The Oneida Tribe of Indians of Wisconsin

Energy Security Plan

February 2012

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I. EXECUTIVE SUMMARY

The rising and unstable costs of energy, combined with the expansion of the Oneida Tribe's land base, physical infrastructure, residential sector, and transportation fleet has motivated the Oneida Tribe to examine ways to reduce energy consumption. A cross-functional team from several divisions has studied how Oneida utilizes energy. Baseline energy information from buildings and vehicles has produced data about where Oneida stands regarding energy use, the financial drain it produces, and the effects on the natural world. In order to lessen these burdens, the Energy Team chartered by the General Manager has drafted action plans for improved efficiency around the focus areas of Buildings & Operations, Residential, Transportation, and Renewable Energy. Regular funding mechanisms are a priority to fund the ongoing improvements necessary to stream-line Oneida's energy use. Creating an Implementation Plan to be reviewed yearly will make sure improvements and research in energy efficiency continue to be a priority for the Oneida Tribe.

Table 1 Summary of Main Energy Activities by Oneida Department

Buildings and Operations	**DPW to improve lighting efficiency for Oneida's Facilities**
	DPW to install motion sensors on Oneida's Facilities
	DPW to coordinate Energy Audits for selected Oneida Facilities
Residential	**Land Management maintenance and upkeep of rental units**
	Land Management improvements to Dream Homes
	Housing Authority rehabilitation of 32 rental units
	Housing Authority weatherization of 100 rental units
	Housing Authority using Energy Star standards for new homes
Renewables	**ERB Home Performance Incentives and Home Energy Audits**
	EH&SD: Wind Feasibility Study for megawatt scale turbines
	EH&SD: Solar Hot Water for Resident Centered Care facility
	EH&SD: Residential systems - install new and maintain existing
	EH&SD: Energy assessment and energy portfolio development
Transportation	**Transit improvements around route efficiencies**
	Fleet analyzing how to improve fuel efficiency/vehicle use
	Retail refueling tribal vehicles at Oneida One-Stops

II. PURPOSE

The purpose of this plan is to reduce Oneida's energy use, improve efficiency, and increase energy production. A sustainable energy policy for the Oneida Tribe of Indians of Wisconsin will prioritize conservation practices, reduce costs, optimize capital investments, and reduce greenhouse gas emissions and reliance on fossil fuels. An effective Energy Management Plan will protect Oneida's natural resources today and for generations to come.

In order to accomplish the goal of reductions in energy use Oneida must:

- ✓ Show success with initial action plans for energy efficiency projects
- ✓ Develop energy reduction and energy production targets in coordination with Community Development Planning Committee
- ✓ Develop implementation plans for improvements in all areas of energy use
- ✓ Create long-term funding mechanisms to support energy targets

Figure 1 Turtle Elementary School

As stated in the Energy Team Charter, the Oneida Tribe of Indians of Wisconsin is committed to producing, using, and purchasing energy in the most environmentally responsible, efficient, and cost effective manner possible. Toward this end, the Oneida Tribe of Indians of Wisconsin shall further establish and continue to implement a comprehensive energy management program.

III. APPLICABILITY

This plan shall apply to all Oneida Tribal facilities, business units, and employees. The Oneida Energy Team, a cross-organizational team, developed the Energy Management Plan to guide improvements nation wide. The Oneida Tribe of Indians of Wisconsin will improve energy efficiency continuously by implementing effective energy management programs that support all operations and customer satisfaction while providing a safe and comfortable work environment. An Implementation Team will assess goal performance track progress, and promote the energy management program.

IV. BACKGROUND

Rising costs of energy in the building, transportation, and residential sectors motivated the Oneida Tribe to examine ways to reduce energy consumption. Additionally, the expansion and broadening scope of the Oneida Tribe's land base, physical infrastructure, residential sector, and transportation fleet prompted more serious attention to alleviating energy costs. Furthermore, the responsibility to make Oneida more sustainable is

intertwined with the core values of the Oneida Tribe. This is expressed in the vision statement for the Balanced Scorecard initiative, which proposes: "A Nation of strong families built on Tsi? Niyukwaliho T^ and a strong economy". Also, this Energy Management Plan is aligned with Oneida Nation National Priorities statement #5: *We ensure a stable Oneida economy that sustains our sovereign government, family, community and affords all members the opportunities to participate in the economic resources.* Therefore, the Energy Team, formed under the guidance of the General Manager, created various sub-teams to complete the action plans integrated into the Energy Management Plan to address energy issues. The Energy Team has been reporting to the Community Development Planning Committee (CDPC) since April, 2010.

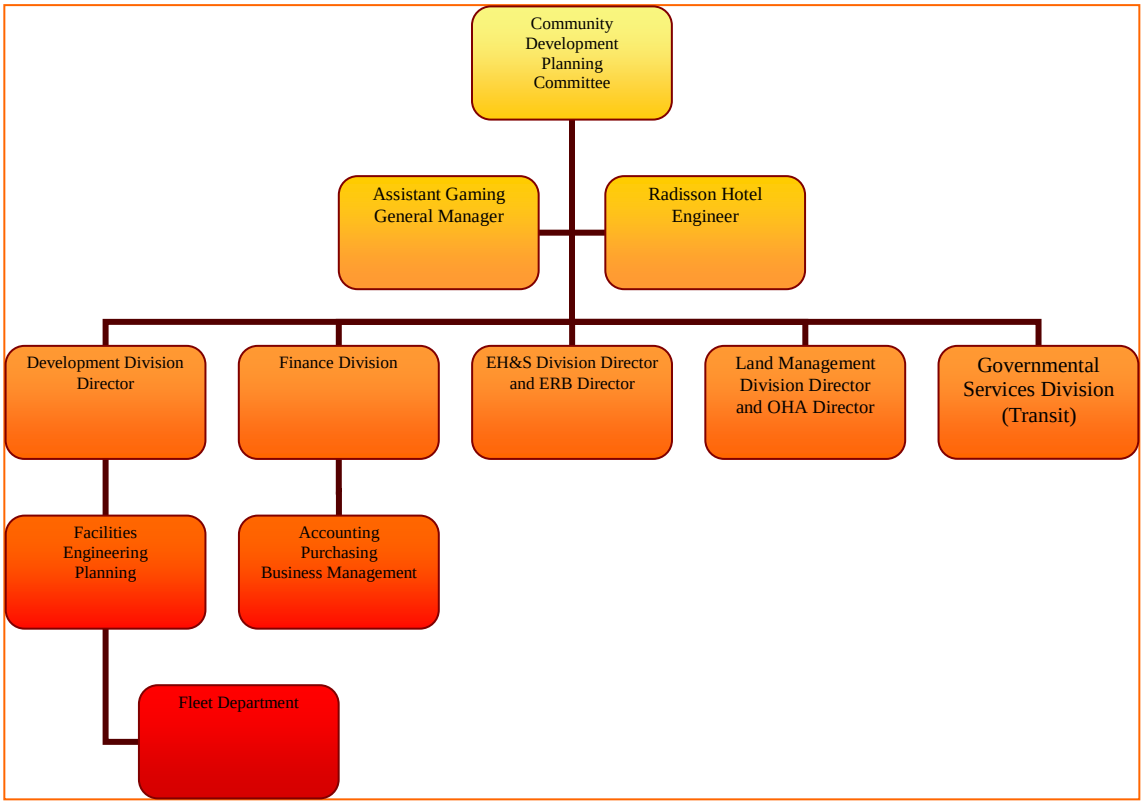

Figure 2 Energy Team Hierarchy

V. NEEDS ASSESSMENT

Estimates of Current Costs

The costs and demands of current energy sources have been documented by the Oneida Tribe. The Oneida Department of Public Works (DPW) has a documented history of commitment to energy efficiency and realizing energy efficiency improvements. DPW manages over 105 tribal buildings totaling approximately 1,750,000 sq ft. Through the work of the Buildings & Operations sub-team of the Energy team a database of utility

costs for most of these buildings has been compiled. In 2008, the first draft calculations indicated that Oneida Tribe spent $3,035,813 on energy costs for 91 tribal buildings. This includes usage of 29,624,366 kWh of electricity and 411,286 therms of gas.

Looking at the transportation side, the Oneida Nation maintained a fleet of 203 vehicles through 2008, but began reducing vehicle numbers through cost containment. Currently, there is not accurate data regarding the annual cost of the fleet. However, assuming an average yearly use of 10,000 miles/year at 14 miles/gallon vehicle average and $2.75/gallon, the tribal fleet would use approximately $398,750 in gasoline/yr.

Regarding tribal members residing on the Oneida Reservation, there are approximately 1,744 individual residences. There is survey data regarding the estimated annual utility costs paid by these 1,744 households. Survey results from the 2009 Oneida Housing Assessment Report indicate the average utility costs for tribal homeowners on the Reservation are $272.82/month. These estimates are slightly higher than calculations derived from Home Energy Saver (hes.lbl.gov). Even assuming a more conservative expenditure of $240/household/month, this totals $5,022,720 in utility costs/year for tribal homeowners on the Reservation. These are some general ideas about energy consumption in the Oneida Nation that are further detailed within this report.

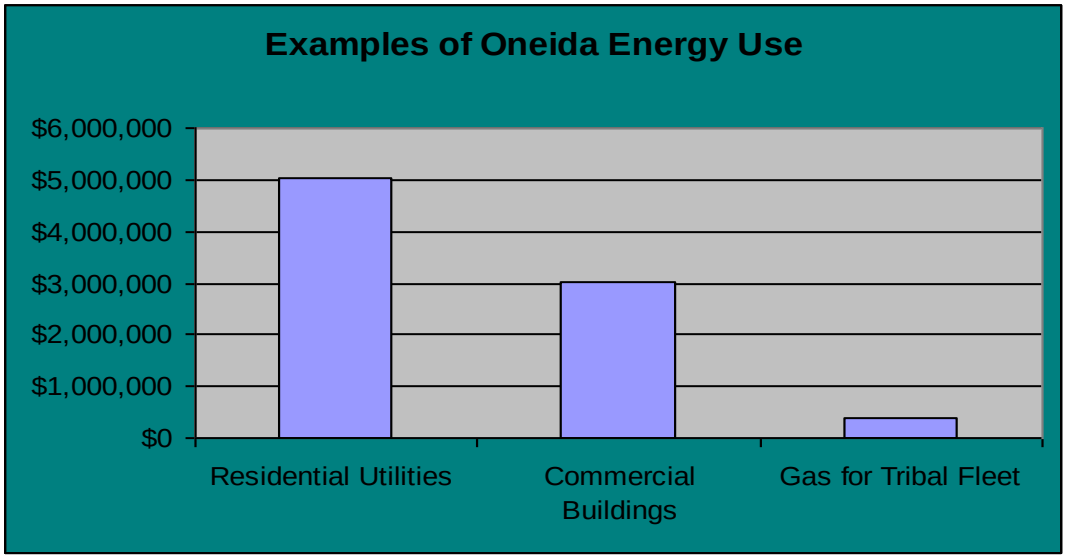

Figure 3 Estimates of Residential, Commercial, and Transportation Energy Use

Energy Trends

Due to the uncertainty in energy markets, it is difficult to price future costs for energy. However, one certainty is that as demand continues to rise over time, the established energy source of fossil fuels will be rapidly depleting. The following chart by the U.S. Energy Information Administration Institute (eia.doe.gov/oiaf/forecasting.html) shows the historical and projected increases of electricity, natural gas, and oil over a 55 year span.

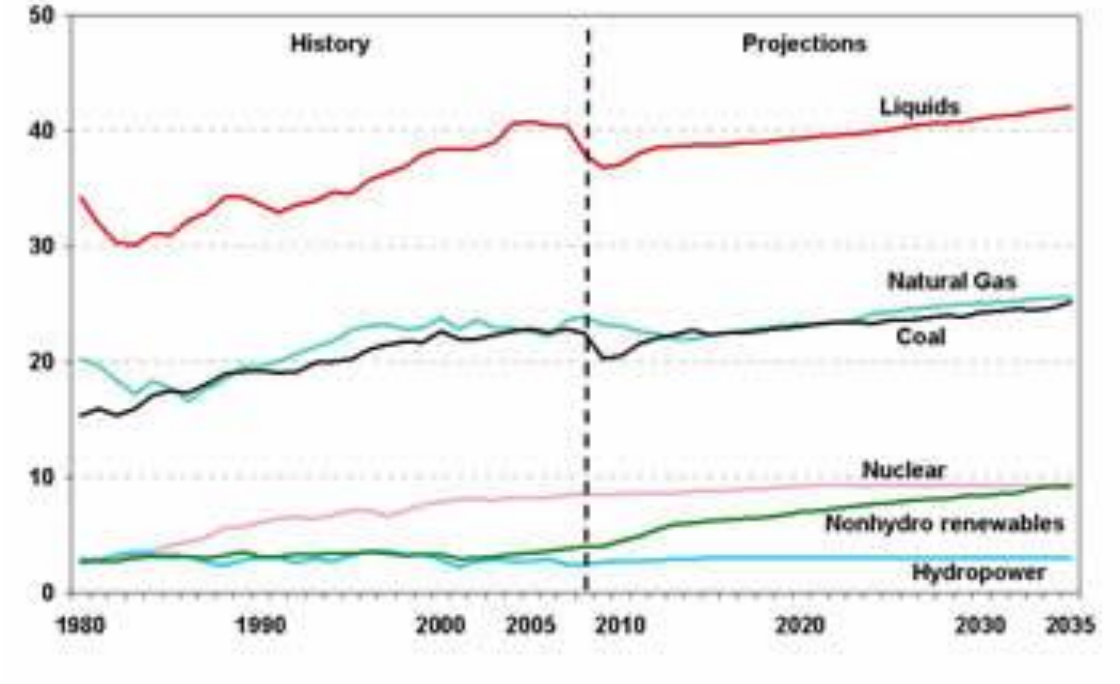

Figure 4 U.S. Energy Consumption by Fuel (1980 – 2035) (quadrillion Btu)

A collaborative effort between the Department of Public Works, Planning, and the Environmental Resource Board is generating a database of the Oneida organization's utility spending over the past five years as a means of establishing a benchmark to measure future improvements. Currently, data has been summarized for the years 2007-2009. Regarding Oneida's "carbon footprint", preliminary calculations demonstrate that Oneida commercial buildings alone produced the equivalent of 56,585,953 lbs of CO_2 in 2007. This is equivalent to the pollution produced from 3,397 homes. In more impactful terms, this is equivalent to using 15,000 tons of coal per year, which would fill 125 rail cars. As seen in Figure 3, the Oneida Nation's energy use is not only costly in dollars, but also to Mother Earth. Reducing both monetary costs and pollution levels is critical as Oneida strategizes to deal with energy security and the effects of global warming.

Table 2 Draft estimate of Oneida's Carbon Footprint

	Annual kWh		Annual Therms		
Total	31,055,600		343,527		
Equivalent Metric Description: Electric	**Annual kWh Used**	**Total Equivalent Metric Used**	**Annual Therms Used**	**Total Equivalent Metric Used**	**Equivalent Metric Used: Annual-All Programs**
CO2 (lbs.)	31,055,600	52,546,075.20	343,527	4,039,877.52	56,585,952.72
NOx (lbs.)	31,055,600	59,005.64	343,527	3,367.93871	62,373.57871
SO2 (lbs.)	31,055,600	84,160.68	343,527	20.1993876	84,180.87539
HG (lbs.)	31,055,600	0.48	0	0	0.47825624
No. of Homes	31,055,600	3,118.03	343,527	353.059609	3,471.091738
Tons of Coal	31,055,600	15,527.80	0	0	15527.8
Coal Cars	31,055,600	155.28	0	0	155.278
CO2 (tons)	31,055,600	37,266.72	343,527	0	37,266.72
Barrels of Oil	31,055,600	61,039.78	343,527	5,922.85207	66,962.63387
Cars On the Road	31,055,600	5,015.48	343,527	291.448307	5,306.927707

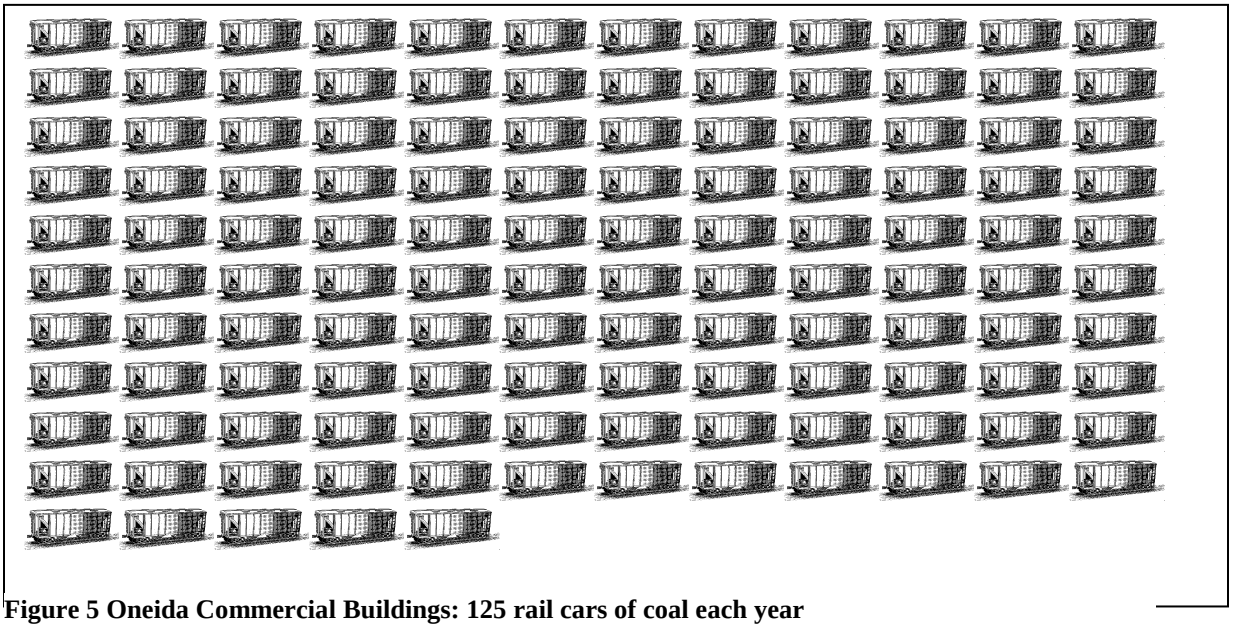

Figure 5 Oneida Commercial Buildings: 125 rail cars of coal each year

Moving Forward

- Budget allocations and staff resources are needed for immediate improvements in the commercial and residential building sector. These improvements will enhance Oneida's management capacity and reduce overhead and budget expenditures in the future. Opportunities from grants to bonding to external technical assistance are being pursued.
- Longer-term planning regarding potential for sustainable renewable energy supplies and reducing Oneida's carbon footprint will require long-term commitment from a team of experts in energy, finance, law, environment, and other disciplines.
- Creation of the Energy Security Plan was due to strong inter-departmental collaboration between Oneida units of government, as well as input from federal, state, and local sources, including collaboration with Brown County through an award from Governor Doyle's Office of Energy Independence.

VI. BUILDINGS & OPERATIONS

Facilities

Oneida Facilities manages over 105 tribal buildings totaling more than 1,750,000 sq ft. Increasing efficiency has been an important element of Facilities' plan of work with upgrades not only producing energy savings, but also providing improved building comfort. Conservation strategies such as improved heating, insulation, windows and doors provide for a better work environment without pockets of hot air and cold air in the building. Building comfort aids worker satisfaction, productivity, and reduces sick days.

Lighting replacements, HVAC, and roof/insulation issues are reviewed on a regular schedule. Comprehensive lighting replacements have included switching T-12 with T-8 fluorescents, replacement of metal halide bulbs with lower watt fluorescents, and installation of LED exit signs. These retrofits can provide energy savings greater than 40% while improving the quality of lighting. Additionally, as more info is tracked on databases regarding building performance, building managers are better able to ensure the appropriate functioning of their buildings. Creating a comprehensive maintenance and review schedule assists in maintaining facilities up-to-date and energy efficient. Finally, energy efficient upgrades need to be continually budgeted in order for Facilities to maintain buildings at the highest level of efficiency achievable.

The following is a list of several proposed projects encompassing conservation opportunities. These include several projects that were identified by the Energy Controls Manager at Facilities and the Senior Architect at Engineering. Further building assessments are needed on several buildings to specify required upgrades and detail the cost benefits.

ACTION PLANS

- **Utility Usage/Building Improvement Database**
- **Lighting Control - Occupancy Sensors**
- **Lighting Upgrade – Oneida Nation Elementary School**
- **Oneida Nation Facilities – Energy Audits and Assessment**
- **Norbert Hill Center Windows**
- **LEED policy and Life-cycle costs**

Action Plan: Utility Usage/Building Improvement Database

Description: The Oneida Department of Public Works, Planning, and Environmental Resource Board have collaborated since 2009, in conjunction with the We Energies and Wisconsin Public Service, to maintain database of the natural gas and electricity usage of Oneida Nation's facilities. By tracking/benchmarking Oneida's energy use, analysis of current and historical energy use trends can be performed and cost-effective building improvements can be identified.

Efficiency Strategy/Cost Benefit: The database will have a standardized reporting format and includes fields that easily link tribal properties and are easily recognizable to other Tribal entities. The database will eventually be converted to an SQL windows based software that will be used cross-organizational. The major risks to a successful program moving forward include a lack of maintenance to the database and a lack of funds to implement improvements.

Recommendation: The Oneida Statistician is currently compiling the fifth consecutive year of utility data information and preparing building by building analyses in coordination with the Oneida Energy Controls Manager.

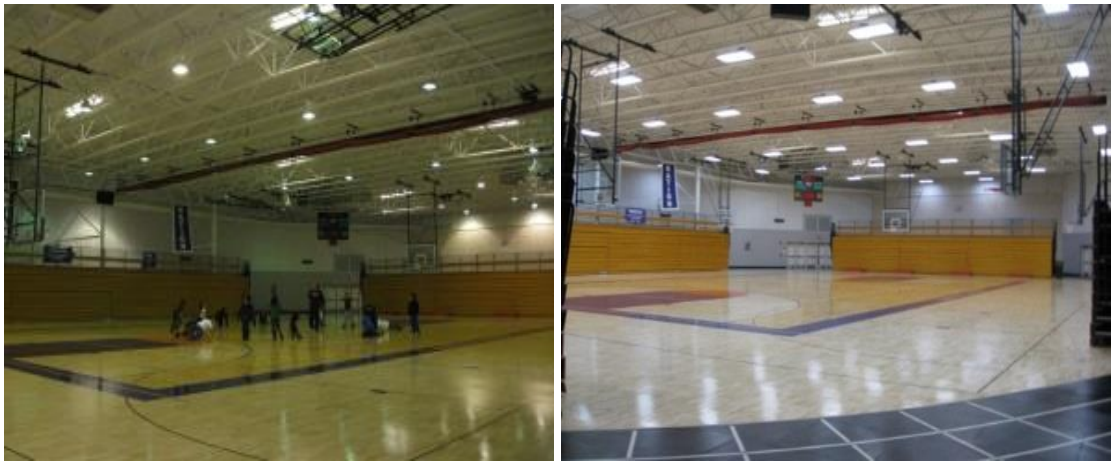

Figure 6 Lighting upgrades at the Oneida Turtle School

Table 3 Gas and Electricity Cost breakdown for 43 Oneida facilities: 2008

Building	Electricity (KWH)	Gas (Therms)	Total MMBtu	Total Cost	CO_2 Emissions (Tons/Year)
Accounting	166,160	5,619	1,129	$22,698	344,646
Air View	154,880	3,801	908	$19,734	305,498
Airport Road Child Care	181,535	4,420	1,061	$22,477	349,116
Archiquette Bldg.	121,149	3,751	788	$18,248	259,479
Bay Bank	222,320	5,718	1,331	$28,184	433,848
Casino - Main (Parking Structure)	3,338,743	0	11,392	$210,786	5,649,153
Casino - Main	5,579,942	9,160	19,039	$448,658	9,441,261
Cultural Heritage	31,519	1,713	279	$5,856	71,170
Civic Center	162,800	14,554	2,010	$31,882	438,992
Community Education Center	138,174	2,281	699	$20,103	255,287
Conservation	51,266	1	175	$13,055	92,810
Department of Public Works: Main	112,249	6,071	990	$19,452	257,698
Department of Public Works: Auto	48,160	4,326	597	$9,811	133,712
Elder Services Apartments	345,600	31,827	4,362	$61,113	955,606
Farm Office	12,440	0	42	$4,072	21,048
Food Distribution Center	104,080	3,169	672	$14,809	226,295
Gaming Warehouse	524,160	22,485	4,004	$57,812	1,126,065
GLIS	22,606	227	100	$3,100	40,295
Human Resource Department	115,912	3,231	718	$17,445	229,086
Irene Moore Activity Center	4,028,080	5,678	13,744	$331,644	6,815,511
Land Management Office	128,320	11,272	1,565	$25,156	342,961
Land Management (Riverdale Dr.)	5,465	1,117	131	$2,080	21,677
Law Enforcement Center	299,280	13,918	2,413	$36,153	639,152
Library - Green Earth Branch	23,165	562	135	$3,353	45,404
Little Bear Development Center	206,400	5,944	1,298	$27,954	416,719
Mason Street Casino	2,937,200	26,708	12,693	$215,804	5,254,640
Museum	74,800	1,050	360	$9,502	136,322
Norbert Hill Center (with garage)	1,332,142	9,132	4,545	$207,017	2,253,984
Occupational Health	40,641	854	224	$5,827	77,255
Oneida Community Health Center	1,194,400	43,162	8,391	$131,214	2,617,039
Oneida Nation Elementary School	1,406,400	7,281	4,799	$241,533	2,379,628
One-Stop 54	583,159	2,600	2,250	$42,065	1,013,353
One-Stop E&EE	428,120	2,668	1,728	$37,344	746,640
One-Stop Westwind	412,400	1,506	1,558	$29,887	714,491
Parish Hall	104,815	11,199	1,478	$23,384	287,314
Recreation Center - Cty H	78,440	3,845	653	$12,675	175,103
Retail Building	242,560	6,100	1,438	$30,520	476,984
Ridgeview Plaza	162,565	3,651	920	$25,262	313,903
Senior Center	106,084	2,235	586	$14,674	202849
Social Services Building	1,109,840	48,934	8,680	$206,081	2363725
Three Sisters Head Start	148,480	7,086	1,216	$22,412	327609
Total	**26,486,451**	**338,857**	**121,101**	**$2,710,836**	**48,253,346**

Action Plan: Lighting Control - Occupancy Sensors

Description: Occupancy sensors automatically turn off lighting in unoccupied spaces such as classrooms, conference rooms, public spaces, and offices. A typical office spends 29% of its electrical energy costs for lighting. Infrared and/or ultrasonic sensors are most effective in those areas which are often unoccupied, such as corridors and conference rooms. The Oneida Tribe's has 50-60 buildings which should utilize occupancy sensors. Oneida currently relies on staff to turn out the lights when a space is not being used.

Efficiency Strategy/Cost Benefit: Occupancy sensor costs range from approximately $60 - $160 depending on the facility type and areas usage. Typical installation cost is $0.75 per square foot. Occupancy sensors can reduce costs by 50% or more, at an energy savings of $0.05 to $0.20 per sq ft. The payback period for occupancy sensor retrofits range from 0.5 to 5 years, depending upon the level of occupancy and energy savings potential of the controlled area.

Recommendation: An additional electrician needed to complete these projects was hired in 2010 utilizing $247,000 in funding from the Energy Efficiency and Conservation Block Grant from the U.S. DOE. The Master Electrician is assessing and implementing projects on facilities and determining the appropriate type and location for occupancy sensors. The electrician is also responsible for the proper installation per code, along with documentation of these installations.

Action Plan: Lighting Upgrade – Oneida Nation Elementary School

Description: Replace the existing HID lighting in the large and small gymnasiums, two music, and four cultural classrooms. The HID fixtures would be replaced with high efficiency T5 fluorescent fixtures. The above mentioned classrooms light levels are below current codes (currently at 13-14 foot candles, not the required 30 foot candles). Due to the long start-up times of the current HID fixtures, lights are rarely turned off when not in use. Payback time for this project is estimated at 2-4 years.

Efficiency Strategy/Cost Benefit: Approximately $100,000 for the materials. Installation would be done by our current electrical staff. If contracted out, cost will be approximately $200,000.

Recommendation: Allocate funding for this cost effective improvement that brings the Oneida Nation Elementary School up-to-date with electrical code. These improvements are being undertaken utilizing bonding funds obtained by the Oneida Nation in 2011. The following spreadsheet indicates the funds expended as of the beginning of 2012, totaling $330,455. Estimated annual savings for these improvements is $75, 257, which is a payback of 4.4 years.

Table 4 Oneida Energy Bonding Projects 2011-2012 with Annual Savings

DPW Energy Efficiency Bond Projects					
Proposed Energy Upgrade Type					
Site	Estimated Budget Feb. 2011	Estimated Payback	Bids	Material/ Contractor Cost	Estimated Annual Savings
County H Rec Center	$15,480	< 3.0			
Lighting Upgrades			complete	$7,337	$2,198
OCC Sensors					
Outdoor Lighting					
Elder Services	$79,136	< 9.5		$79,136	$8,330
HVAC - Boiler and Controls			obtaining		
Green Earth Library	$6,300	< 3.0			
Lighting Upgrades			complete	$2,755	$950
Health Center	$72,000	3.0			
Outdoor Lighting			complete	$38,671	$11,480
NHC	$62,500	< 5.0			
Lighting Upgrades - Gym			complete	$13,996	$5,496
Vending Machine Control					
Outdoor Lighting			complete	$20,500	$6,569
OPD	$20,910	< 3			
Outdoor Lighting			complete	$8,105	$2,597
Skenandoah Complex	$81,000	< 7.0			
Lighting Upgrades - can lights			complete	$28,745	$8,526
Skenandoah Complex	$28,500	3.0			
Vending Machine Control					
Outdoor Lighting			complete	$18,031	$2,781
SSB	$163,640	< 6.0			
Lighting Upgrades -gym			complete	$10,919	$3,664
OCC Sensors					
Vending Machine Control					
HVAC - Circulating Pumps					
Outdoor Lighting			complete	$51,489	$16,498
Turtle School	$80,322	< 5.0			
Lighting Upgrades			complete	$34,096	$4,029
OCC Sensors					
Outdoor Lighting			complete	$6,675	$2,139
Turtle School (Ice Storage)	$225,837	<7.5			
HVAC			designing		
Design & Engineer system			complete	$10,000	
Total:	**$835,625**			**$330,455**	**$75,257**

Action Plan: Energy Audits for Oneida Nation Facilities

Description: Energy audits are an evaluation of how much energy a building consumes and identify ways to improve efficiency. Audits identify the specific methods to become more efficient and reduce operating costs. A thorough audit of major Oneida facilities will prioritize projects for each facility and create a Strategic Energy Reduction Plan.

Figure 7 Little Bear Development Center

Efficiency Strategy/Cost Benefit: Energy audit costs will vary depending upon size and use of the facility. Typical costs range from $0.10 - $0.20 sq. ft.

Currently the Oneida Tribe has more than 1,700,000 sq. ft. of facility space, which could be audited at an estimated cost of $170,000 to $240,000.

Recommendation: The Oneida Nation in 2011 obtained $227,100 from the U.S. DOE Energy Efficiency Deployment and Development grant to fund energy audits of 43 tribal facilities. In 2012, these comprehensive audits will provide feasibility studies and strategic energy reduction recommendations for cost efficient improvements. Work includes a mix of contractor duties and responsibilities for Oneida staff, including field visits to assist with site walk-through assessments, collection of detailed information (e.g. utility data, equipment and building data, operational characteristics, temperature, flow and pressure measurements), technical research, assisting with the identification and evaluation of energy efficiency measures, and calculation of potential energy savings and audit report preparation.

Action Plan: Norbert Hill Center Windows

Description: Replace the existing windows in the Norbert Hill Center with new energy efficient windows. The project includes appropriate external shading devices for daylighting control and maximizing energy efficiency.

Efficiency Strategy/Cost Benefit: Oneida is expending large dollar amounts on utilities due to inefficient windows in this building. Many of the existing windows are from the original construction and allow large drafts and insects through them. The "newest" windows were installed in the early eighties and had large portions of the opening filled

with insulated panels which limited daylighting potential. Daylighting is especially important in the High School portion of the building.
Recommendation: One year for design, bidding and installation with an estimated budget of approximately $1,000,000. The Oneida Nation has moved ahead with the CIP package to fund this project and the assessment of potential bonding.

Action Plan: LEED policy and Life-Cycle Costs

Description: LEED (Leadership in Environmental and Energy Design) are standards that Oneida has been using as guidelines in new buildings. LEED standards ensure that a building is constructed with environmentally friendly materials and that the structure will save energy long-term.
Efficiency Strategy/Cost Benefit Life-Cycle cost analysis is needed to ensure Oneida is not just saving money in the short-run with upfront costs, but in the long-run 10, 25, and 50 years into the future. Resources are available from the Wisconsin Focus on Energy program and EPA Energy Star to assist with these analyses.
Recommendation: Draft Oneida resolution in support of using LEED standards and Life-Cycle cost analysis to permanently guide Oneida construction and development practices.

Figure 8 Airport Road Child Care

VII. RESIDENTIAL

Division of Land Management
Land Management improves the energy efficiency for tribal members on the rental units and the homes purchased. Improvements include new furnaces, improved air sealing and insulation, new hot water tanks, bath fans to improve mold issues, and many other energy efficiency upgrades. Improvements are either done on properties before sold/rented to tribal members, as the result of audits on existing properties, or as part of yearly maintenance and upkeep of the 67 rental units. Energy efficiency improvements reduce the monthly cost burden of utility bills for tribal members and add to residential comfort. Threats to the continued success and expansion of the program include lack of budget

resources for materials and needed staff. Oneida has able and skilled tradespeople to implement and maintain healthy, safe, and efficient places to live as Oneida families otherwise face the risk of escalating energy costs.

Housing Authority

Oneida Housing Authority (OHA) has been placing a high priority on improving the energy performance of the OHA housing stock. OHA has a combined total of 339 rental and home ownership units. OHA does maintenance on rental residences and targets further improvements (detailed in the Action Plans) utilizing NAHASDA funds. OHA places strong emphasis on new home construction energy efficiency by using green methods and materials for years, and is ahead of the curve in designing high energy performance into OHA units. OHA uses 14" energy heel trusses and strong 16" insulation of blow-in-blanket for R-22 rated walls and R-38 rated attics. Box sills are foam sprayed to stop drafts, holes in studs are caulked, and all vapor barrier joints are taped. Energy ratings are up to 75% above Energy Star requirements. Overall, OHA faces other housing needs that compete for its program dollars in improving energy efficiency, but additional staffing and/or coordination with other departmental staff trained in weatherization could help address this need. OHA is also investigating the purchase of a blower door and a thermal imaging camera to perform home energy audits.

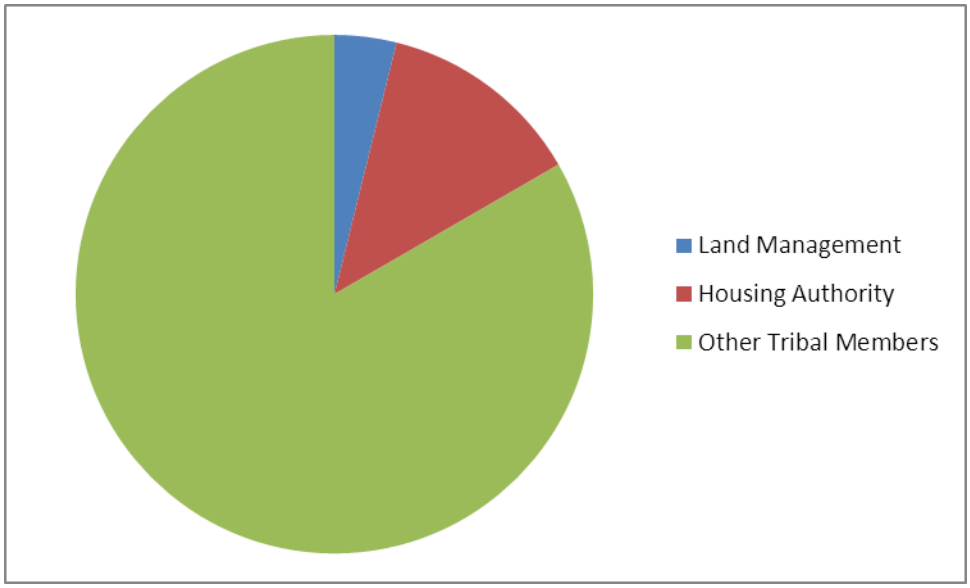

Figure 9 Distribution of Residential Units on Oneida Reservation

Other Oneida Tribal Members

On the Oneida Reservation, 406 homes and rental units are managed under either the Division of Land Management or Housing Authority. Most of these residences receive maintenance and/or upgrades during the year. However, for the remainder of the estimated 1,734 tribal residential units on the Reservation, their only sources of assistance are Energy Assistance, Weatherization, and Crisis Funding through the State. The Oneida Office of Self-Sufficiency assists tribal members in determining eligibility and

submitting applications to the state programs for members who live on the Reservation, or referring tribal members in the adjacent counties to Integrated Community Solutions in Brown County and Energy Services Inc. in Outagamie County. If tribal members qualify for energy assistance, they may also qualify for weatherization assistance administered by NEWCAP in Brown County and Weatherization Services in Outagamie County.

However, even with the recent influx of ARRA stimulus funds, *waiting lists for weatherization services are currently approximately 2 years in both counties*. Eligibility has traditionally been under 150% of the poverty level, but recent changes adjusted the minimum up to 60% of state median income. Unfortunately, these programs have yet to meet dramatic needs due to the combination of increasing utility bills and underperforming residential structures. The Energy Team suggests that the Oneida Nation needs to do more internally to weatherize the existing residential structures for tribal members. Forming an Oneida Weatherization Team provides employment for Oneida trades people and/or can effectively utilize current employees. Furthermore, it provides a basic need in improving the quality of life of tribal members, keeps money in tribal from reduced utility bills, and helps reduce fossil fuel dependence/climate change.

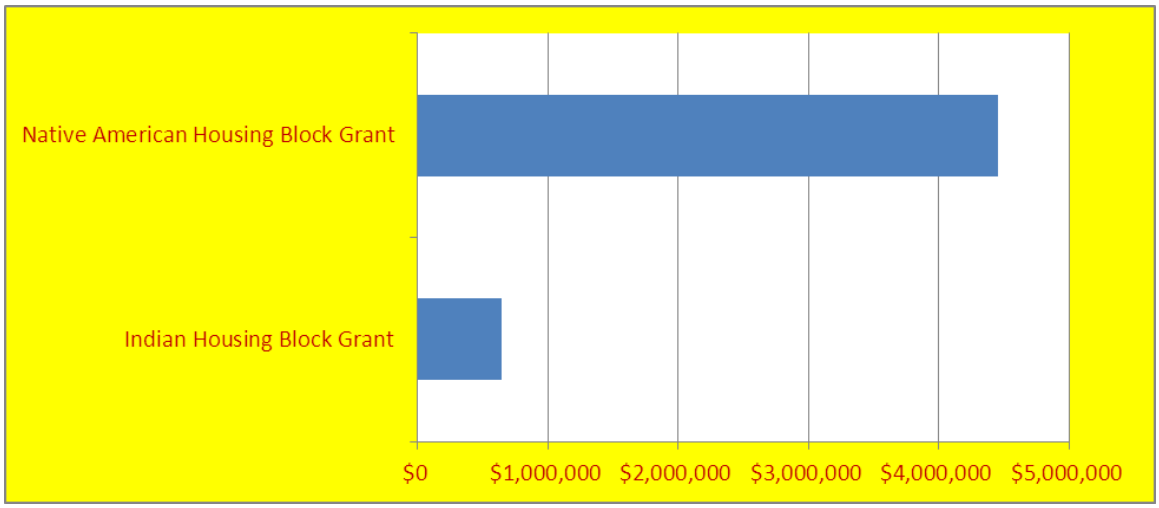

Figure 10 Oneida Housing Authority's funding dedicated for improving OHA homes

Action Plan: Housing Authority Weatherization

In 2008, OHA received ARRA Indian Housing Block Grant funds in the amount of $1,455,731. Approximately $648,600 of this funding was utilized for the rehabilitation of 32 rental units over a three year period. Rehabilitation of units included energy star appliances, furnaces, insulation, windows, siding and roof replacements. A part of the award was used to construct five family units for home ownership. These extensive improvements have reduced utility bills and improved comfort in these homes for years to come. OHA received another ARRA Indian Housing Block Grant award in 2009 in the amount of $3,000,000 over a three year period. This grant is providing rehabilitation to 100 rental units that includes energy star appliances, furnaces, insulation, windows, siding and roof replacements. Both grant projects involve energy audits with pre-testing

and post-testing to determine the impact of the rehabilitation. Weatherization of existing units produces lower utility bills for OHA residents, improved home comfort, and safer living conditions. The grant was used to create 12 full-time positions, including eight rehabilitation trainees, two energy auditor trainees, one administrative assistant and one project manager. OHA will continue to design and construct high energy performance residences for the OHA new housing stock and continue to improve green methods and materials for new construction.

Action Plan: Land Management

Continue to improve the energy efficiency for tribal members on the rental units and new home purchases. Energy efficiency improvements will reduce the monthly utility bill cost burden for tribal members and add comfort to the residences. Improvements will continue to include new furnaces, improved air sealing and insulation, new hot water tanks, bath fans to improve mold issues, and many other energy efficiency upgrades.

Action Plan: Home Performance Incentives

The Environmental Resource Board (ERB) provides an instant rebate of $100.00 towards the cost of Home Performance Tests for tribal members. Focus on Energy certified contractors perform an inspection of the home and provide homeowners a detailed report with recommendations for energy efficiency improvements. Over the past three years, 26 tribal members have taken advantage of this program. The ERB additionally provides matching rebates mirroring state incentives for energy efficiency improvements. The ERB will continue to promote residential energy efficiency through the Home Performance Test program, including putting an additional $10,000 towards incentives from DOE Energy Efficiency and Conservation Block Grant funding.

Figure 11 Weatherize homes and smaller facilities

VIII. RENEWABLES

Environmental Health & Safety Division

The Oneida Nation has made a consistent commitment to renewable energy over the past decade. Currently, renewable energy applications are seeing significant rejuvenation as a result of renewed government incentives, a desire to cut U.S. reliance on foreign oil, and a committed interest regarding climate change. Additionally, Oneida is committed to exercising its sovereign rights as a Tribal Nation. Reliance on local fuel sources can contribute to that effort. One example of success in renewable energy activities in Oneida is the 11.1 kilowatt photovoltaic system on the Food Distribution Center, which in the spring of 2009 was enrolled into a 10-year contract with the WE Energies Buy-Back Program earning $0.225/kWh, or about $2,400 per year. Furthermore, tribal members have shown a significant interest in residential solar hot water systems with 16 systems currently installed. Finally, Oneida continues to look toward the future of renewable energy, exemplified by the current wind feasibility study for a municipal scale wind turbine.

Figure 12 Food Distribution Warehouse Photovoltaic System

ACTION PLANS

- **Wind Feasibility Study**
- **Energy Portfolio Analysis**
- **Renewable Energy Maintenance Program**
- **Resident Centered Care Facility**

Action Plan: Wind Feasibility Study

Initiated in the summer of 2009, the Tribal Wind Resource Feasibility Study is a 2 year project designed to understand the available wind resources within the Oneida

Reservation. This is a multi-phase project with consultant Seventh Generation Energy Systems (SGES) providing input at each phase. In Phase 1, the General Wind Resource Review, SGES performed field investigations and office analysis ranking sites that can support a large wind project. In Phase 2, a meteorological tower was erected in December, 2009 at the preferred site where long-term data collection has commenced. This data includes information on wind speed and direction, temperature, and other climate information. In Phase 3, a Final Report in 2012 will summarize the findings of Phase 1 and 2 and provide recommendations about turbine choices, where to potentially place a turbine, expected production, construction and maintenance considerations, and financial considerations. Another phase can be developed concurrently to hire a legal and financial consultant to perform a detailed pro forma on the proposed turbine project.

Figure 13 Erecting the Wind Monitoring Tower-December 2009

Action Plan: Energy Optimization and Portfolio Analysis

Another U.S. DOE grant, the Energy First Steps grants, for $183,352 was obtained in 2011. The purpose of this grant is to perform in-depth feasibility studies on conventional and renewable energy sources available to Oneida. This may include a pilot bioenergy crop study, perform a financial analysis related to wind turbines, and develop a strategic energy portfolio for Oneida's energy use and production. The following chart summarizes the resource and strategy elements of the First Steps analysis.

Figure 14 Energy Optimization Model

Action Plan: Renewable Energy Maintenance Program

Maintenance of renewable energy systems is an important ingredient for successful projects. Similar to conventional mechanical systems (boilers, furnaces, power plants), an operational budget item must be set aside and devoted to maintenance activities of renewable energy systems. Maintenance can be provided by either outside contractors or by tribal departments. The Midwest Renewable Energy Association (MREA) and Focus on Energy (FOE) provide a wealth of information on resources Oneida can benefit from. A maintenance plan was initiated during 2010 between the Departments of Land Management and Eco-Services. The agreement is to partner and provide assistance to those systems that are currently non-functional due to lack of maintenance.

Figure 15 Residential solar hot water

Another past project in need of attention is the solar hot water system located on the Tsyunhehkwa greenhouse Constructed in 2001, the collector was designed to provide space heating to the greenhouse during winter months using radiant floor technology. Poor choices by Solar Mining Company in materials and installation over-complexity in and poor maintenance schedule resulted in a failing system. Additionally the 2.0 kilowatt solar electric system on the Community Center on Cty H is also presently not operational. Best estimates show that this system has been down since 2008. Some troubleshooting has found that initial installation may have faulty connections in portions of the system.

Action Plan: Resident Centered Care Facility

The expansion project associated with the Elder Services Building is being targeted for a large solar thermal project to handle up to 60% of the projected hot water load for the facility. Nearly all of the funding initially devoted to the project comes from non-Tribal sources, including WPS, Focus on Energy, and $67,250 from the U.S. DOE Energy Efficiency and Conservation Block grant. Project Manager Mike Troge completed the RFP and contractor selection process and installation of a 48 panel system will occur in 2012. With the assistance of external grant funding it is anticipated that system financial payback will be less than 10 years.

IX. TRANSPORTATION

The Oneida Tribe's automobile fleet had grown significantly over the past 15 years. However, in 2009 due to cost containment, the number of fleet vehicles began to decline from a high of 203 vehicles in the fleet. Due to the anticipated future variability in the price of gasoline, efficiency will continue to be an important practice to help stabilize costs for the Oneida Tribe. The most direct method for savings is to, where possible, purchase vehicles with above average mileage ratings. However, due to the large number of large capacity vehicles (trucks, vans, buses, heavy equipment) utilized by Oneida for performance of services, purchasing high efficiency vehicles remains a challenge. Currently, one hybrid vehicle is currently owned by Oneida and data on gas mileage efficiency was tracked as a pilot project. Additionally, biofuels may be a long-term option for reducing fossil fuel dependence, but the market is still limited regionally.

Transit

The Transit Department is reviewing converting to smaller vehicles to improve gas mileage for the Transit route. During the period of $4 per gallon gas prices in 2008, the Transit Department saw ridership double and instituted a regular route crossing the Oneida Reservation. Due to instability in gas prices, the Transit Department is preparing to deal with the fluctuations in ridership and craft their routes and volumes accordingly.

Fleet

Until the current budget reductions in 2009, about $500,000 was allocated yearly to purchase/replace 25 vehicles each year. Although there are no specific tribal-wide purchasing criteria, the Fleet Manager has worked with tribal departments to purchase or replace vehicles specific to each department's needs. Gaming and Transit make their

own independent purchasing decisions. Below is a chart demonstrating the diversity of vehicles owned by the Oneida Tribe. Many of the fleet vehicles are trucks, vans, and buses which the Oneida Tribe utilizes for maintenance/repairs, general construction, and transit. In fact, the fleet vehicles are comprised of 35% trucks, 28% vans/minivans, and 21% bus/other. Only 10% of the fleet are cars. Because of this, the average fuel efficiency for the tribal fleet is approximately 13-17 MPG and significantly improving overall fuel efficiency remains a challenge.

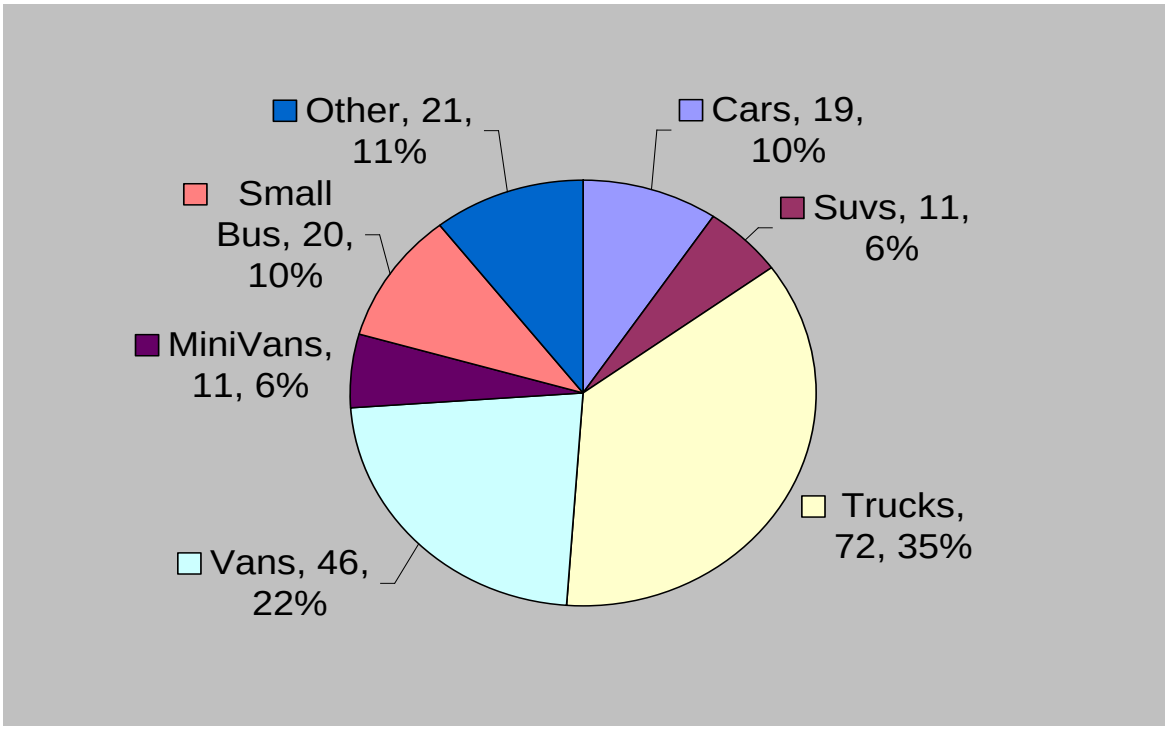

Figure 16 Percentage breakdown of vehicle types owned by the Oneida Nation, 2008

The Retail Division

In 2008, the Retail Division completed analyzing the current tribal mileage charts between 28 departments. These showed an average mileage round trip of 12-13 miles to fill up at DPW. Oneida One-Stops are found throughout the Oneida Tribe. By now allowing tribal staff to refuel their vehicles at these facilities travel time per fill-up has been reduced to 2-4 miles round trip. Additional savings from this modification implemented by the Retail Division are:

1- Savings to Tribal department employee hours to fill-up each vehicle.
2- Savings in DPW employee hours to fill up those vehicles.
3- Savings on mileage wear and tear of those vehicles and prolonging the life of tribal vehicles.

The program was implemented in 2008 and results will continue to be reviewed. Retail Division estimates that each department will save hundreds or thousands of dollars per year by being able to refuel at their local Oneida One-Stop.

Toyota Prius Hybrid

In 2007, the Environmental Health & Safety Division (EH&SD) and Environmental Resource Board (ERB) requested the Fleet Manager replace a vehicle dedicated to EH&SD with a hybrid model. The intention was to perform a pilot project and lead by example. The Prius was selected based on high recorded miles per gallon and rising cost of fuel. In addition, outreach was performed to 'train" people on how to drive a hybrid car to maximize efficiency and familiarize them with hybrid cars. The goal was to show that hybrids can meet the needs of Oneida tribal departments while reducing energy costs and greenhouse gas emissions. The Prius averages 45 miles per gallon.

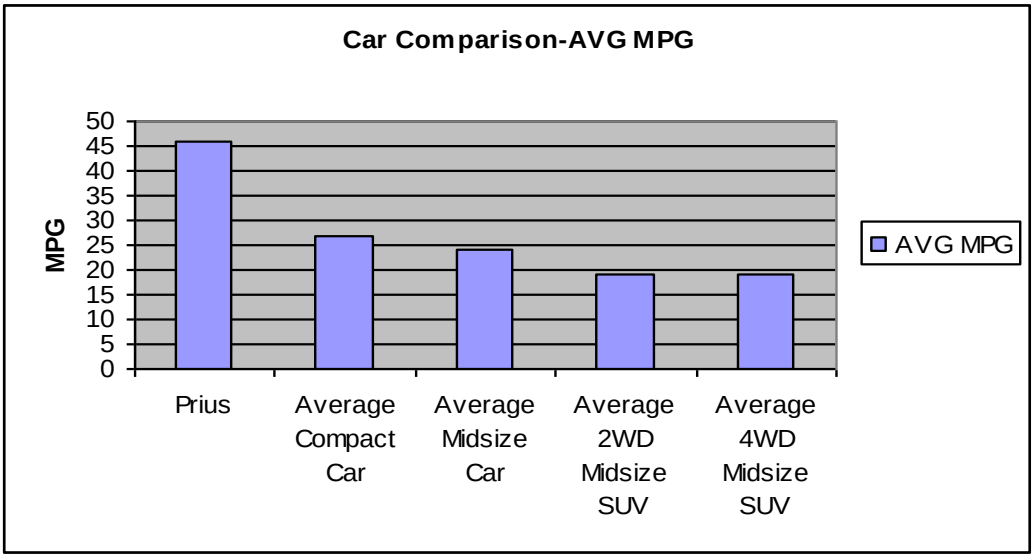

Figure 17 Comparison between Toyota Prius Hybrid and other vehicle choices

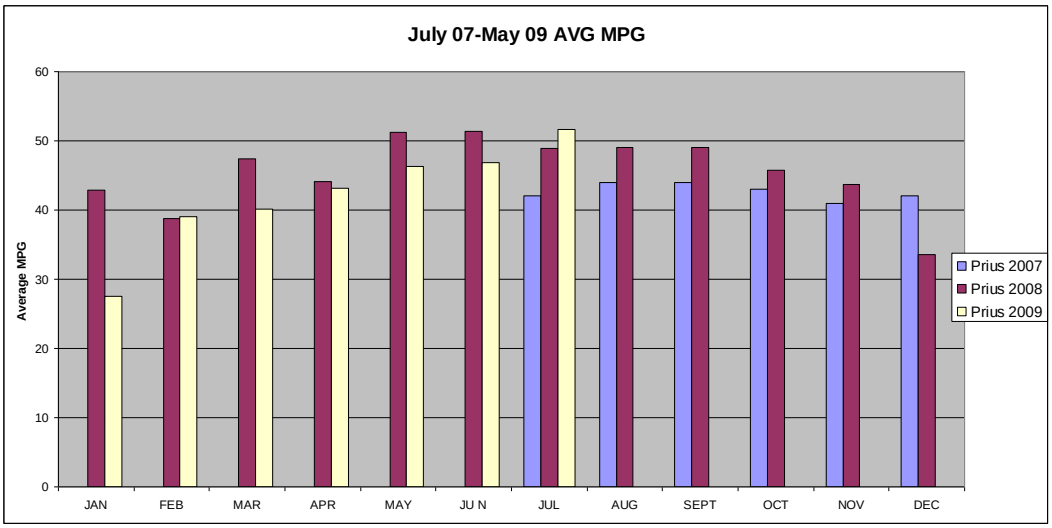

Figure 18 Oneida Prius mileage record

ACTION PLANS

- **Transit Vehicles**
- **Fleet Vehicles**

Action Plan: Transit Vehicles

The Transit Department is reviewing going to smaller vehicles to result in better gas mileage for the Transit route. In 2008, Transit used $372,600 in State transit stimulus funds for 3 buses, 2 minivans, a truck with a plow bus shelters, and computer software to improve efficiencies. Research is being performed regarding new grant opportunities and fuel efficient incentives for further improving the Transit fleet.

Action Plan: Fleet Vehicles

In order to keep the fleet more efficient and up-to-date, additional funding is needed. Before recent cost containment, the budget purchased roughly 25 per year, but due to cost containment there is no purchasing funded for the recent fiscal years. Fleet has been occupied in reviewing to identify where downsizing is feasible. DPW Automotive services and maintains vehicles according to factory recommendations as stated in the Fleet Management Policy. Looking toward the future, targeting higher fuel efficiency vehicles could save Oneida money each year. However, because most of the fleet is low MPG vehicles (trucks, vans, buses, etc) it may be difficult to take advantage of recent breakthroughs in efficiency such as hybrids. Despite that, if Oneida could achieve a 20% improvement in fuel efficiency, it would save approximately $79,750/year at gas prices of $2.75/gallon. Research will continue regarding grants and fuel-efficient incentives for improving the tribal fleet.

Figure 19 The Tribe's Prius

X. RECOMMENDATIONS & CONCLUSION

The action plans that comprise this document reflect the best activities that have been agreed upon by the Energy Team to move the Oneida Nation forward with energy efficiency at this time. However, other initiatives continue to be researched that may eventually be added to this list and even supplant in priority some of the existing initiatives. Furthermore, the Energy Team has promoted cross-organizational coordination that will continue to promote efficiencies and new initiatives to best utilize and improve the resources of the Oneida Nation. By maintaining an emphasis on an efficient use of energy, the Oneida Nation follows the path laid out by the Balanced Scorecard initiative statement of: **"A Nation of strong families built on Tsi? Niyukwaliho T^ and a strong economy"**

XI. IMPLEMENTATION PLAN/TARGETS

Once the Energy Management Plan has been approved through the Community Development Planning Committee (CDPC) to the Business Committee, an Implementation Team will be assigned to continue to follow through with plan implementation. This team will follow-up on goals and action plans by tracking progress, promoting energy management programs, monitoring achievements, and promoting targets. The Energy Security Plan will be updated and modified as needed in accordance with new research findings and directions from Senior Management and the CDPC. Grant funding, bonding opportunities, and tribal contribution will all be assessed to bring online long-term savings as soon as possible.

The Implementation Action Steps are multiple and will be in-line with the targets for energy management established in coordination with the CDPC. Some of the highlights of implementation steps currently being implemented include the following projects featuring extensive use of external funding for improvements. The following summarizes many of the exciting projects already referenced in the Energy Security Management Plan. Implementation is well underway in the following areas:

Energy Efficiency and Conservation Block grant (EECBG): $324,700 for energy efficiency improvements to Oneida buildings under the direction of a Master Electrician, the installation of a 48 panel solar thermal renewable energy system to provide 60% of the hot water needs for the new Oneida ORCCC, and matching funding for residential home energy audits and resulting improvements.

Energy Efficiency Development & Deployment grant (EEDD): $227,100 for 43 comprehensive energy audits of Oneida's largest facilities to include: feasibility studies and strategic energy reduction plans.

First Steps grant: $183,352 for development of energy optimization analysis and energy portfolio development to prioritize Oneida's energy needs and production for the next generation.

Bonding: Continue the targeted and strategic implementation of energy efficiency improvements to Oneida's largest buildings. As of 2012, $330,455 has been expended from bonding funds which is anticipated to generate $75,257 in yearly savings (an impressive 4.4 years for financial payback).

Cap-Ex: The Energy Team/Implementation team will be developing future requests through the CDPC for appropriate and targeted Cap-Ex requests for needed and strategic improvements to Oneida's facilities.

Renewable Energy alternatives: The Oneida Energy Team, behind the guidance of Eco-Services, will continue to vet best viability alternatives for large scale energy production opportunities on the Oneida Reservation.

Residential: Behind the leadership of OHA and DOLM, Oneida will continue to implement and rehabilitate residential structures to meet the goals of improved quality of life, health, and comfort for Oneida tribal members. Oneida Self-Sufficiency, ERB, and EH&SD will continue education and outreach to tribal members about energy assistance and energy efficiency.

Transportation: Transit and Fleet will continue to assess efficiency and best management practices as fuel prices and fluctuations will likely continue to present challenges to transportation on the Oneida Reservation.

Targets/Vision: Energy Team to coordinate with CDPC on defining the main priority goals around target reductions and/or improvements regarding energy issues.

XII. AMENDMENT PROCESS

The process for amending this plan will follow the guidelines described in the Oneida Comprehensive Plan: clerical corrections and minor updates to facts or existing conditions as needed, 0-2 years for major updates to plan elements, and an overall plan update every 3-5 years.