Steps 10 – 80
Phase II	Financing	Blue	Steps 90 – 160
Phase III	Construction	Yellow	Steps 170 – 210
Phase IV	Operation	Green	Steps 220 – 260**5. Budget**

The tasks of the budget are defined on section **2.3.2 Projected Development Strategy** above. Please refer to it for those definitions.

The budget itself is presented in the Excel spreadsheet format requested under the solicitation.

6. Attachments

Attachment A: Excel spreadsheet for the project budget as requested in section 5. immediately above.

Attachment B: Microsoft Office Project Gantt Chart of the project schedule

Attachment C: Detailed resumes of the principal participants.

Attachment D: Letter to NREL Requesting the Loan of a Tall Tower Anemometer

Attachment A

Budget in Excel Format

The Excel workbook for the project consists of 6 Excel “sheets”

Sheet 1: Standard Budget Form – Summary

Sheet 2: Rollup of Tasks

Sheet 3: Worksheet A - Task 1 Budget

Sheet 4: Worksheet A - Task 2 Budget

Sheet 5: Worksheet A - Task 3 Budget

Sheet 6: Worksheet B - Travel

Sheet 1

Standard Budget Form - Summary

Clean Energy Program

Massachusetts Technology Collaborative

A. Applicant Information

Applicant: Wampanoag Tribe of Gay Head (Aquinnah)	**Solicitation No. 2004-GP-03** **Pre-Development Financing Initiative**
Address: 20 Black Brook Rd Aquinnah, MA 02535	Title of Proposed Project: Wâpan Project
	MTC Funding Requested: 49,357
	Total Project Cost: 98,277
	MTC Funding Percentage: 50.2%

B. Project Budget (from Worksheet A)

			Amount
I.	Direct Labor		33,065
II.	Subcontractors and Consultants		52,055
III.	Direct Materials		3,850
IV.	Other Direct Costs		1,300
V.	Travel		4,700
VI.	General & Admin. Expense/Overhead @ ra	10.00%	3,307
	Total Project Cost		98,277
	Funding Sought from MTC		**49,357**
	Cost Share		48,920

C. Cost Share

	List Sources	*Amount*
	Paul Reeves	5,950
	Ralph Jordan	5,950
	Jeff Paulson	1,700
	Durwood Vanderhoop	4,505
	Joseph Turnbull	6,715
	Larry Miles	3,000
	Tribal Members	16,200
	WindLogics, Inc	2,000
	Construction Supplies	500
	Travel Meals & Lodging	2,400
	Total Cost Share (should match figure in part B)	48,920

check = ok