WHISTLER **ENERGY CONSUMPTION** AND **GREENHOUSE GAS** PERFORMANCE TRENDS

2013 ANNUAL REPORT

Chief Administrator's Office
The Resort Municipality of Whistler | June 2014

THE PREMIER MOUNTAIN RESORT COMMUNITY
MOVING TOWARD A SUSTAINABLE FUTURE

WHISTLER

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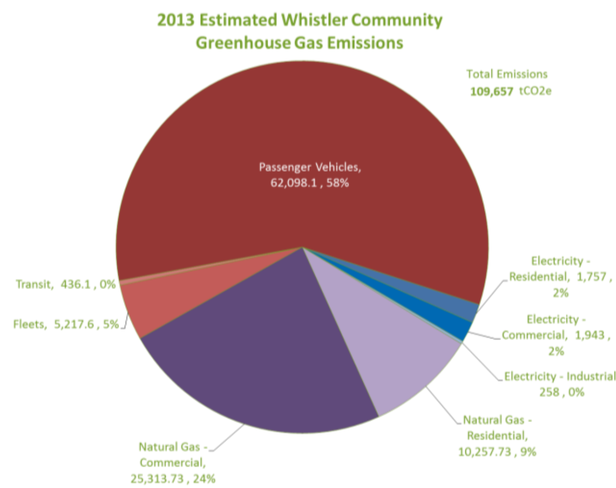
1 EXECUTIVE SUMMARY

As a tourism-focused mountain town, Whistler has long been concerned with the issue of climate change. Our resort community has a special dependence on stable snow and weather patterns, making us very aware of our shared responsibility to manage greenhouse gas emissions, and even more sensitive to the reality of the potential impacts if we do not.

Since 2010, the primary purpose of this Annual Report has been to provide a summary of the Whistler community's energy and greenhouse gas (GHG) emissions performance for the previous year. The secondary purpose of this report includes a summary of the energy and emissions performance for the RMOW's internal corporate operations. This ongoing performance data forms the foundation for informed energy cost management and ongoing climate change mitigation efforts.

COMMUNITY-WIDE PERFORMANCE

2013 COMMUNITY GHG EMISSIONS: Greenhouse gas emissions in Whistler are made up of emissions from stationary sources (buildings and infrastructure systems), mobile sources (passenger vehicles, fleets, and transit), and emissions from landfilled wastes. Passenger vehicle transportation within Resort Municipality of Whistler (RMOW) boundaries continues to represent the largest share of the overall emission footprint (58%), followed by natural gas consumption at 32% (primarily used for space and water heating).



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The community of Whistler has committed to community-level greenhouse gas reductions of: 33% by 2020; 80% by 2050; and 90% by 2060 (versus 2007 levels). From 2008 until 2012, the community managed to remain on pace towards these targets – **however the 2013 community results suggest that Whistler is no longer be on pace to meet our 2020 target GHG reduction level.**

Total community GHG emissions in 2013 were estimated to be **109,657 tCO2e**[1]. The 2013 level is approximately 17.5% lower than 2007 levels, 23% lower than 2000, 1.3% below last year's level, but still 45% higher than 1990 levels. It is worth noting that the primary driver for the GHG reductions over the last few years has been the decreasing GHG intensity of BC Hydro electricity – without this decrease in GHGs/kWh, Whistler's total emission level would be approximately 6,000 tCO2e higher than presented within this report.

From a GHG emissions intensity perspective, estimated 2013 GHG emissions per population equivalent[2] remained constant at 4.2 tCO2e/PE. This intensity is 18% lower than 2007, and is equal to the lowest annual per capita measure since detailed record keeping began in 2000.

[1] **Carbon dioxide equivalent** (or **CO_2e**) is the most common unit of measure for quantifying the amount of 'climate change impact' a given type and amount of greenhouse gas may cause, using the functionally equivalent amount or concentration of carbon dioxide (CO_2) as the reference.

[2] The nature of Whistler being a tourism community means the number of people in Whistler on any given day is generally far greater than the population counts provided Canada Census or BC Statistics estimates. The total Population Equivalent is an estimate of the total number of people in Whistler on an average annualized basis. The indicator is often used in 'per capita' measures to normalize the data and make it comparable to other communities. More detail on the composition of the Population Equivalent can be found at: http://www.whistler2020.ca/whistler/site/genericPage.acds?instanceid=2985334&context=2985223

Looking ahead, the key challenge for our community will be maintaining the rate of reduction achieved over the first four years of our commitment period as further 'one-time changes' (such as the piped propane to natural gas conversion and the landfill cap and capture projects) are, for the most part, no longer readily available. To remain on target toward our reduction goals, additional, incremental reductions of 3,300 tonnes of CO2e will be required every year for the remainder of the decade (or approx. 3.5%/yr).

It is expected that future GHG reductions will need to be premised primarily on *actual energy conservation* and *increased efficiency* rather than *one-time technological changes in community systems*. The required energy conservation will be particularly challenging for the community as historic performance assessments demonstrate the community-wide energy conservation gains of this scale have been unprecedented over the last decade.

From an overall perspective, Whistler still needs to reduce annual emissions by 21,000 tCO2e by the end of the 2020 year to meet its target – a further reduction of approximately one fifth of our current annual emission levels.

2013 COMMUNITY ENERGY CONSUMPTION & EXPENDITURES: Community energy consumption since the base commitment year of 2007 has not followed the same downward trajectory as community GHG emissions. In fact, the three years from 2010 to 2012 were the three highest years of estimated energy consumption recorded in Whistler.

Total community energy consumption in 2013 was estimated to be 3.08 million GJ (down 1.42% from 2007 levels, and down 2.1% year over year (approximately 100% higher than 1990).

Electricity is the most prevalent type of energy consumed in Whistler at 45% of the total consumption, followed by vehicle fuels (~31%), and natural gas at 23% of total consumption.

The estimated annual collective energy expenditure within Whistler has increased by more than $30 million since 2000 ($81 million vs. $49 million). Energy expenditures for residential buildings now total approximately $20 million/year, with commercial building expenditures totaling approximately $21.5 million on an annual basis (passenger vehicles and fleets make up the remainder). Total passenger vehicle estimated expenditures increased to an estimated $35M/year up by over $7.7M/year over 2007 levels.

Finally, increases in energy rates continue to outpace the rate of inflation so it is expected that the combined community expenditure will continue to rise faster than our collective ability to pay for it –underscoring the importance of increasing community-wide energy conservation and energy efficiency.

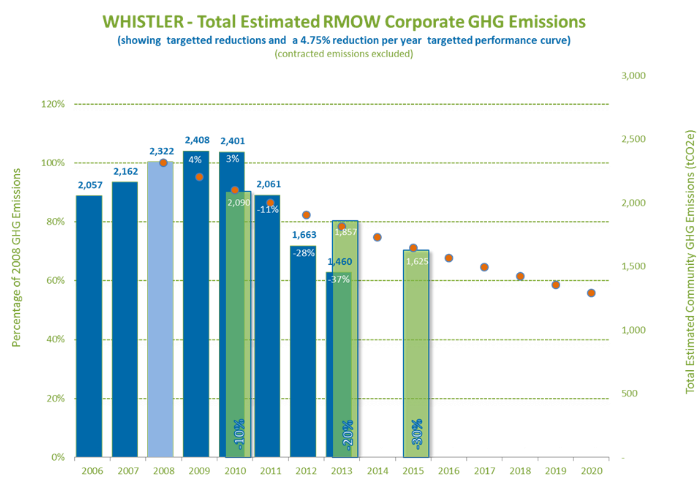
2013 CORPORATE OPERATIONS PERFORMANCE

2013 CORPORATE GHG EMISSIONS: The RMOW's Carbon Neutral Operations Plan sets the targets for total corporate GHG reductions as follows: 10% by 2010; 20% by 2013; and 30% by 2015 – all relative to 2008 levels.

Total corporate GHG emissions in 2013 were 1,453 tCO2e. This level of emissions is 13% lower than 2012 levels, and approximately 35% below the 2008 benchmark (the reference year for RMOW target setting).

As demonstrated in the chart to the right, corporate emissions are currently far below the 2013 annual GHG emission levels targeted in the 2009 Carbon Neutral Operations Plan.

On a division-by-division basis, the relative emissions footprint of corporate operations is as follows:



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(42%) Infrastructure Services — which includes roads crews, solid waste systems, the water utility, and the sewer utility; (32%) Resort Experience (REX) — which includes village maintenance operations, horticulture/turf/irrigation crews, parks and trails, as well as facility construction and maintenance operations; and (25%) Corporate and Community Services — including bylaw, fire, Meadow Park Sports Centre, and other recreation programs.

GHG emissions across corporate operations are produced primarily from the combustion of mobile fuels (gasoline and diesels) at 48%, followed by natural gas at 41%, and electricity at 10%.

Over the last few years, the primary source of GHG emission reductions across municipal operations has been natural gas reductions at Meadow Park Sports Centre (MPSC) – emissions from this facility are down more than 65% (440 tCO2e) since 2008.

2013 CORPORATE ENERGY CONSUMPTION & EXPENDITURES: Total corporate energy consumption decreased in 2013 by 6% year over year to 71,513 GJ/year. Electricity consumption makes up the greatest portion of total energy consumed across municipal operations at 70% of the total consumption, followed by natural gas (20%), and mobile fuels (10%).

While 2013 Corporate and Community Services' energy consumption increased by 1% over 2012, Infrastructure Services and Resort Experience divisions both achieved year-over-year reductions in 2013 (8% and 7% respectively). However, Infrastructure Services' energy consumption is still 5% above 2008 base year levels, while Corporate and Community Services and Resort Experience have both seen reductions versus 2008 (33% and 2%, respectively).

Overall, 2013 energy expenditures across municipal operations decreased by 5% to ~$1.65M (this was due to the combined influence of a 6% decrease in consumption, and increases in the unit rates of various energy sources). Electricity consumption makes up the largest portion of corporate energy expenditures (~$1M/year), and while Corporate and Community Services division expenses increased by 6% in 2013 expenses decreased in both the Infrastructure Services division (-8%) and Resort Experience (-5%).

SUMMARY COMMENTS

The impact of changing climatic conditions – especially reliable snow patterns – has the potential to substantially impact Whistler's primary economic engine – tourism. Informed, strategic planning that considers and evaluates the impacts of the issues related to climate change and rising fuel costs (on which Whistler's economy is fundamentally dependent) can help to ensure that Whistler is best positioned to maintain its success into the future.

Accurate, detailed data is fundamental to these discussions; information such as that which is included in this report will continue to provide a strong basis for informed decision-making as our community measures its success, matures, evolves and thrives in the coming decades.

2 INTRODUCTION

Whistler is not sustainable. However, our Vision is to be the *Premier Mountain Resort as we move Toward Sustainability*. Implied in this vision is a journey - understanding that it will take continued commitment to get to our intended destination. Whistler also understands that on this journey we will have to find a way to do things more efficiently.

As a mountain town, Whistler has long been concerned with the issue of climate change. Our resort community has a special dependence on stable snow and weather patterns, making us very aware of our shared responsibility to manage greenhouse gas emissions, and even more sensitive to the reality of the potential impacts if we do not. Throughout our community, both private and public organizations understand that the integrity of functional natural systems is absolutely fundamental to the wellbeing of our community, and the viability of our economic engines.

Moreover, we now live in an era of **climate responsibility** and by extension this **requires climate action**; climate change is a certainty, as is human responsibility for it[3]. Reducing our greenhouse gas emissions is one of the most significant actions we can take as a community to take responsibility for our part in solving the climate crisis.

The primary purpose of this Annual Report is to provide a summary of Whistler's community-wide energy and greenhouse gas emissions performance over the past year (Section 3). The report includes detailed performance data, highlights key trends and insights, as well as benchmarks our performance against our Council-adopted targets. **It is the intent of this report to support and inform the strategic management of energy and climate-changing emissions across our community.**

The second part of this report (Section 4) includes a summary of the energy and emissions performance of the RMOW's internal corporate operations. Although corporate emissions represent less than 1.5% of the total community GHG emissions, it is these corporate emissions RMOW staff have the greatest level of direct control, and for which we have the opportunity – and most responsibility – to both lead by example and demonstrate success.

This is the 3rd Performance Report that has been produced at this level of detail (2010, 2011 are available on whistler.ca).

2.1 BACKGROUND

Whistler is one of the few communities in BC that has a relatively long history of both setting emissions reductions targets and actively monitoring its GHG emissions footprint. This commitment is evident in our dedication to Integrated Community Sustainability Planning, long-term measurement and reporting of energy consumption and GHG emissions performance, the integration of energy and emission reduction goals into broader municipal policies and practices, as well as continued participation on provincial and national advisory committees.

2.1.1 Whistler2020: Our Community's Comprehensive Sustainability Plan

The Whistler community understands that sustainability is not just about the environment; that three concepts – ecological integrity, fiscal viability, and social justice – point to a larger and integrated strategy and that these three concepts are not as strong in isolation as they are when considered together.

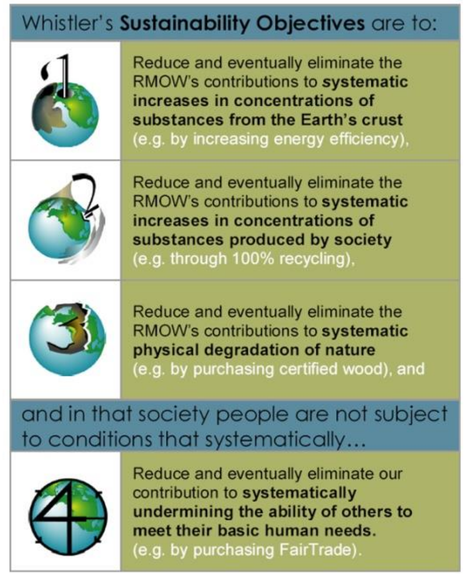
[3] Climate Change 2013, The Physical Science Basis – Working Group 1 Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC, 2013. http://www.ipcc.ch/report/ar5/wg1/

In 2005 the RMOW adopted Whistler2020, the community's comprehensive, long-term sustainability plan, as direction setting policy.

Whistler2020 is Whistler's Integrated Community Sustainability Plan, an expression of the community's vision as required by the Province of British Columbia. Whistler2020 is the product of thousands of voices across our resort community coming together to **articulate the vision of the resort community we aspire to be.**

The community vision articulated within Whistler2020 is organized around the following five priorities:

1. Enriching Community Life
2. Enhancing the Resort Experience
3. Ensuring Economic Viability
4. Protecting the Environment
5. Partnering for Success



Moreover, Whistler2020 imbeds and integrates four science-based Sustainability Objectives premised on the Natural Step principles (see box on the right) into the vision and the framework for making decisions. In this sense, these Sustainability Objectives act as a compass to help frame and guide decision-making and ongoing planning.

Working within the Whistler2020 framework, the community has aimed to steadily integrate the Sustainability Objectives broadly into all aspects of community planning and development strategies – from Energy and Transportation strategies, to Economic and Visitor Experience strategies. Through the consistent application of the four shared Sustainability Objectives, our community is striving to integrate climate change mitigation into all community policies and operational practices.

Viewed mainly as an environmental problem, climate change is much more than that.

The largest comprehensive review on the economics of climate change was undertaken by British economist Nicholas Stern, and it makes the point well. In October of 2006, the British Government released the *Stern Review on the Economics of Climate Change* and it clearly states,

"Using the results from formal economic models, the Review estimates that if we don't act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more. In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year."

Further, in the most recent Intergovernmental Panel on Climate Change (IPCC) report, the authors state,

"Climate policy intersects with other societal goals creating the possibility of co-benefits or adverse side-effects. These intersections, if well-managed, can strengthen the basis for undertaking climate action. Mitigation and adaptation can positively or negatively influence the achievement of other societal goals, such as those related to human health, food security, biodiversity, local environmental quality, energy access, livelihoods, and equitable sustainable development; and vice versa, policies toward other societal goals can influence the achievement of mitigation and adaptation objectives. This multi-objective perspective is important in part because it helps to identify areas where support for policies that advance multiple goals will be robust."

Simply put, climate change is a problem that extends far beyond a solely environmental perspective.

2.1.2 Whistler's Community Energy Planning – a brief history

Whistler committed to its first greenhouse gas emission reduction targets in 1997. In that year, Whistler Council endorsed the Kyoto Protocol target of having our community's emissions at 6% below 1990 levels, by the year 2012. For municipal (corporate) emissions, Council also committed to being a part of the "20% Club", committing to reducing corporate emissions 20% below 1990 levels by 2012 – **two aspirations that the community of Whistler did not achieve**.

Following up on these commitments, the RMOW participated in the Federation of Canadian Municipalities' (FCM) Partners for Climate Protection (PCP) program. The PCP program was launched by FCM as an extension of ICLEI's (Local Governments for Sustainability) Cities for Climate Protection program in the United States. Partner cities become members in a network of municipalities that began working toward the achievement of the five management-based milestones of the program. The milestones were designed to create tools and processes that were easy to understand and implement, and also provide effective guidance for municipalities to take serious steps toward climate action.

FCM/ICELI Partners for Climate Protection

The five milestones of the Partners for Climate Protection program are:

1. Create a greenhouse gas emissions inventory and forecast;
2. Set an emissions reductions target;
3. Develop a local action plan;
4. Implement the local action plan or a set of activities; and
5. Monitor progress and report the results.

In 2007, the Resort Municipality of Whistler became the first community in Canada to complete all five milestones for both community and corporate emissions.

To meet the commitments of the Partners for Climate Protection program process, the RMOW developed the first Integrated Energy, Air Quality, and Greenhouse Gas Management Plan in Canada in 2004.

The recommended implementation scenario in the Integrated Energy Plan acknowledged that achieving our community target of 6% below 1990 levels would be very difficult to achieve by 2012. As such, the plan recommended a reductions scenario that would see Whistler's emissions at 9% below 2000 levels (but 22% above 1990 levels) by 2020. This was recommended in contrast to the forecasted *business as usual* (i.e. take no action) scenario that predicted Whistler community GHG emissions would rise to 92% above 1990 levels (47% above 2000) by the year 2020.

In September of 2007, at the Union of BC Municipalities (UBCM) conference in Vancouver, Whistler was one of original sixty-two[4] local governments in BC that signed on to the Province's voluntary BC Climate Action Charter. The Charter opens with the following statement, agreed to by all signatories, **"Scientific consensus has developed that increasing emissions of human caused greenhouse gases (GHG), including carbon dioxide, methane and other GHG emissions, that are released into the atmosphere are affecting the Earth's climate."[5]**

Currently approximately 180 BC communities have become signatories to the Charter. By signing, local governments agreed that:

5. In order to contribute to reducing GHG emissions:

   (a) Signatory Local Governments agree to develop strategies and take actions to achieve the following goals:

   (i) being carbon neutral in respect of their operations by 2012, recognizing that solid waste facilities regulated under the Environmental Management Act are not included in operations for the purposes of this Charter.

   (ii) **measuring and reporting on their community's GHG emissions profile;** and

   (iii) creating complete, compact, more energy efficient rural and urban communities(e.g. foster a built environment that supports a reduction in car dependency and energy use, establish policies and processes that

[4] The BC Climate Action Charter was eventually signed by more than 170 local governments across British Columbia.
[5] The British Columbia Climate Action Charter, Section 1

support fast tracking of green development projects, adopt zoning practices that encourage land use patterns that increase density and reduce sprawl.)[6]

The charter is a voluntary agreement designed to bring local government support for the Province's broader overall climate action strategy of reducing emissions 33% (from 2007 levels) by 2020.

Enacted in 2008, Bill 27, *the Green Communities Act*, requires local governments to include (among other things) greenhouse gas emission targets, policies and actions in their Official Community Plans and Regional Growth Strategies. Under this legislation, local governments are also able to use development permits to promote energy and water conservation and the reduction of greenhouse gases (an option Whistler has chosen not to pursue), and encourage alternative transportation options with off-street parking-in-lieu funds.

In response to the *Green Communities Act*, the RMOW has integrated specific targets (discussed later in this report), policies and actions within its Official Community Plan, and developed a Carbon Neutral Operations Plan.

Moving ahead, staff plan to initiate an update to the Whistler Integrated Energy Plan in 2014. The new Community Energy and Emissions Plan will build from the former Plan forecasting future patterns of consumption and emissions relative to adopted targets, evaluating opportunities to improve performance, as well as recommending specific projects and sector-specific targets for further consideration and implementation.

Building on the background and contextual elements presented in Section 2.1, Section 3 details how the community of Whistler is progressing toward our energy and emission reduction goals, while Section 4 presents similar performance data for RMOW corporate operations.

[6] The British Columbia Climate Action Charter. Section 5.

3 COMMUNITY PERFORMANCE

Since the year 2000, RMOW staff have tracked and compiled community energy consumption, energy expenditure and GHG emission data. At the community level, primary sources of data to support this inventory are accessed from local utilities (BC Hydro and FortisBC), as well as from local traffic counter data and annual RMOW waste and recycling performance tracking. Sections 3.1 and 3.2 of this report summarize the most current performance trends for 2013.

3.1 COMMUNITY GREENHOUSE GAS EMISSIONS

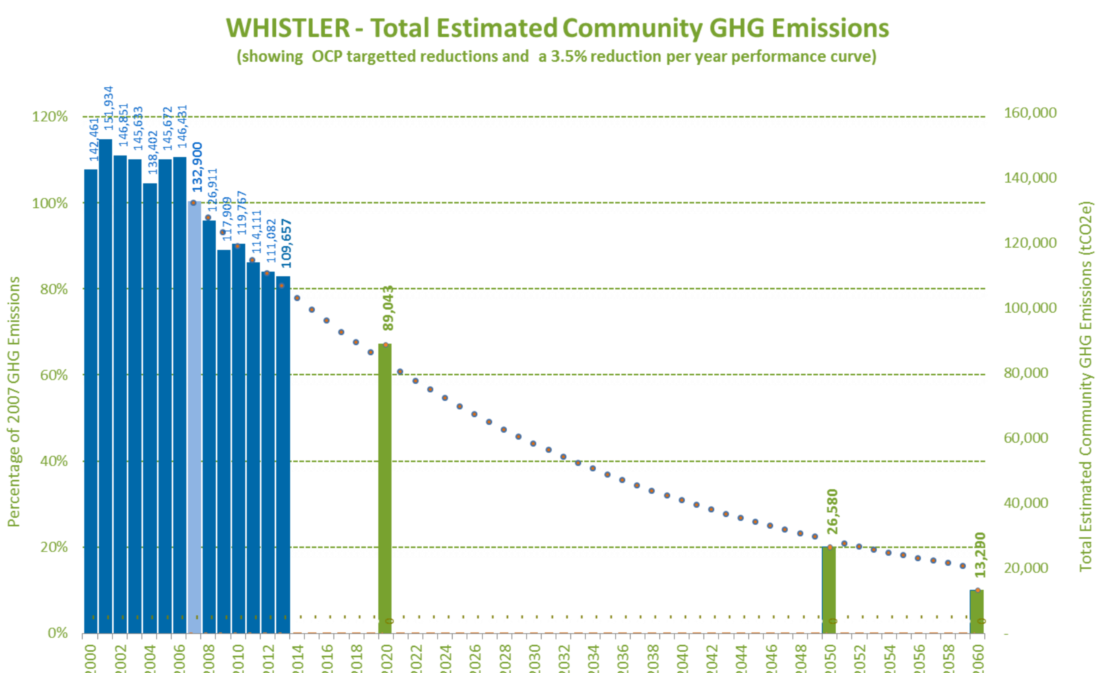
Section 3.1 deals specifically with GHG emissions at the community level, this section includes information on related Council-adopted targets, an overview of 2013 performance, as well as a short section on key associated insights and trends.

3.1.1 Community GHG Reduction Target

As previously stated, the *Provincial Green Communities Act* (Bill 27, 2008) requires all municipalities to adopt **targets**, policies and actions for the reduction of community-wide GHGs. As per the Whistler Official Community Plan, when compared to 2007 GHG emission levels, the community of Whistler has committed to community-level greenhouse gas reductions of: **33% by 2020, 80% by 2050[7]; and 90% by 2060**.

33% by 2020
80% by 2050
90% by 2060

If it is anticipated that the attainment of these targets is achieved at a consistent rate or pace over the coming decades, these targets translate into an **annual GHG reduction of approximately 3.5% per year**. The following chart illustrates the potential achievement of this 'target' over time. The chart presents the community targets (green bars), the historic community emissions levels (blue bars) as well as an indication of the annual reductions that would be required to achieve the prescribed targets using a constant rate of improvement model (orange dots).



7 33% by 2020 and 50% by 2050 are identical to the Provincial targets set by the Government of BC.

As demonstrated on the chart above, the community of Whistler has managed to remain generally on pace towards our targets for the first five years of the target period. GHG emission reductions achieved during these five years (2008-2011) has been impressive – averaging approximately 4,300 tonnes of reductions annually over the five year period.

It is worth noting however, that the primary sources of the reductions over the first four years have been **one-time** only events:

1) the changes to Whistler's waste management processes (i.e. landfill closure, landfill gas management, organics recycling and the switch to the advanced landfill management systems at Rabanco);
2) the switch from piped propane to natural gas across the community;
3) the reduction in diesel consumption associated with the hydrogen transit bus pilot project;
4) the changes brought about through the provincial low-carbon fuel standards for gasoline and diesel, and;
5) the decrease in GHG intensity (GHG/kWh) of BC Hydro supplied electricity.

It is also important to note that the 6th year of the commitment period **(2013) has not remained on the intended curve toward the 2020 adopted target** (33% reduction vs. 2007). 2013 year-over-year emission reductions levels were only 1,425 tCO2e (1.3%) - far less than the targeted 3,000 to 4,000 tCO2e (3.5%)required to remain on the target curve.

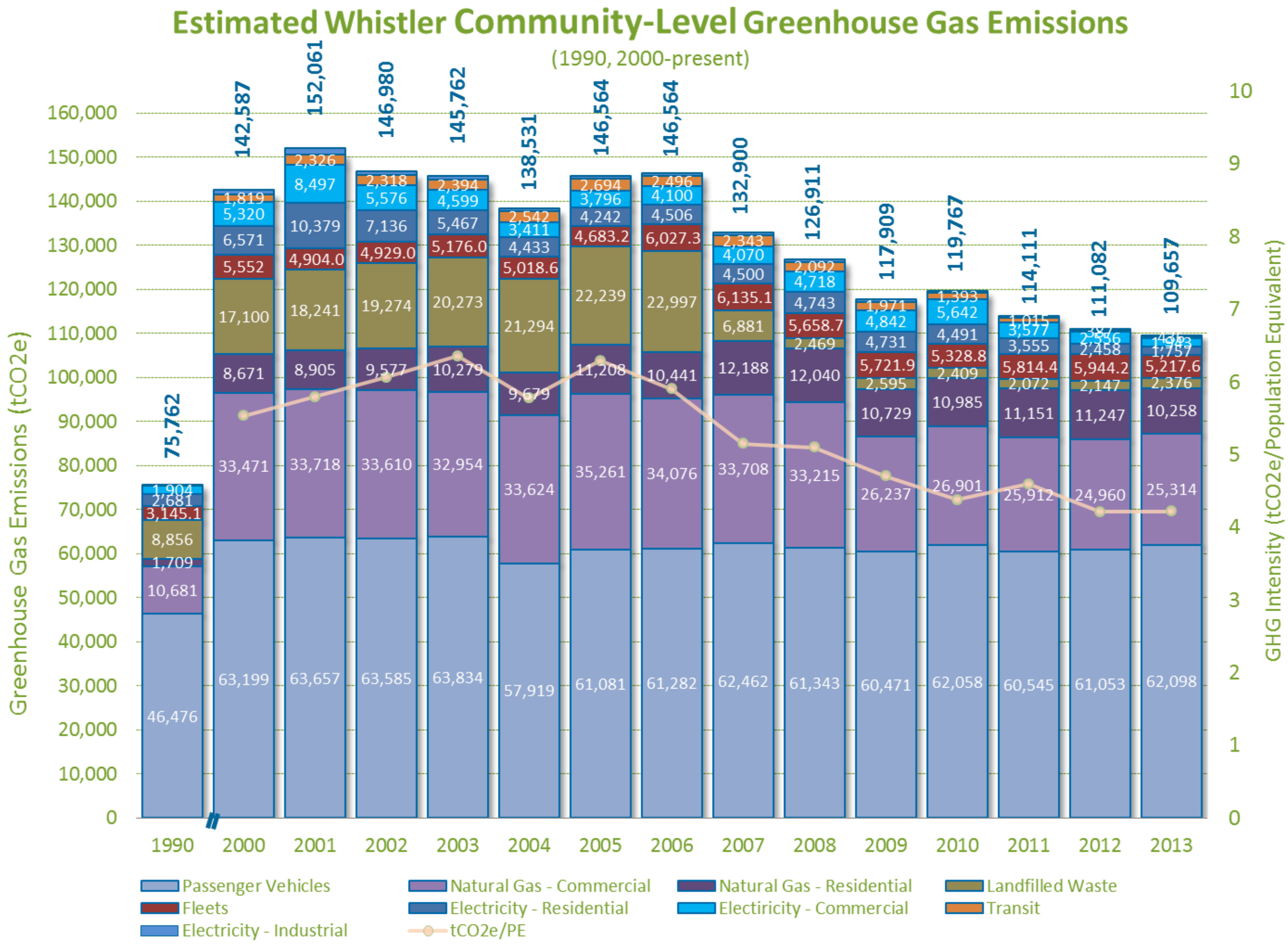
2013 community GHG levels are estimated at 17.5% below the 2007 base year (rather than the targeted 19.2%). For the 2014 year to return to a level on or below the target curve will require an annual reduction of approx. 6,000 tCO2e. This is a level of annual reduction that has only been achieved once in the last decade – the year the propane to natural gas conversion was undertaken.

Looking ahead, the key challenge for our community will be regaining the rate of reductions achieved over the 2008-2011 period when further 'one-time changes' are, for the most part, no longer readily available. To remain under the target curve presented above, additional reductions of 3,000 to 4,000 tonnes of CO2e will be required annually for the next 10 years. Future GHG reductions will need to be primarily premised on *actual energy conservation* and *increased efficiency* rather than *one-time technological or infrastructure changes in community systems*. The required conservation will be particularly challenging for the community as historic performance assessments demonstrate the energy conservation gains have proven elusive over the past decade.

Bottom Line: Given that Whistler does not currently have plans for GHG reduction initiatives of a similar scale/impact as the natural gas conversion project coupled with the fact that annual collective energy efficiency improvements have historically modest across the community, **it is unlikely that community emissions will remain on target to achieve the adopted 2020 target levels included in Whistler's Official Community Plan.**

3.1.2 Community GHG Emission Performance

Total community emissions in 2013 were estimated to be **109,657 tCO2e**. This level is approximately 17.5% lower than 2007 levels, 23% lower than 2000, 1.3% below 2012 levels.



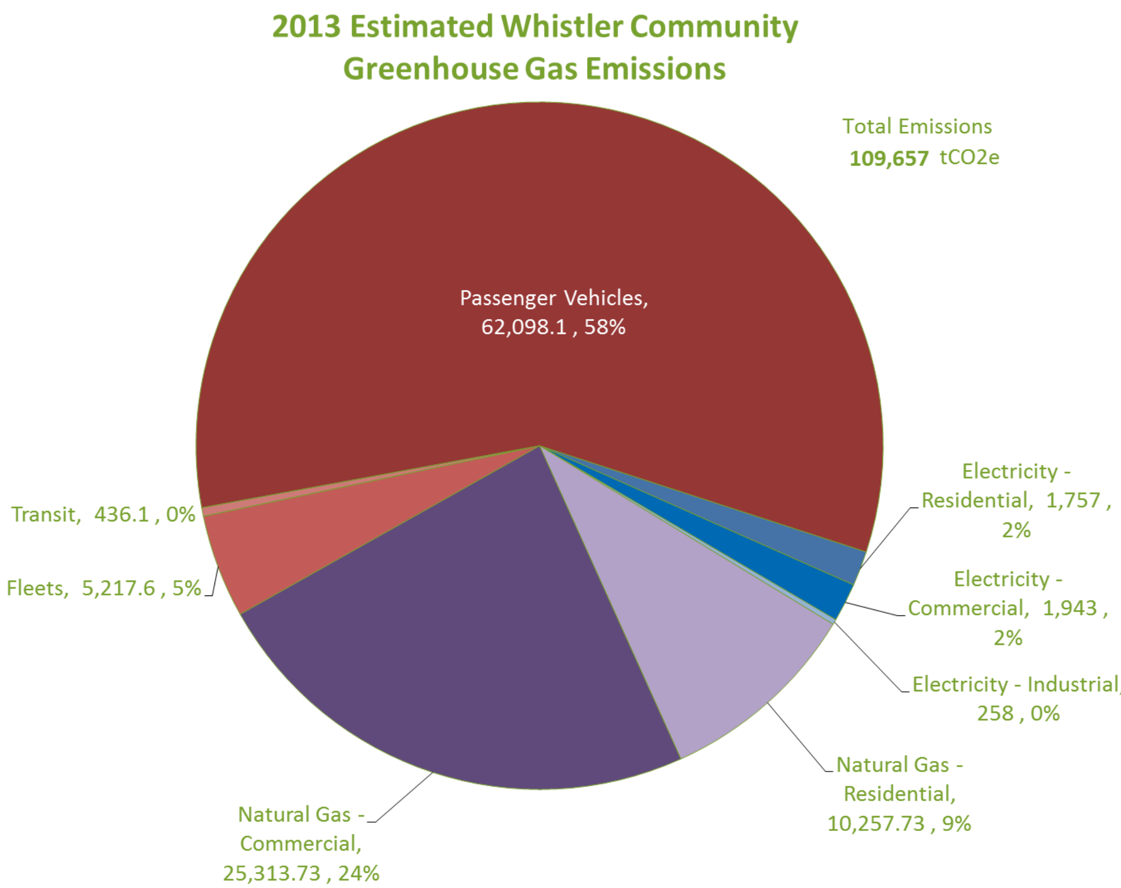
From a GHG emissions intensity perspective, 2013 GHG emissions per population equivalent[8] remained constant at 4.2 tCO2e/PE, 7% below 2011 levels and the lowest annual per capita measure since detailed record keeping began in 2000. As noted above, the primary drivers of these reductions have been the changes to the local waste management system (especially landfill gas capture); the switch from piped propane to piped natural gas, the BC Transit Hydrogen Transit Fleet pilot project and more recently, the provincial low carbon fuel standards and the decreasing GHG intensity of BC Hydro electricity.

As further one-time changes such as those noted above become less available to our community, **the pace of reduction is likely to slow considerably without substantive 'energy conservation' becoming the core driver of further emission reductions.**

[8] The nature of Whistler being a tourism community means the number of people in Whistler on any given day is generally far greater than the population counts provided Canada Census or BC Statistics estimates. The total Population Equivalent is an estimate of the total number of people in Whistler on an average annualized basis. The indicator is often used in 'per capita' measures to normalize the data and make it comparable to other communities. More detail on the composition of the Population Equivalent can be found at: http://www.whistler2020.ca/whistler/site/genericPage.acds?instanceid=2985334&context=2985223

Distribution of Emissions

Greenhouse gas emissions in Whistler are made up of emissions from stationary sources (buildings and infrastructure systems), mobile sources (passenger vehicles, fleets, and transit), as well as emissions from landfilled wastes. The approximate share of each of these sources is presented in the following chart.



Passenger Vehicles

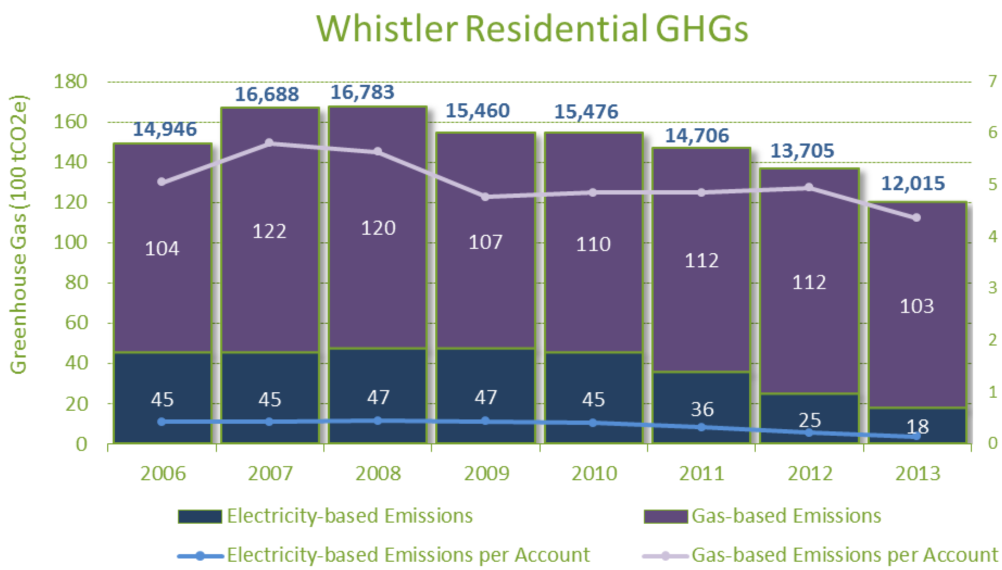
Passenger vehicle transportation within RMOW boundaries continues to represent the largest share of the overall emission footprint (increasing in 2013 to 58%), followed by natural gas consumption at 33% (primarily used for space and water heating).

As a share of the total emissions footprint, passenger vehicle emissions continue to grow year over year. This is due to the fact that GHG emission sources have decreased over the last 5-8 years for all other sectors (buildings, transit, landfill etc.) while average annual daily traffic levels and estimated vehicle kilometers travelled (VKT) within municipal boundaries has increased over the last three years versus the 10 year average. It is worth noting that improvements in new vehicle fleet fuel efficiencies and lower carbon fuel standards have helped reduce emissions per km driven slightly, but not enough to substantively change the total emissions profile for vehicles in Whistler.

Whistler Buildings - GHGs

The following two charts show the changes in greenhouse gas emissions from the community building inventory.

Residential GHG Emissions



Residential Natural Gas Emissions

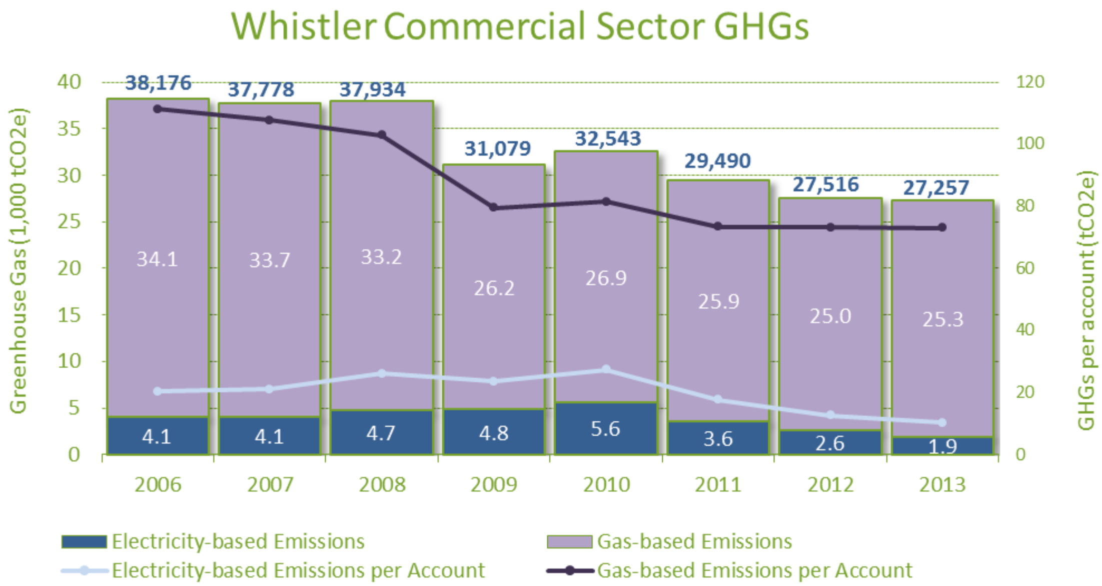
Natural gas based GHG emissions across the residential sector have decreased by 8% year over year. This reduction is partially explained by a more moderate winter in 2013 (lower HDDs vs. 2012) but could also be related to either broader energy efficiency gains related to space heating loads, or potentially by lower levels of second home owner use.

2013 gas consumption per residential account decreased significantly year over year, to levels similar to 10 years ago.

Residential Electricity Emissions

Electricity-based emissions have decreased in the residential sector on both a total basis, as well as an emissions per account basis. While total electrical consumption did decrease meaningfully in 2013 (-7%), the primary driver of decreasing electricity-based emissions is the reduction in system-wide BC Hydro GHG emissions intensities.

Commercial GHG Emissions



Commercial Natural Gas Emissions

Commercial sector GHG emissions have decreased substantively since the conversion from propane to natural gas was finalized in 2009 (commercial heating gas emissions have declined by more than 20% versus 2006 levels). Most recently, commercial natural gas emissions have remained steady over the past three years and remain approx. 24% better than 2007 levels (pre-conversion).

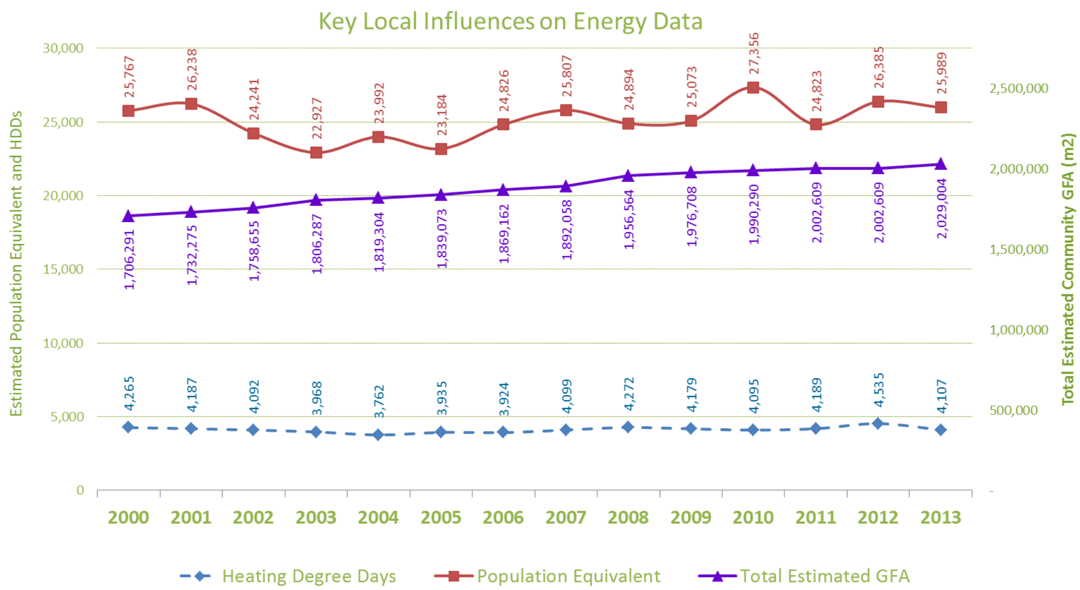
Commercial Electricity Emissions

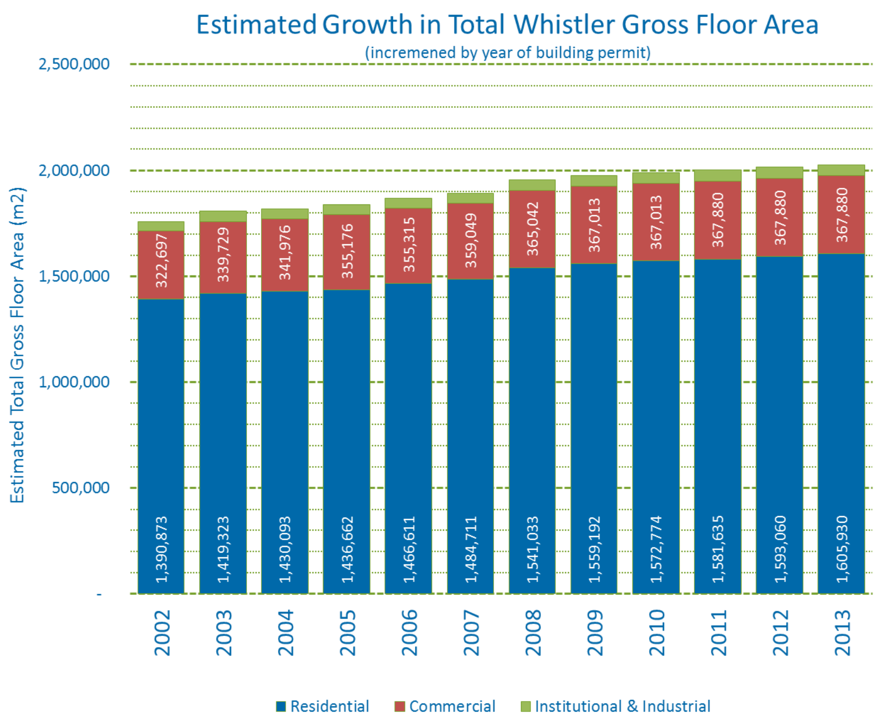
Over the last 10 years, GHG emissions from electricity consumption remained relatively steady until the 2010 Games year. Since the Games year, emission levels have decreased substantively for each of the following three years. These reductions are partially driven by a small drop in electrical consumption post Games (though still higher than pre-2010), but are primarily driven by decreasing GHG intensity levels across the BC Hydro system (i.e. reductions driven by forces outside our community).

Emissions per account have followed patterns similar to that described above.

The following three charts provide detail regarding the primary influences on the building sector energy consumption and emissions trends over time. As per the discussion above, these data points are useful to explore possible explanations for observed change over time. It is however important to note that Whistler's **emission reduction targets are set at total emission levels** – targets are not at set at per-capita or per-ft2 intensity levels.

In the end, intensity measure may help us understand what factors are driving changes in performance but it is only the total parts-per-million (ppm) of carbon in the atmosphere that defines and shapes the impacts of climate change. It is for this reason that Whistler chose to set total emission targets, not emission intensity targets.





BC Hydro Emission Factor Comparison (tCO2e/GWh)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
3 year rolling average	40.7	34.7	23.7	24.7	26.3	24.7	26.0	25.3	25.3	19.0	13.7	10.6

3.1.3 Key Community GHG Performance Insights

Total GHG Emissions

- Increasing from previous years, almost 60% of all estimated community-level emissions (~62,000 tonnes annually) are produced by passenger vehicle transportation within municipal boundaries. The passenger vehicle sector provides an important opportunity for future community emission reductions.
- The overall rate of reductions slowed significantly in 2013, resulting in the fact that **the community is no longer on the anticipated statistical path to achieve our 2020 emission reduction goals.**
    - Moreover, the lack of additional, significant one-time changes (i.e. low hanging fruit like the propane to natural gas conversion project) will make future progress toward our 2020 target much more difficult.

Commercial Buildings GHG Emissions

- Total emissions and emissions per commercial account are the lowest since detailed record keeping began (83 tCO_2e/commercial acct). However year-over-year sector reduction rates have slowed significantly (<1% YOY).
- Collectively, commercial building emissions have decreased by 28% from the 2007 year – as such this sector is maintaining a strong trajectory toward the 2020 target (-33%).
- Caution should be exercised in interpreting these GHG reductions however as commercial building energy consumption has increased in this sector (1.7%) versus the 2007 base year – highlighting the role that lower carbon fuels have had on the overall emissions reduction curve.

Residential Buildings GHG Emissions

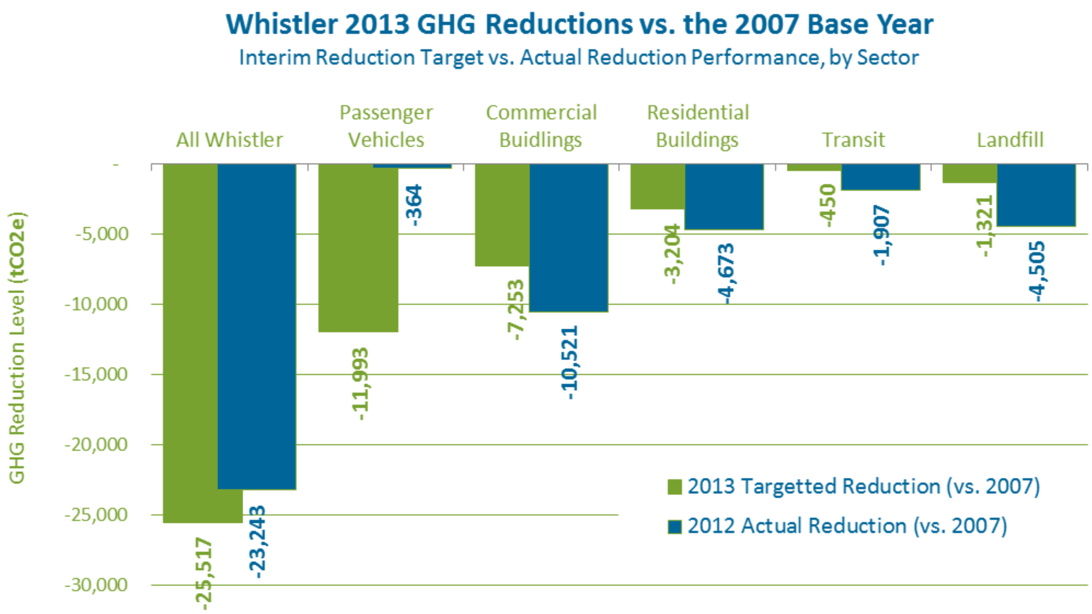
- Total residential GHGs have dropped from 2007 levels by 28% (primarily due to the shift to natural gas from propane and the decrease in BC Hydro GHG intensity – collectively cleaner fuels). This level of progress positions the residential building sector well for meeting the 33% reduction by 2020.
- The primary source of emissions across the residential inventory remains natural gas consumption (~80%).
- The shift to natural gas (from propane), and the decreasing GHG-intensity of BC Hydro electricity are the primary reasons for the strong GHG reductions in this sector. It should be noted that energy consumption across the sector has only decreased by 6% since 2007 (highlighting the role that cleaner fuels have contributed to the 28% GHG reduction noted above).

Transportation GHG Emissions

- Low carbon fuel standards have helped to mitigate the emissions from both gasoline and diesel consumption (5% ethanol blend in gasoline, and 4% biodiesel blend in diesel).
- Estimated total vehicle kilometres travelled (VKT) in Whistler (locals and visitors combined) has continued to increase slightly over the last 3-5 years
- The average fuel efficiency of BC registered vehicles has only improved by ~3% over the last 10 years. This change has slowly reduced emission levels per kilometre driven from 2000 levels.
- However, even when combined, the new fuel standards and the increases in vehicle efficiency are still far too small to move passenger vehicle emissions to the targeted reduction levels discussed in Section 3.1.1 above. Much more efficient vehicles, fuel switching to lower carbon fuel sources, and/or a decrease in VKT per person will be required to catalyze required emission reductions in this sector.
- **Estimated passenger vehicle emissions have remained at the same level as 2007 base year (vs. the 19% interim target level). This difference (11,500 tCO_2e in unmet reductions) represents the single largest reason why the community is failing to maintain interim target reduction levels.**

Looking Ahead

- As previously noted, the key challenge for our community moving forward, will be regaining the rate of reduction achieved over the five years of the commitment period. This is due to the fact that further 'one-time changes' are, for the most part, no longer readily available.
  - Future reductions will need to be primarily premised on actual energy conservation and efficiency rather than one-time technological changes in community systems.
  - As seen in the chart below, the greatest need (and opportunity) for ongoing emission reductions is in the **passenger vehicle sector**.



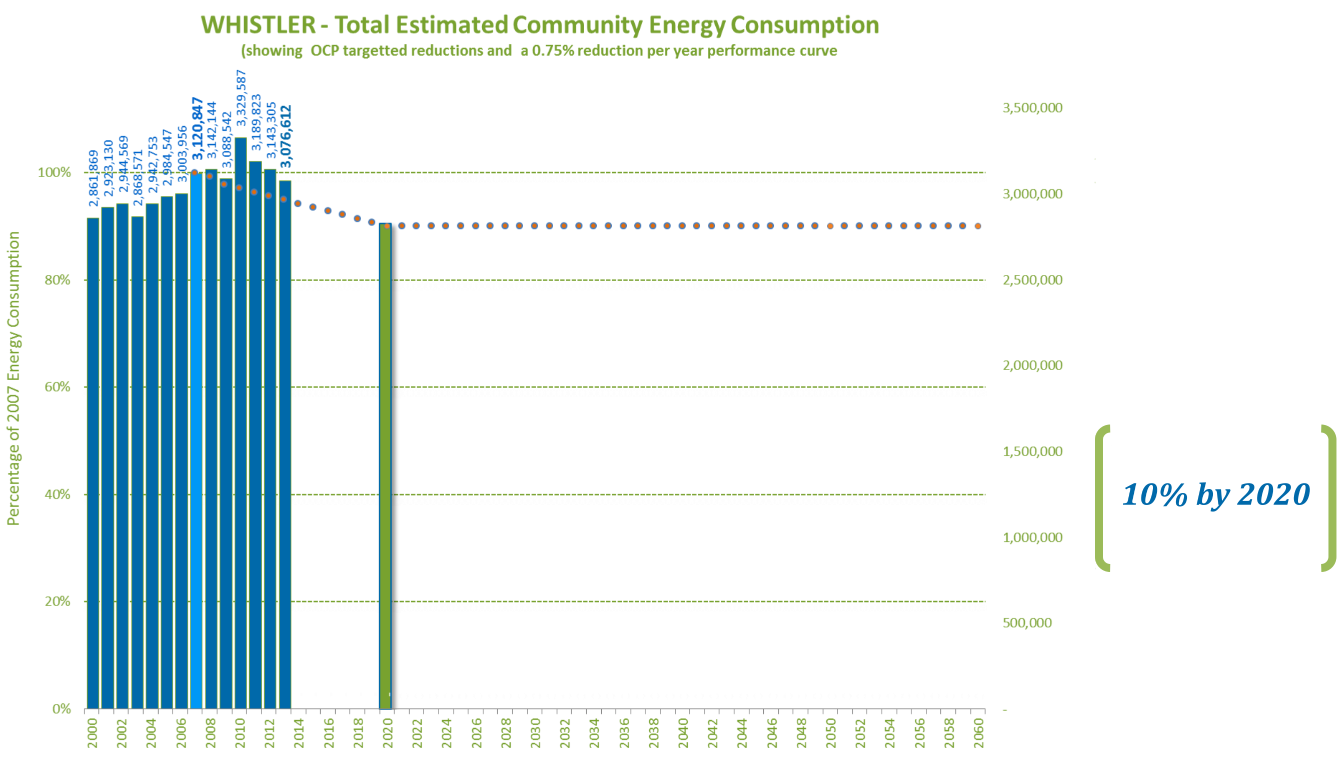
3.2 COMMUNITY ENERGY CONSUMPTION

Section 3.2 deals with energy consumption and energy expenditures at the community level. This section includes information on related targets, an overview of 2013 performance, as well as a short section on key associated insights and trends.

3.2.1 Community Energy Reduction Target

The 2013 update of the Whistler's Official Community Plan (OCP) includes the Objective: '*Make Energy Conservation the Core Strategy and Highest Priority for Achieving Our Greenhouse Gas Emission Reduction Goals'*. To this end, the 2013 OCP Update also includes the adoption of a community-scale energy reduction target. The 2013 OCP text includes the following, "***The municipality will lead a community-wide effort to reduce total energy consumption to a level 10% lower than 2007 by 2020***".

This policy introduces Whistler's first comprehensive energy reduction target – and one of the first by a local government in BC. Similar to the chart in Section 3.1.1 above , if it is assumed that this energy reduction target will achieved at a consistent pace over the next decade, this target translates into a 0.75% annual energy consumption reduction over the target period (2011 – 2020). A visual presentation of this rate of reduction is included below for clarity.



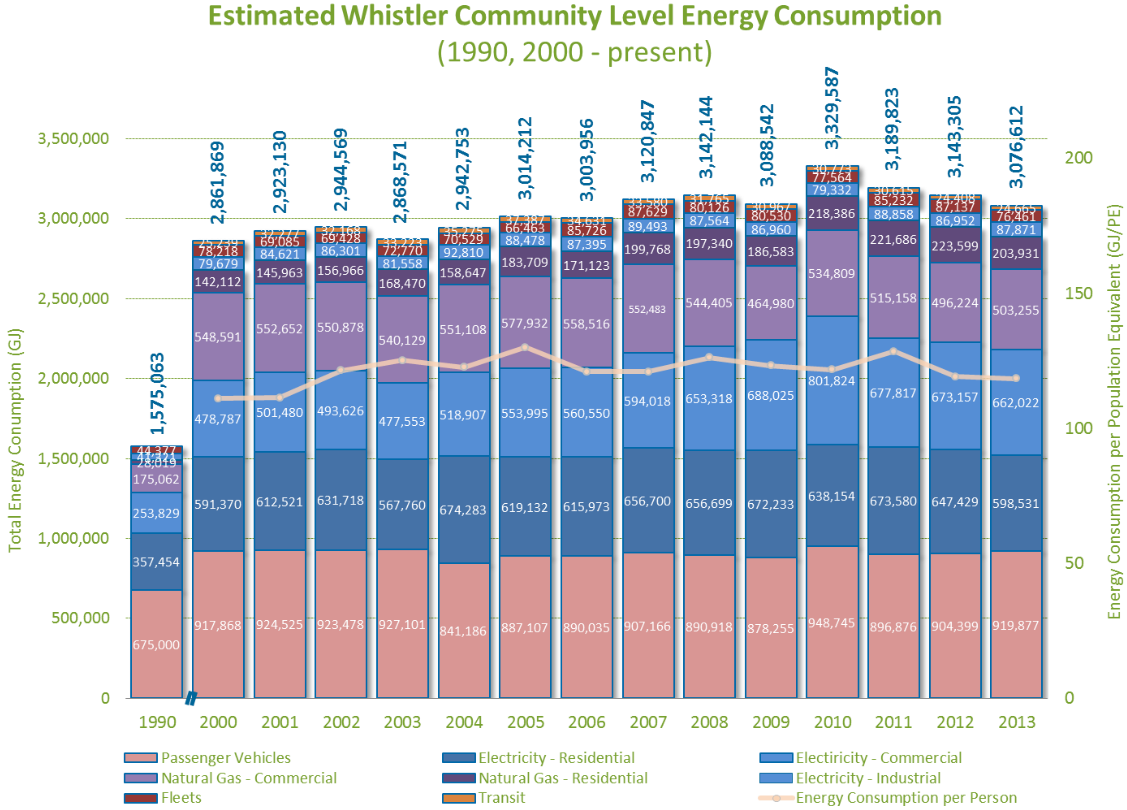
As evidenced in the chart above, historic energy consumption has not followed the same encouraging trajectory as community GHG emissions during the period between 2007 and 2013. **The 2010, 2011 and 2012 energy consumption levels were the highest three years ever recorded in Whistler.**

Total Whistler energy consumption is approximately 110,000 GJ higher than target curve levels for 2013.

3.2.2 Community Energy Consumption Performance

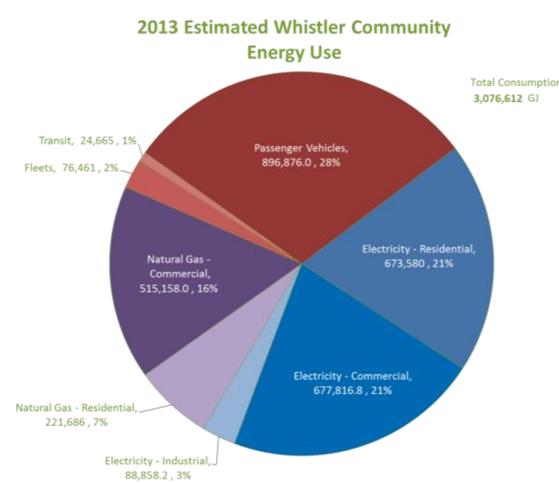
Energy consumption in Whistler includes consumption from stationary sources (buildings and infrastructure), as well as mobile sources (passenger vehicles, fleets, and transit). Total community energy consumption in 2013 was estimated to be **3.07 million GJ** (down 1.42% from 2007 levels, and 2.1% below 2012 levels).

Energy consumption per population equivalent has remained relatively steady over the last few years, with 2013 showing a small improvement over the 10 year average.



To sum, 2013 total energy consumption is higher than the 10 year average and the current trend suggests that meeting our 2020 is unlikely. There is however some cause for optimism as year over year consumption is showing signs of modest improvement, and per population equivalent levels have improved over each of the last two years.

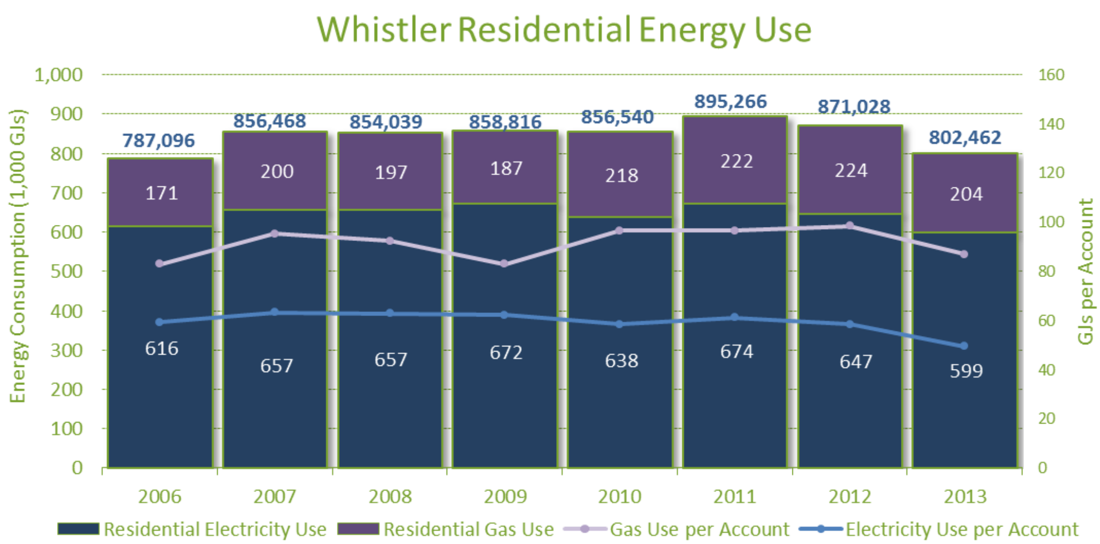
Electricity is the most prevalent type of energy consumed in Whistler at 45% of the total consumption (unchanged from previous years), followed by vehicle fuels (~30%), and natural gas at approximately one quarter of total consumption. It is worth noting that due to the fact that different energy sources have differing carbon content – GHG emissions are much more heavily associated with consumption of fossil fuels (i.e. gasoline, diesels and natural gas). This fact accounts for the differences in relative proportions depicted in this chart as compared the similar chart presented in Section 3.1.2.



Whistler Buildings – Energy Consumption

Total energy consumption across Whistler's building sector is presented in the following two charts.

Residential Building Energy Consumption



Residential electricity consumption decreased in 2013 in both total terms, as well as on a per account basis. Total 2013 residential energy consumption is the lowest since 2006 at 802,462 GJ (down 7.5% versus the average of the previous 5 years). This change reflects decreases in both electricity and gas consumption across the residential sector and may be partially explained by the fact that 2013 was marginally warmer than the average of the previous 5 years[9].

Residential Natural Gas

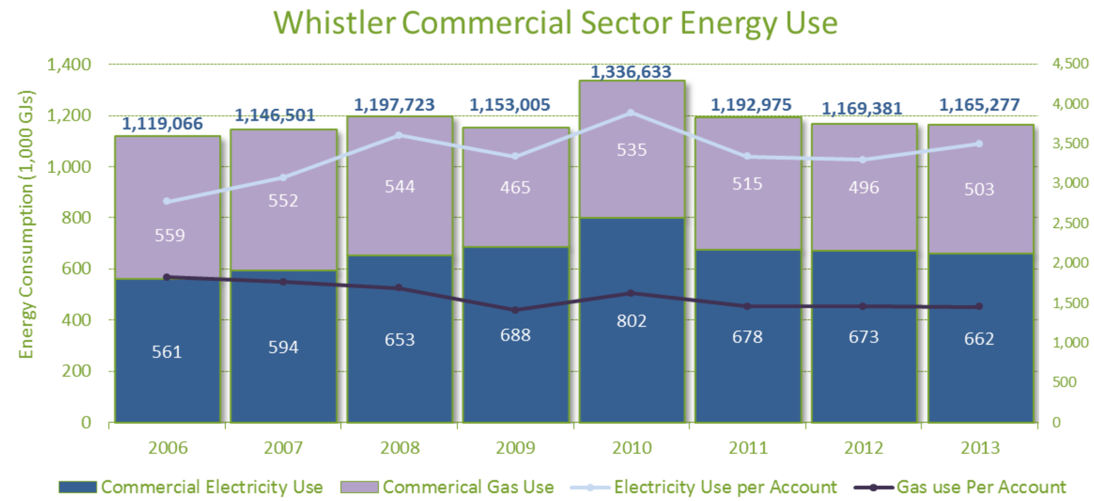
2013 natural gas consumption per account remains near the 10 year average consumption levels (-4% vs. 10 year average). Currently, the data does not seem to suggest is that Whistler homes served by natural gas are, on average, becoming meaningfully more efficient over time.

Residential Electricity

Residential electricity consumption per account decreased in 2013 to one of the lowest levels in the last decade. Curiously, this benchmark seems to be driven as much by an 8% increase in the number of residential accounts as it is the 7% reduction in residential electricity reduction observed in 2013. Further follow-up with BC Hydro regarding residential account tracking and reporting is underway by municipal staff.

[9] 2013 HDDs was 2% lower than the average of the previous 5 years.

Commercial Building Energy Consumption



Total energy consumption, as well as energy consumption per commercial account, has remained relatively stable over the last five years (with the single exception of 2010). This fact is strongly suggestive that fuel switching (i.e. space hating loads moving to electricity from propane) and lower carbon source fuels (previously discussed) have been the primary driver of the GHG reductions demonstrated by this sector over the past 5-8 years.

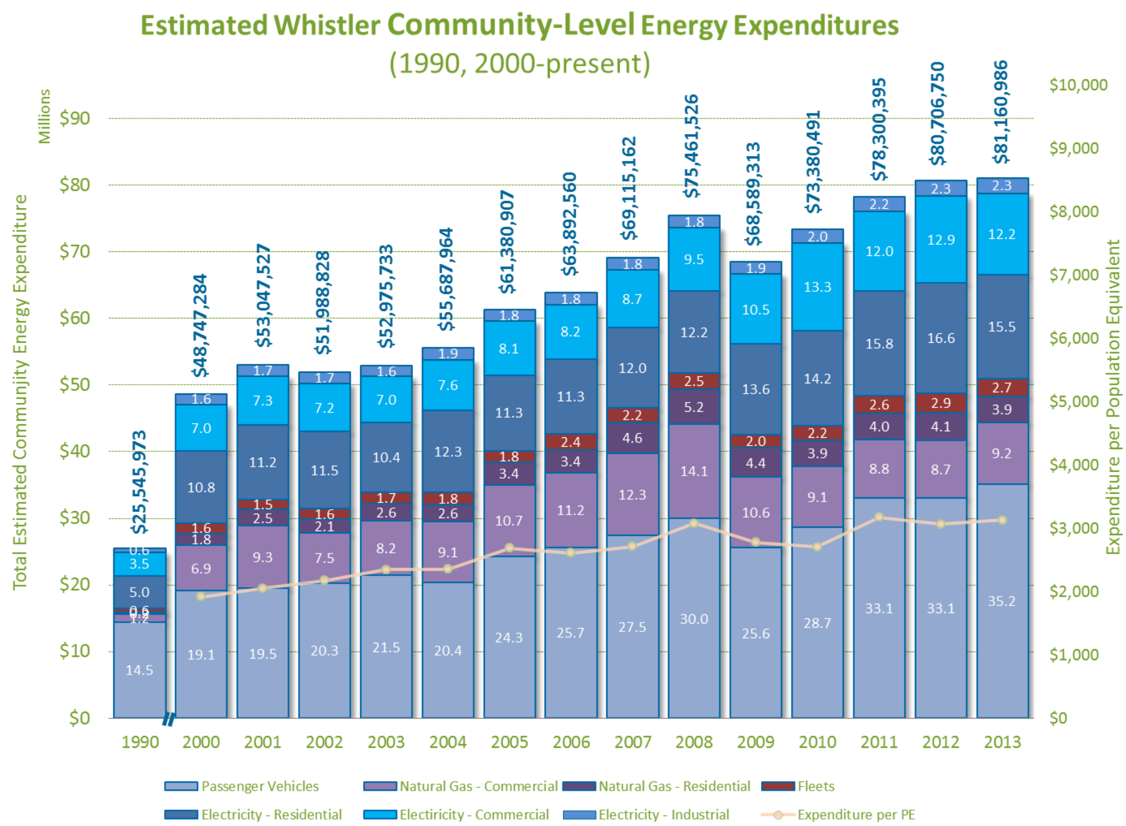
Commercial Natural Gas & Electricity

The period from 2003 through to 2008 saw a significant shift in commercial energy consumption trends. This period saw significant decreases in propane use at the same time as commensurate increases in electricity use across the sector. In sum, energy consumption was little changed, but the 'fuel-shift' did lead to lower overall GHG emissions. The primary reason for this shift was likely attributable be the increased use of hybrid electric boilers for space and water heating loads in the large hotel sector (i.e. a fuel shift from natural gas/propane to electricity for space and water heating loads in the commercial sector).

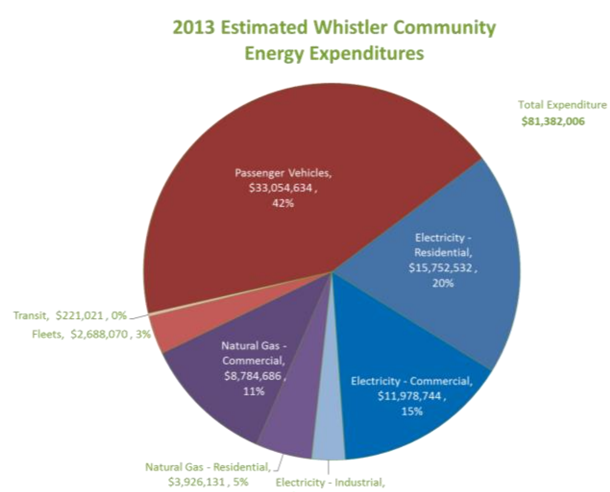
With pending changes in natural gas pricing expected in 2015, relative fuel share dynamics and fuel-shifting in the opposite direction in particular, will be important trends to monitor in future reports.

Energy Expenditures

The estimated annual collective energy expenditure within Whistler[10] has increased by more than $30 million since 2000 and 2013 ($81 million vs. $49 million). Increases in energy rates continue to outpace the rate of inflation so it is expected that the collective community energy expenditure will continue to rise faster than our collectively ability to pay for it – a trend that underscores the importance of increasing both energy conservation and energy efficiency across the community.



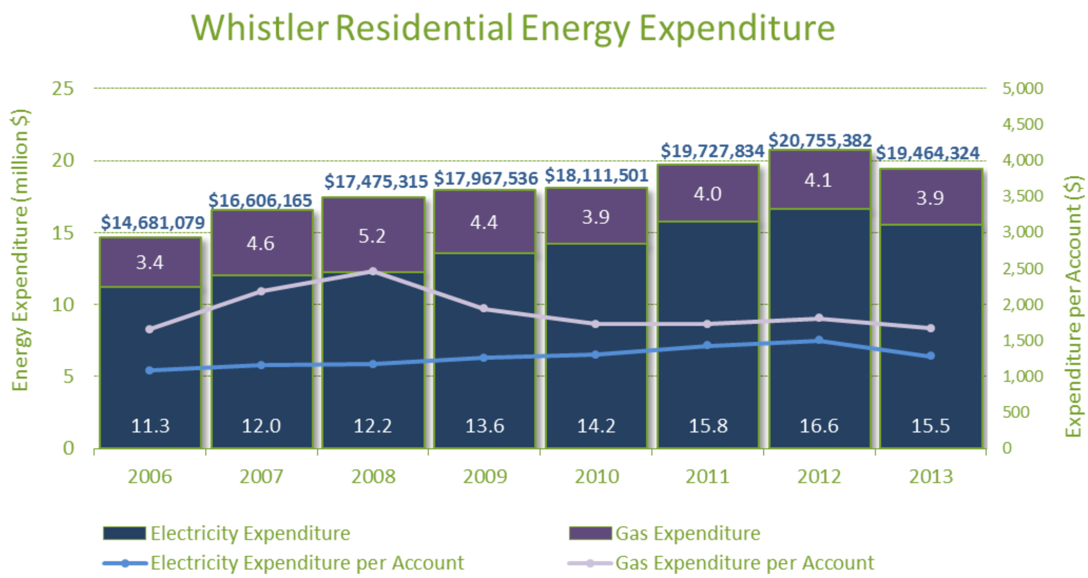
Energy expenditures for buildings (both commercial and residential) have remained relatively constant since 2008 at approximately $42-43 million/year with electricity expenditures increasing by a factor nearly equal to the drop in natural gas expenditures. Fuel prices for gasoline have increased markedly over the past two years resulting in significant increases in total passenger vehicle estimated expenditures (2013: $35M vs. 2009: $25.5 M).



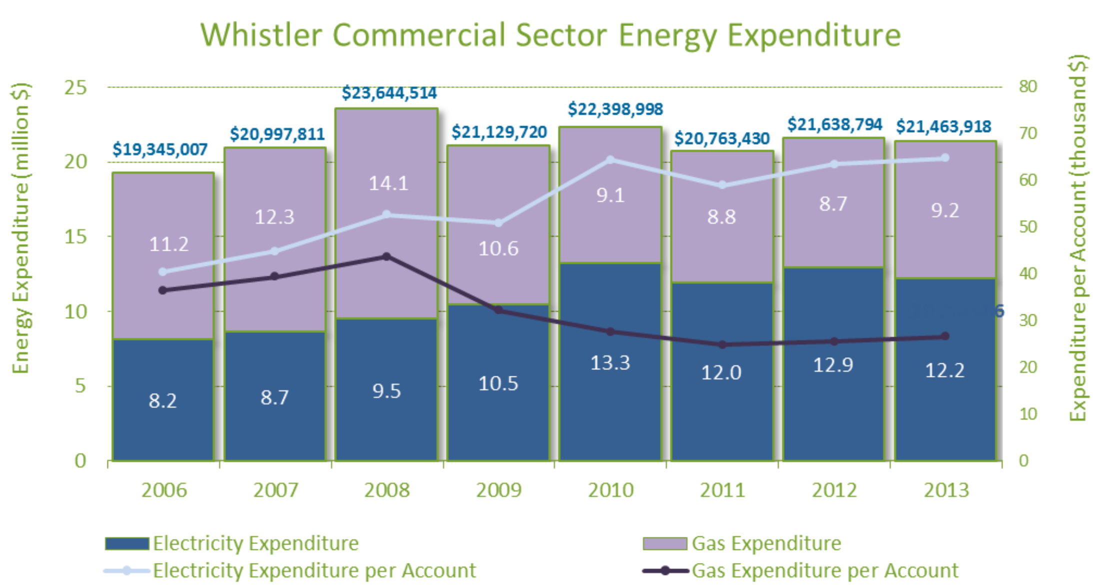
[10] Note that this number includes an estimate of the consumption of gasoline for all vehicle kilometres travelled within Whistler's municipal boundaries. As such it includes a portion (i.e the portion within municipal boundaries) of the incurred costs of energy consumption associated with both visitors arriving by automobile, as well as commuting employees from neighbouring communities.

The final two charts in this section present the five-year trend in cumulative energy expenditures across Whistler's building sector. Despite the decrease in the price of natural gas (versus propane) in 2009 and 2010, total expenditures in the residential sector continues to demonstrate an upward trend. Residential expenditures now exceed $19 million/year, and commercial slightly above $21 million.

Rate escalation expected electricity over the next number of years will average 5% per annum. However, given the recent British Columbia Utilities Commission (BCUC) amalgamation ruling, it is expected that a 30-40% reduction in local natural gas pricing will begin a three year-phase in process in early 2015.



Residential building expenditures continue to climb on a three year rolling average basis, but did decrease year over year for the first time in a decade due to the reduction in total energy consumption across this sector in 2013.



Versus 2012, total commercial energy expenditures remained relatively constant in 2013, however commercial building energy expenditures increased in 2013 on a per account basis for both electricity and natural gas (+3.4%).

3.2.3 Key Community Energy Consumption & Expenditure Performance Insights

Total Energy Consumption

- Total community energy consumption decreased each of the last three years. Despite this positive performance 2013 was still the 4th highest level of energy consumption since detailed record keeping began.
- Community energy consumption trends are not currently on track to meet OCP targeted levels
- Current community energy consumption levels (3.1 million GJ/yr) are approximately 16% higher than the recommended forecast in the RMOW's 2003 Integrated Energy Plan.

Residential Energy Consumption

- 2013 residential energy consumption decreased in both total terms as well as on a per account basis.
- 2013 was the lowest level of residential energy consumption since 2006 – this trend is driven primarily by lower levels of electricity consumption in the sector as gas consumption remains near the 10 year average.

Commercial Consumption

- 2013 commercial consumption levels have remained steady year over year and remain slightly above the 10 year average
- There has been a marked shift from natural gas consumption to electricity consumption in the commercial sector that began in 2008/09.
- If adjusted for HDDs, PE, & GFA energy intensity levels have increased year-over-year, and remain near the 10 year average.

Passenger Vehicles

- Despite increases in vehicle fuel efficiencies, estimated energy consumption associated with passenger vehicles has not changed significantly since 2000[11] – this is the primary reason that GHGs within this sector have lagged so far behind all other sectors with respect to meeting our reduction targets.

Total Energy Expenditures

- Rising mobile fuel and electricity rates combined with rising consumption levels have combined to ensure that total energy expenditures are at the highest levels ever in Whistler ($81M/yr)
- Gasoline expenditures associated with passenger vehicle use is now at the highest level ever recorded (~$35 M).
- Declining gas rates contributed to lower (but rising) total gas expenditures over the years since the conversion to natural gas from propane (now at $9.2 M/yr)

Residential Expenditures

- 2013 residential electricity expenditures decreased by ~$1M versus 2012, but still remain one of the highest years on record ($15.5M/yr)
- Residential gas expenditures moderated to $3.9M/yr from 2012 levels ($4.1M), – at least partially related to the warmer winter of 2013

[11] It is also worth noting that the failure of the RMOW traffic counter near Blueberry has created staff challenges for accurately estimating traffic volumes (and consequently mobile fuel consumption and emissions) during 2010.

Commercial Expenditures

- Total 2013 commercial energy expenditures remained relatively constant at 2012 levels ($21.4M/yr)
- 2013 commercial electricity expenditures were the third highest on record, and are expected to increase in 2014 due to increasing rates
- Due to increased consumption, gas expenditures increased year-over-year to the highest level post conversion ($9.2M)

Looking Ahead

- There is some of increasing energy efficiency in the residential sector but more years of consistent trend data is required to confirm. Opportunities exist to catalyze further gains in this sector.
- The commercial sector has made some progress toward decreased energy intensity across its collective inventory. 2013 demonstrated a significant 'pause' in the gains achieved in this sector over the preceding 4-5 years. Further energy reduction initiatives are required to keep this sector on track to meeting our 2020 goals.
- Passenger vehicle trends have fallen far behind targeted levels of reductions – this fact represents a potentially significant opportunity to target future improvements.

4 CORPORATE PERFORMANCE

Initiated as part of the 2004 RMOW Integrated Energy, Air Quality and GHG Management Plan, detailed energy and emission inventories are now compiled, assessed and presented to key operations staff across the organization on an annual basis. Energy consumption, emissions and expenditures are tracked independently by fuel type (gasoline, diesels, electricity and natural gas) for each division, department and workgroup across all corporate operations.

The primary purpose of these inventories is to provide the basis for identifying energy conservation opportunites, assessing energy performance across key municipal building assets, and structuring business case assessements for potential upgrades and efficiency retrfofits. Additionally, these inventories are designed to satisfy Council-adopted commitments to external programs such as the Partners for Climate Protection program and the BC Climate Action Charter, as well as the internal commitments included within the RMOW Integrated Energy Plan, the RMOW Carbon Neutral Operations Plan, and the Whistler Offical Community Plan.

As a means of comparison to community-wide emissions, RMOW corporate emissions represent approximately 1.3% of the total community estimated emissions. Despite this relatively small share of overall emissions, the RMOW has recognized and accepted the need for leadership in carbon management across the organization.

Further, the ongoing upward pressure on energy rates (energy rates are rising 3-5 percentage points faster than the rate of inflation) makes it clear for all organizations that energy consumption should be tracked, managed and ultimately reduced – quite simply, at current consumption levels, future costs are likely to outstrip future budgets.

4.1 KEY CORPORATE INSIGHTS and SUMMARY

13% below 2012

Total corporate GHG emissions in 2013 were **1,453 tCO2e**, which is **13% lower than the 2012 level**, and approximately **35% below the benchmark 2008 level** (the reference year for RMOW target setting).

Corporate emissions are 22% below the emissions target for 2013, which is 1,857 tCO2e.

35% below 2008

22% below 2012

24% below 2008

Infrastructure Services
reduced emission levels by 22% year over year (YOY), which puts current levels 24% lower than 2008 benchmark levels

0% below 2012

55% below 2008

Corporate and Community Services
emission levels remained constant with a 0% change YOY, which means that current levels remained at 55% below their corresponding 2008 benchmark level.

7% below 2012

33% below 2008

Resort Experience (REX)
decreased annual emissions by 7% in 2013, and is now approximately 31% lower than 2008 levels.

GHG emissions have markedly decreased compared to the base year, and the trends in energy consumption and expenditures are still positive, though not as strong as the GHG performance levels:

Total Corporate Energy Use

6% below 2012

8% below 2008

Total Corporate Energy Expenditures

5% below 2012

2% below 2008

4.2 CORPORATE GREENHOUSE GAS EMISSIONS

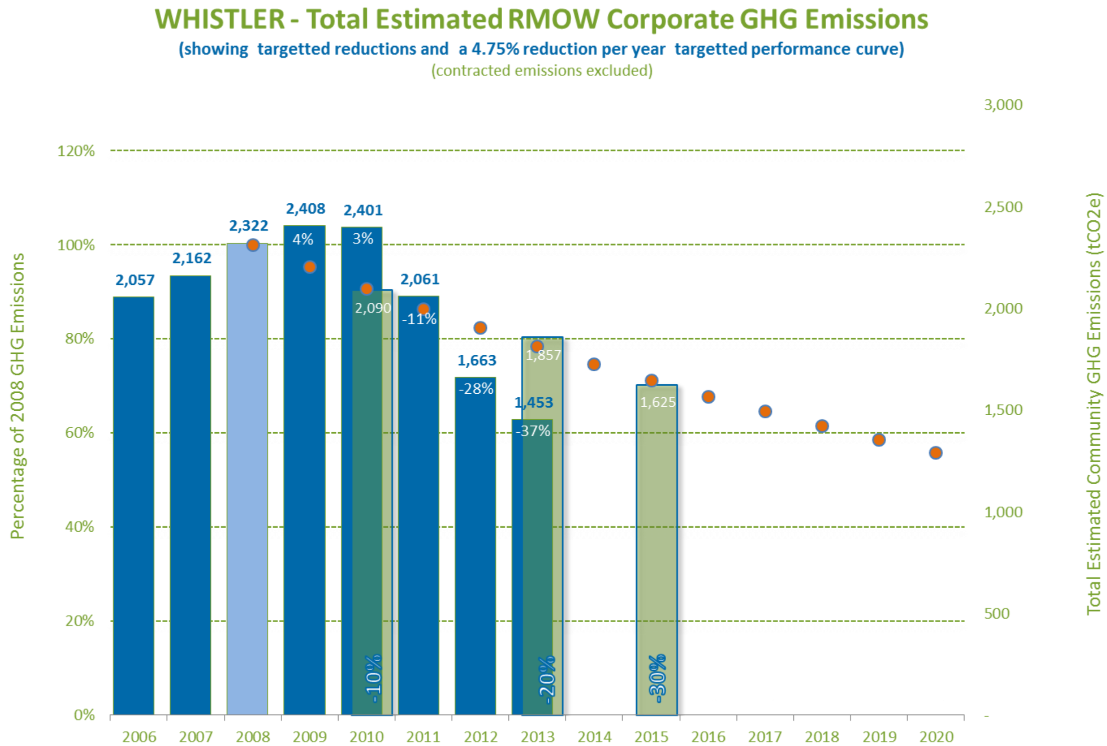
Section 4.2 deals specifically with greenhouse gas emissions associated with RMOW corporate operations, this section includes information on related targets, an overview of 2013 performance results, as well as a short section on key associated insights and trends.

4.2.1 Corporate GHG Reduction Targets

The RMOW's Carbon Neutral Operations Plan sets the targets for total corporate GHG reductions as follows:

• 10% by 2010	• 20% by 2013	• 30% by 2015	(all relative to 2008 levels)

The following chart presents these targets graphically (light green bars), the historic corporate emissions levels (blue bars) as well as an indication of the annual reductions that would be required to achieve the prescribed targets using a constant rate of improvement model at approximately -5% (orange dots).

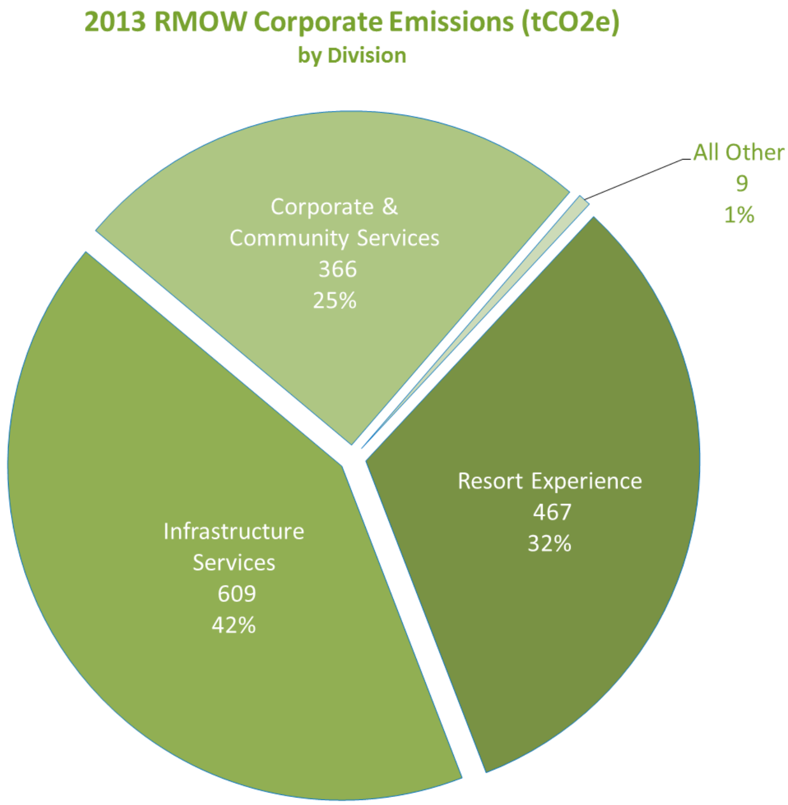


As demonstrated in the chart above, RMOW corporate emissions have reduced substantively over the past three years, and currently sit ~400 tCO2e below the 2013 target.

4.2.2 Corporate GHG Performance

Total corporate GHG emissions in 2013 were **1,453 tCO2e**, which is 13% lower than the 2012 level, and 37% below the benchmark 2008 level (the reference year for RMOW target setting). As demonstrated by the previous chart, this level of emissions is ~22% lower than the emissions target for 2013. This reduction is mainly due to a decrease in BC Hydro's emission factor for electricity, as well as reductions in consumption across the organization.

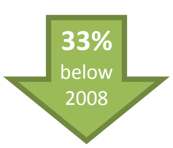
On a division-by-division basis, the relative emissions footprint of corporate operations is primarily associated with the following three divisions: (42%) **Infrastructure Services** (which includes roads crews, solid waste systems, the water utility as well as the sewer utility); (25%) **Corporate and Community Services** (including bylaw, fire, Meadow Park Sports Centre, and other recreation programs); and (32%) **Resort Experience** (which includes village maintenance operations, horticulture/turf/irrigation crews, parks and trails, as well as facility construction and maintenance operations). The relative contributions from each division are shown below.



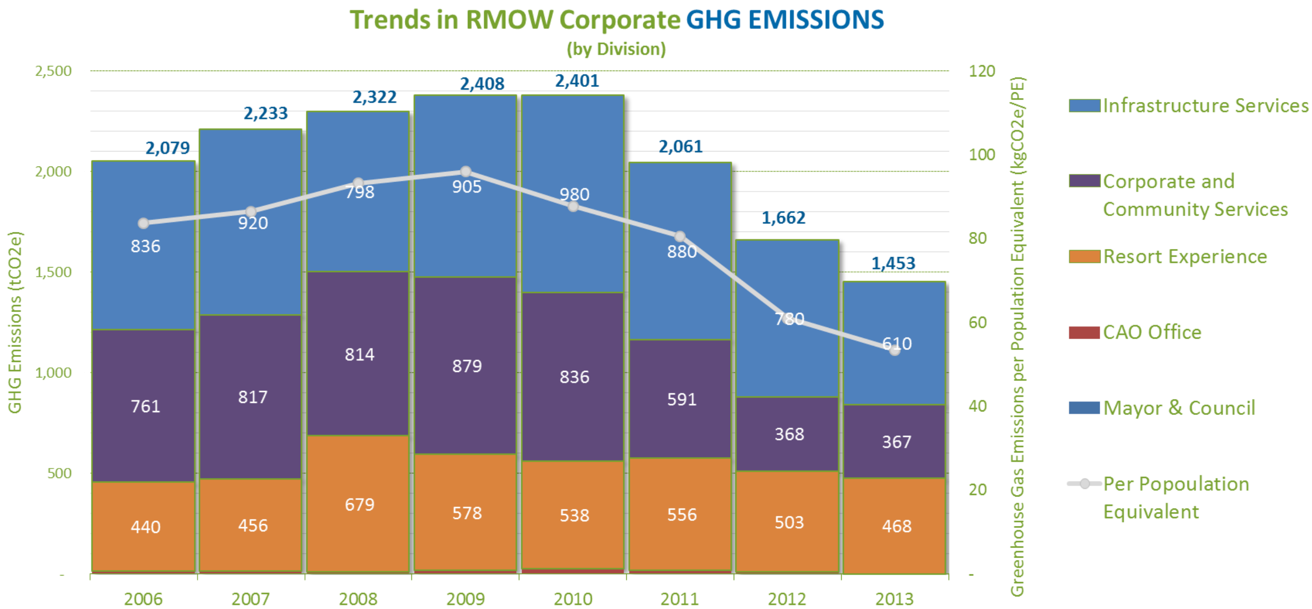
Corporate GHG emissions by organizational Division are presented below.

- **Infrastructure Services**
  reduced emission levels by 22% year over year (YOY), which puts current levels at almost 24% lower than 2008 benchmark levels

- **Corporate and Community Services**
  emission levels remained constant with a 0% change YOY, which means that current levels remained at 55% below their corresponding 2008 benchmark level.



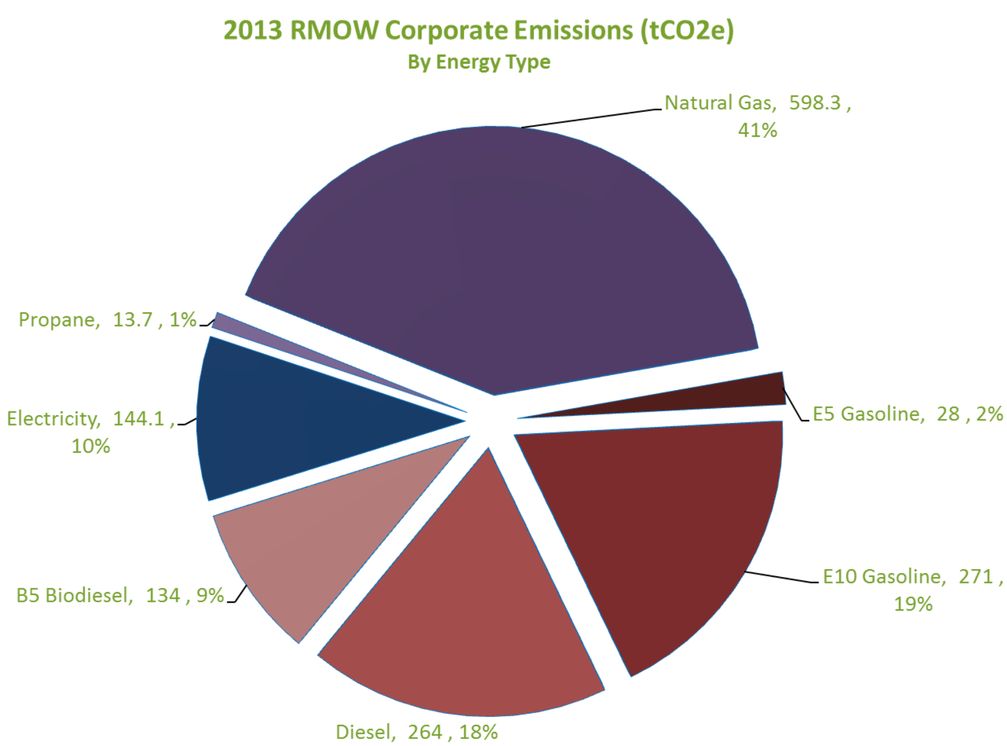
- **Resort Experience** (REX)
  decreased annual emissions by 7% in 2013, and is now approximately 33% lower than 2008 levels.



As seen in the chart above, the primary source of 2013 reductions was the Infrastructure Services division.

Distribution by Fuel Type

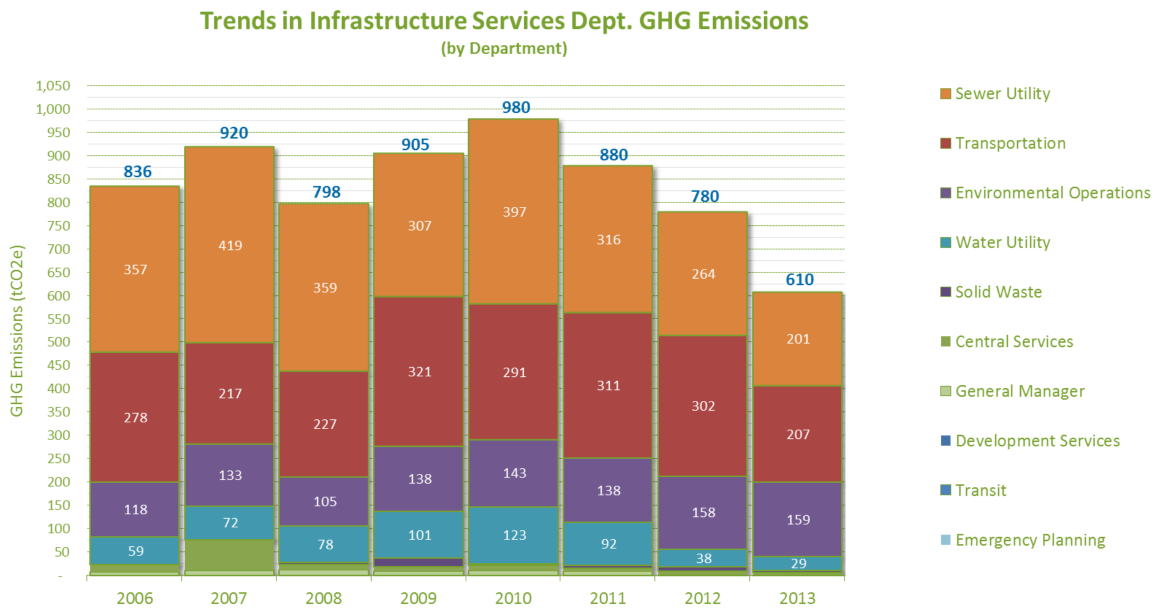
Seen as a whole, corporate emissions come from two primary sources – 48% from mobile sources (gasoline and diesels), and 52% stationary sources (natural gas and electricity). The relative shares of each of these energy types are presented below.



4.2.3 Divisional Trends

Infrastructure Services

Changes in Infrastructure Services emission levels over the last eight years are presented below:



Infrastructure Services' GHG emission trends by key functional area:

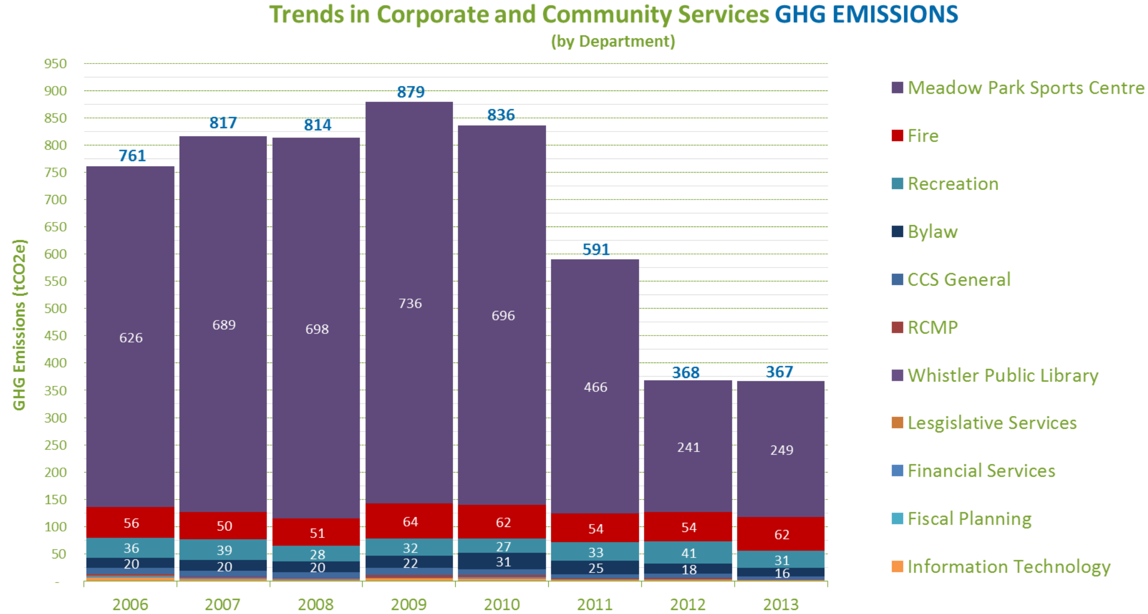
2013	Sewer	Transport.	Env. Ops	Water	TOTAL
YOY	-24%	-31%	1%	-22%	-22%
vs. 2008	-44%	-9%	51%	-62%	-24%

Key Insights

- WWTP emissions have decreased on a year over year basis and are now 158 tCO2e (44%) lower than the 2008 benchmark level.
- Mobile emissions from the transportation department saw a significant year over year decrease of almost 100 tCO2e. This is at least partially the result of a lower than average snow clearing year, and will likely be subject to increases in future years.

Corporate and Community Services

Changes in Corporate and Community Services emission levels over the last eight years are presented below:



Community Life GHG emission trends by key functional area:

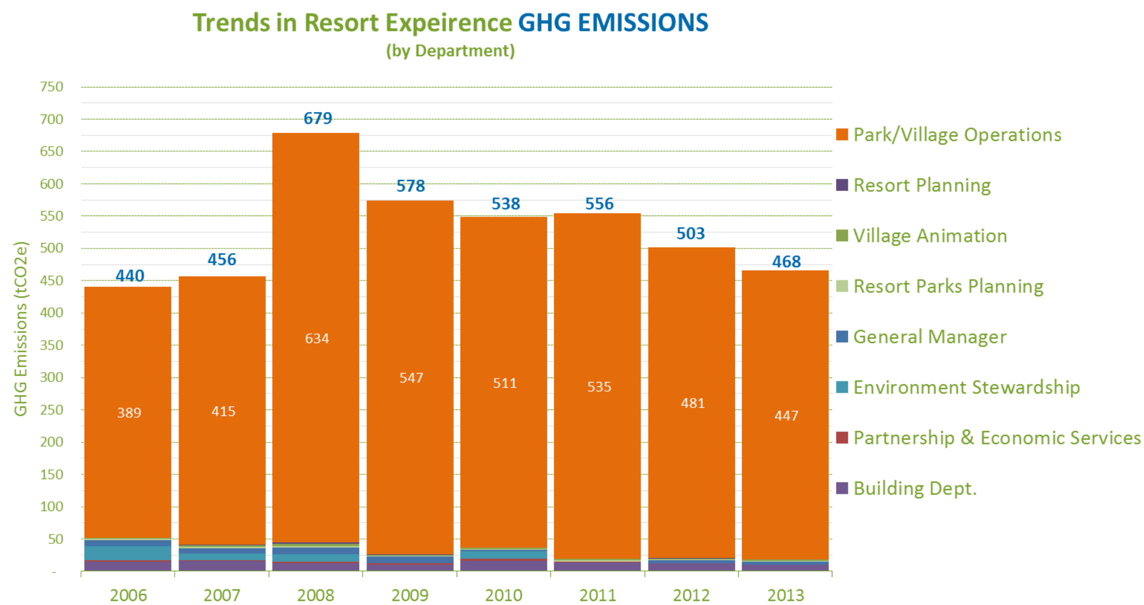
2013	MPSC	Fire	Rec	Bylaw	TOTAL
YOY	3%	16%	-25%	-14%	0%
vs. 2008	-64%	23%	8%	-21%	-55%

Key Insights

- The primary driver of reduced emissions within this division was MPSC over the past few years. Though year over year emission levels have risen by 3%, 2013 MPSC emission levels were still 449 t CO2e lower than 2008 benchmark levels.
- Fire and Recreation depts. have each increased versus 2008 levels, however the scale of these changes are small in total terms (<10 tCO2e in each case).

Resort Experience

Changes in REX emission levels over the last six years are presented below.



As the emissions from the REX division are overwhelmingly associated with the Parks/Village Operations functional area, a more detailed breakdown is included in the table below.

Park/Village Operation dept. GHG emission trends by key functional area are demonstrated below along with the total REX trends:

2013	P/Vops	V.Maint.	Land S	Parks &T	FC & M	TOTAL
YOY	-7%	17%	18%	-28%	-11%	-7%
vs. 2008	-29%	17%	34%	-17%	-30%	-31%

Key Insights

- Facility Construction & Maintenance emissions represent the largest share of this division, so their reductions of 35 tCO2e year over year and 120 tCO2e versus 2008 levels contribute the most to the total reductions for the division.
- Increases in emissions in Village Maintenance and Landscaping are relatively small, with no more than ~10 tCO2e increases year over year in either department.

4.2.4 Key Corporate GHG Emission Performance Insights

Overall

- RMOW corporate emissions are down 13% YOY and are now 35% lower than the 2008 benchmark year, which is 22% lower than the emissions target for this year.
- These large reductions in GHG emissions are largely due to upgrades at Meadow Park Sports Centre, as well as a decrease in BC Hydro's emission factor for electricity. However, we have also seen a reduction in consumption across departments, specifically in Infrastructure Services.

Divisional Insights

- Infrastructure Services achieved 11% YOY reductions versus 2012.
- Corporate and Community Services did not see a change in emissions versus 2012, however there has been a 55% decrease in emissions since the 2008 base year, mainly due to upgrades at MPSC.
- REX emissions decreased in 2013 by 7%, with the majority of this decrease coming from the decrease in the BC Hydro emissions factor.
- Municipal buildings with the lowest energy intensity of GHG emissions include the following: (all expressed as kgCO2e/ft2/year)
  - *Lost Lake Passivhaus: 0.07*
  - *Spruce Grove Field House 0.16*
  - *Whistler Public Library 0.32*[12]

4.3 CORPORATE ENERGY CONSUMPTION

Section 4.3 deals specifically with the energy consumption associated with RMOW corporate operations. This section includes information pertaining to energy consumption targets, an overview of 2013 performance levels , as well as a short section on key associated insights and trends.

4.3.1 Corporate Energy Consumption Reduction Targets

The RMOW does not currently have any formally adopted targets for corporate energy consumption.

The existing RMOW Integrated Energy, Air Quality and GHG Management Plan does, however include recommended corporate energy consumption targets for 'consideration' (pg 58). These recommended energy consumption targets for municipal operations are: year 2010 (64,000 GJs), and year 2020 (55,000 GJs).

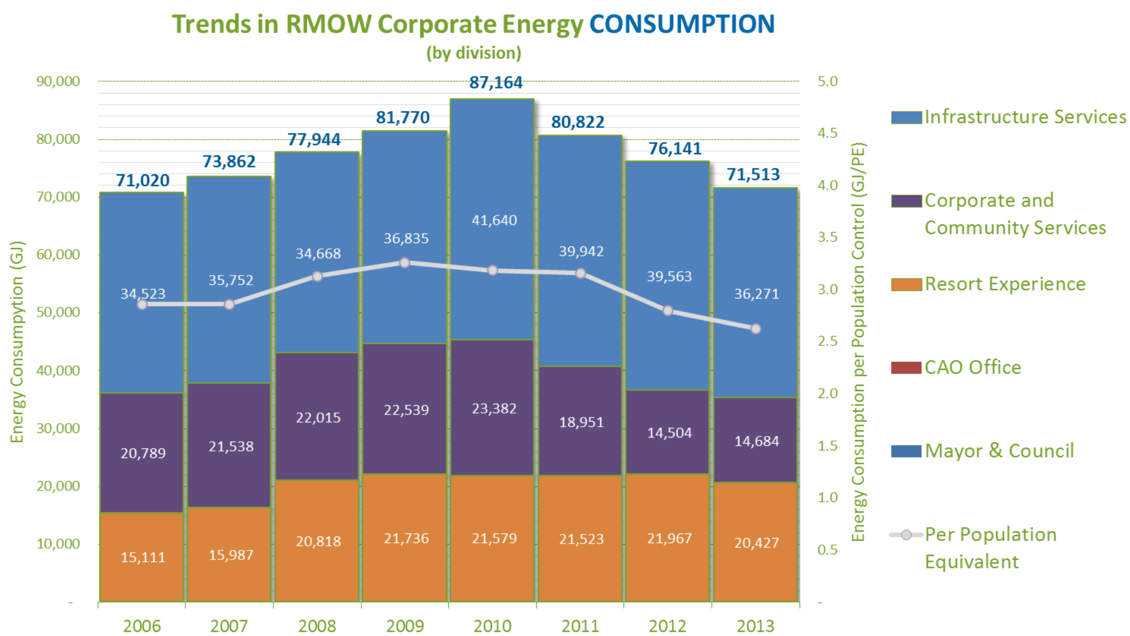
The RMOW Carbon Neutral Operations plan does not include formal targets but rather recommends ongoing commitment to energy conservation as both (a) the primary strategy for reducing corporate GHG emissions, and (b) an important means of controlling ongoing utility and fuel costs across corporate operations.

NOTE: the 2013 OCP includes a commitment to update the Community Energy & Emissions Plan every five years. When updated, this new community energy plan will include a community and corporate engagement process that should provide a suitable forum for the consideration of any future formalized corporate energy consumption targets for municipal operations.

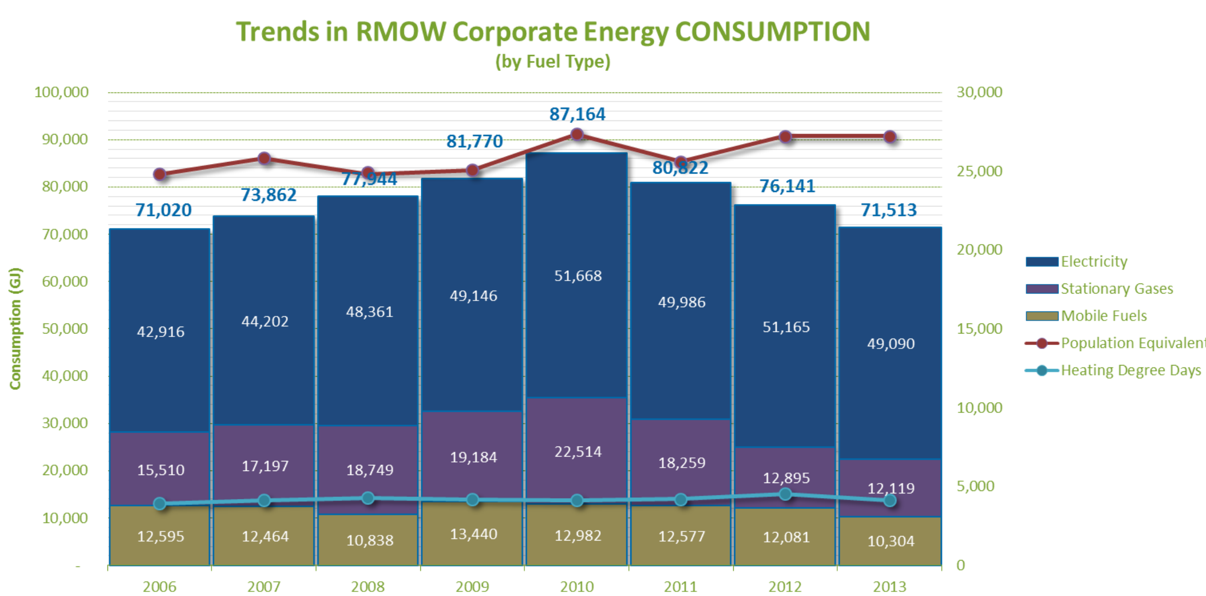
[12] For reference, MY Place emits 3.20 kgCO2e/ft2/year

4.3.2 Corporate Energy Consumption Performance

Total corporate energy consumption decreased in 2013 by 6% to **71,513 GJ/year**. This is still above the 2010 target recommended within the RMOW Integrated Energy Plan (64,000 GJ/year), and considerably higher than the upcoming 2020 target (55,000 GJ). The eight year trends in corporate energy consumption are presented below:

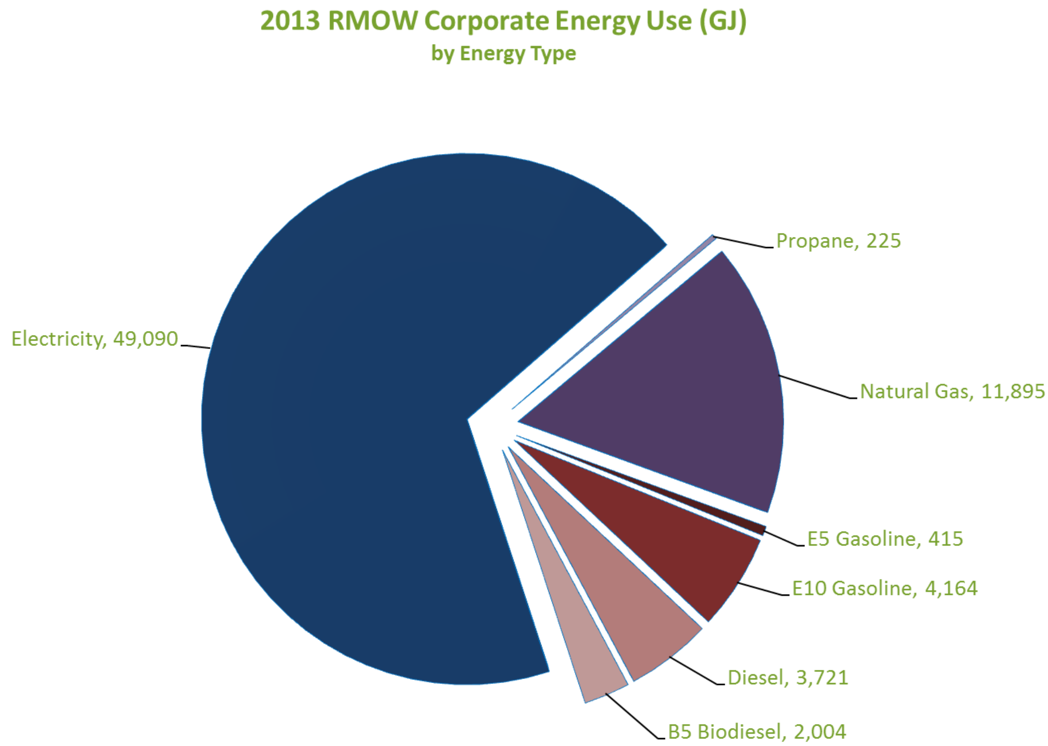


If the corporate energy consumption is subdivided by fuel type rather than by organizational division, the eight-year trends appear as follows:

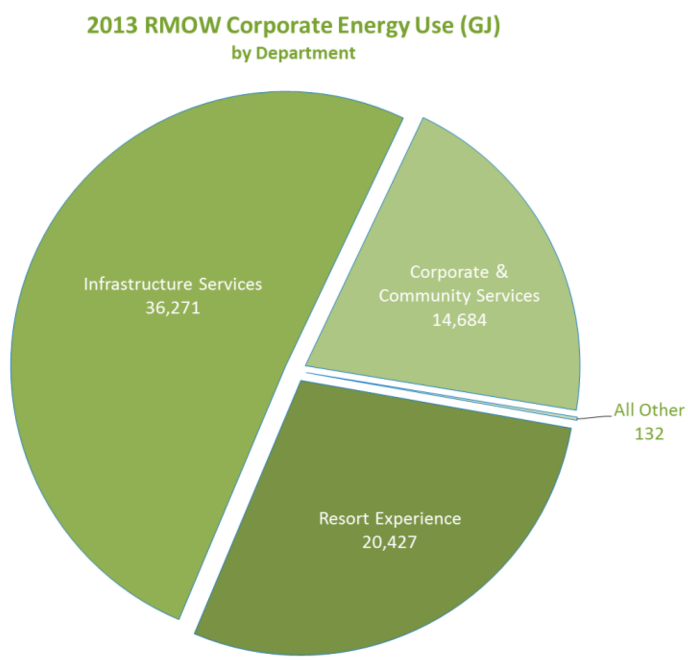


Electricity consumption makes up the greatest portion of total energy consumed across municipal operations at 69% of the total consumption, followed by natural gas (17%), and mobile fuels (14%).

A more detailed breakdown of 2013 corporate energy consumption, presented by energy type, is included below:



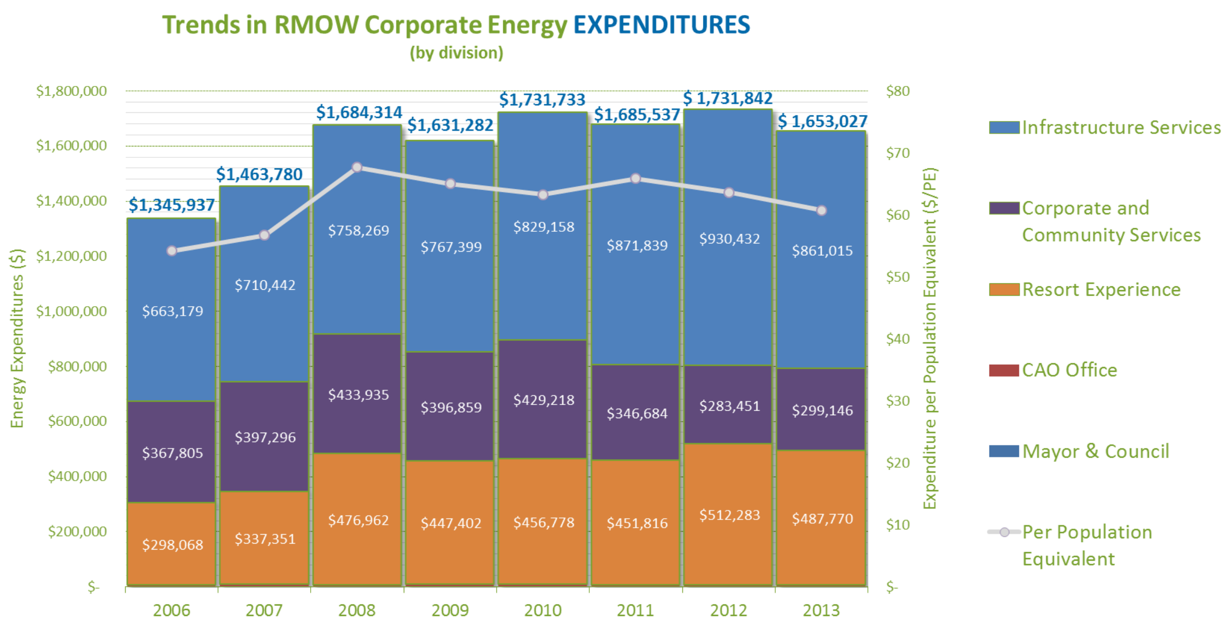
Finally, 2013 energy consumption by division is included for reference below:



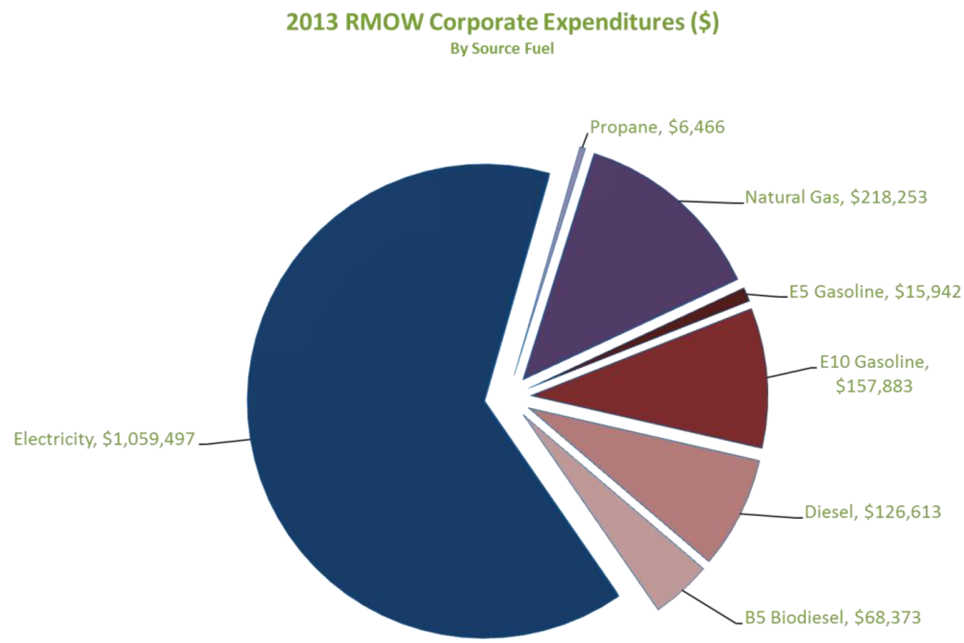
Corporate Energy Expenditures

Total 2013 corporate energy expenditure decreased by approximately 5% compared to 2012 expenditures, to a total of $1.65 million in 2013. Note that the reduction in expenditures is less than the reduction in consumption. Further conservation will be the key to controlling future expenditures at a level consistent with the current costs given the ongoing trends in rate inflation (utility rate inflation continues to consistently exceed the Consumer Price Index (CPI)).

The eight-year trends in total corporate energy expenditure are presented below:



2013 corporate energy expenditures by fuel type are presented in the following chart:



4.3.3 Performance of Key Corporate Buildings

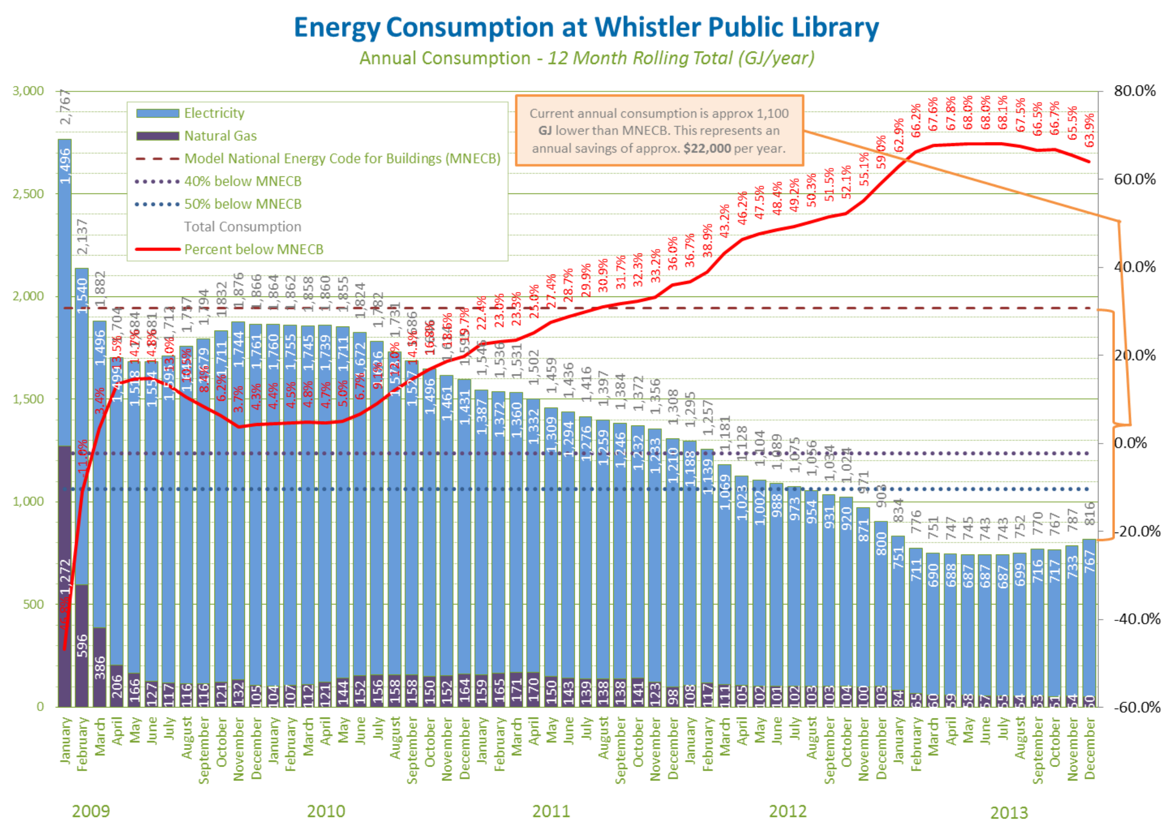
Across its operations, the RMOW has made investments into energy efficiency and green building technologies for more than a decade. The benefits of these initiatives vary according to the project, but include reduced GHG emissions, reduced energy consumption, decreased energy expenditures, healthier buildings and decreased materials and resources within the construction process. For the purposes of this report, an update on energy consumption, expenditure and emissions is provided for key buildings across RMOW operations.

Whistler Public Library

Whistler Public Library (WPL) opened in 2008 as Whistler's first LEED Gold certified building. The building has won numerous awards, including BC Wood Works award for innovative hemlock construction methods, as well as the Lieutenant-Governor Award in Architecture.

The most recent 12 months of energy performance at the WPL indicates that the building is operating at more than 64% better than the Model National Energy Code for Buildings (MNECB). At current levels of performance (831 GJ/yr.), annual utility costs are running approximately $22,000 less than had the building been built to typical building code standards (MNECB).

2013 energy costs at WPL totaled $16,732 ($0.97/ft2/yr; 144 kWh/m2/year). Annual GHG emissions from WPL were 5.6 tCO2e. Rolling 12 month consumption totals since 2009 are presented below, contrasted with Model National Energy Code for Buildings standards.



Spruce Grove Field House

In 2001, the RMOW chose to install a geo-exchange heat pump instead of a gas furnace at SGFH. The incremental cost of the GHX equipment was $126,350, however the system was forecast to reduce operating costs by $21,800/year thereby producing an expected simple pay back (SPB) period of 5.8 years and an internal rate of return (IRR) on invested capital of 16.5%.

Actual annual reductions in energy costs have averaged $20,700 since the installation of the GHX equipment, producing a SPB of 6.1 years (IRR of 15.5%). As of 2008, the incremental cost of the GHX system had been fully recovered and annual utility savings continues to run at approx. $20,000/year versus the forecasted gas-powered furnace baseline. 2013 annual energy costs at SGFH were $9,593 ($1.60/ft2/year; 164 kWh/m2/year). Annual GHG emissions from SGFH were 0.97 tCO2e (emissions with a gas furnace were forecasted at 56-67 tCO2e/year).

Meadow Park Sports Centre

In 2010, a $930,000 energy system upgrade was installed at MPSC. The new system incorporated both evacuated tube solar technology and a vertical loop geo-exchange bore field. The system design employs the solar panels to pre-heat the domestic hot water loads directly, while the heat pumps draw heat from the ground (70 boreholes at 155' depth) to serve the various pool loads within the building (lap pool, leisure pool & hot tub).Utility cost reductions that were anticipated as a result of these upgrades were estimated at $115,000 - $130,000/ year (SPB: 6.5 – 7.8 years; IRR: 10% - 13%), with annual GHG reductions forecasted at 300-350 tCO2e/year.

While the finalization of the project construction and commissioning phases was delayed until mid-2011, the system is now fully functional and working well. In 2013, annual energy expenditures at MPSC were $230,329, a small increase from 2012 expenditures, but still 38% ($143,000/yr) lower than 2008 base year expenditures. Note that year over year increase is due to a 4% increase in energy consumption, coupled with an increase in electricity rates.

Lost Lake PassivHaus

The $1.5 million project was the result of partnership between the RMOW, the Austria Passive House Group (APG) and Sea-to-Sky Consulting. A grant from the Whistler Blackcomb foundation was also instrumental to the realization of this project. The Passive House (PH) approach to construction uses radically improved building envelope design and components to achieve dramatic reductions in building energy consumption of approx. 90% compared with standard Building Code construction. This energy usage translates into has less than half of the energy consumption of a Platinum LEED house – Canada's current high standard for "green" building. The small amount of heating energy which is still needed in a Passive House can then be supplied via the ventilation air stream. Passive houses are well established in Europe with over 17,000 existing passive units; approximately 4,000 of these are in Austria.

In partnership with BC Hydro, the RMOW has been tracking the energy consumption at the LLPH since January of 2011 with a real time Energy Management Information System (EMIS). The pilot project of detailed energy monitoring ended in Dec, 2012. At the end of this year of energy tracking, the results showed that all building heating loads (including hot water) consumed 2,922 kWh (11.7 kWh/m2/yr), and all other loads in the building combined for a total of 15,156 kWh (60 kWh/m2/yr) – both values well inside the limits allowable within the rigorous passive house certification protocol.

The bottom line is that over the course of an entire year, it cost only $250 to provide all the heat required by this 2,700 ft2 building (a typically built building in our climate would consume approx. 10 times this amount).

4.3.4 Key Corporate Energy Consumption Performance Insights

Energy Consumption

Overall

- Corporate energy consumption decreased 6% YOY, and is approximately 6,400 GJ less than 2008 levels.

Divisional Insights

- Resort Experience and Infrastructure Services both saw year over year decreases of energy consumption (7% and 8% respectively). Corporate and Community Services saw a small increase in consumption of 1% over 2012 levels.
- Infrastructure Services' consumption level is still 5% higher than 2008 base year levels.
- Resort Experience's consumption levels have decreased to 1% below base year levels, while Corporate and Community Services continue to see the largest consumption decrease, currently sitting at 33% less energy use compared to 2008.

Energy Expenditures

Overall

- Overall 2013 energy expenditures across municipal operations decreased by 6% year over year to ~$1.65M. However, current expenditures have only decreased by approximately $30,000 (2%) from benchmark 2008 levels.
- Electricity makes up approx. $1M/yr of the total corporate energy expenditure.

Divisional Insights

- Corporate and Community Services' energy expenses increased year over year by 6%. However, CCS's expenditures are still over $130,000 lower than benchmark 2008 levels, primarily related to savings achieved at MPSC.
- Year over year, Infrastructure Services and Resort Experience both saw decreases in expenditures (21% and 6% down, respectively). The large decrease in Infrastructure Services is largely due to a reduction in mobile fuel use in the Transportation department, and a reduction in natural gas consumption at the WWTP.
- Upgrades in energy efficiency across the operation are yielding solid, expected returns on investment. Without further investments in additional energy efficiency and conservation across the operation, future increases in energy expenses are likely.

5 CLOSING COMMENTS

The impact of changing climatic conditions – especially reliable snow patterns – has the potential to substantially impact Whistler's primary economic engine – tourism. Informed, strategic planning that considers and evaluates the impacts of the issues related to climate change and rising fuel costs (on which Whistler's economy is fundamentally dependent) can help to ensure that Whistler is best positioned to maintain its success into the future.

Energy management as sound fiscal management is seen as a key priority by leading organizations both across our community, and beyond. As such, RMOW staff are committed to tracking corporate and community level energy consumption, expenditures and associated greenhouse gas emissions on an annual basis. Moreover, our community is vocally concerned about both effective energy management and the ongoing mitigation of our local contributions to global climate change, and they continue to tell us so across a variety of community engagement channels.

Accurate, detailed data is fundamental to these discussions; information like that which is included within this report will continue to provide a strong basis for informed decision-making as our community measures its success, matures, evolves and thrives in the coming decades.

Emissions from our corporate and community inventories are not the only emissions related to the activities of our community – as a community premised on destination tourism, there are significant emissions associated with the travel to, and from Whistler. While precise data on the scale of these emissions is difficult to quantify, the research undertaken during the creation of our existing Integrated Energy, Air Quality and GHG Emissions Management Plan did endeavour to estimate the approximate level of these emissions. By using visitor point-of-origin data from Tourism Whistler research and applying typical distance-based emission factors for various travel modes, a total estimate of 'inter-community' estimated GHG emissions was calculated for the year 2000. Assuming a relatively stable point-of-origin mix, and then applying total annual visitation numbers, inter-community travel emissions have been coarsely estimated for each year from 2001 through 2013. In approximate terms, inter-community travel emissions likely represent 5-10 times the total footprint included within our community inventory. Given its scale and relation to our community economic engines, this is an issue that should not be overlooked within Whistler's ongoing discussions of climate mitigation and adaptation approaches.

6 APPENDICES

A	Whistler Updated 2013 Community Energy & Emissions Inventory
B	RMOW 2013 Corporate Energy & Emissions Inventory
C	Summary of Emission Factors
D	Summary of Corporate Carbon Neutral Commitment • RMOW Carbon Footprint • Verified Emission Reductions (VERs) • Key Variance Summary – Traditional Services Scope Boundary

Whistler

Community Energy & Greenhouse Gas Inventory 2000-present

Stationary Energy Use (Buildings)

			Electricity residential	Electricity commercial	Electricity industrial (sm com)	Electricity subtotal	Propane/Natural Gas residential	Propane/Natural Gas commercial	Propane/Natural Gas subtotal	All Buildings: Building Total
1990 (estimated)	Consumption	litres					1,106,750.5	6,914,949.0	8,021,699.5	8,021,699.5
		kWH	99,292,687	70,508,160	11,478,073	181,278,919				181,278,919.2
	Energy	GJ	357,453.6	253,829.4	41,321.1	652,604	28,019.0	175,062.0	203,081.0	855,685.1
	(27) GHG	tCO2e	2,680.9	1,903.7	309.9	4,895	1,709.49	10,680.87	12,390.4	17,284.9
	Expenditure	approx. $	$ 4,964,634	$ 3,525,408	$ 573,904	$ 9,063,946	$ 198,375	$ 1,239,439	$ 1,437,813	$ 10,501,759
2000	Consumption	litres					5,613,424.0	21,669,345.0	27,282,773.1	27,282,773.1
		kWH	164,269,458	132,996,400	22,133,057	319,398,916				319,398,916.0
	Energy	GJ	591,370.0	478,787.0	79,679.0	1,149,838	142,112.0	548,591.0	690,707.1	1,840,544.6
	(40) GHG	tCO2e	6,570.8	5,319.9	885.3	12,776	8,670.52	33,470.58	42,141.1	54,917.1
	Expenditure	approx. $	$ 10,808,930	$ 6,982,311	$ 1,598,007	$ 19,389,250	$ 1,776,400	$ 6,857,388	$ 8,633,839	$ 28,023,089
2001	Consumption	litres					5,765,538.5	21,829,756.5	27,595,295.1	27,595,295.1
		kWH	170,144,631	139,299,908	23,505,964	332,950,504				332,950,504.5
	Energy	GJ	612,520.6	501,479.6	84,621.5	1,198,623.6	145,963.0	552,652.1	698,619.3	1,897,242.9
	(61) GHG	tCO2e	10,378.8	8,497.3	1,433.9	20,310	8,905.48	33,718.35	42,623.8	62,933.8
	Expenditure	approx. $	$ 11,195,517	$ 7,313,245	$ 1,697,131	$ 20,205,895	$ 2,466,775	$ 9,339,820	$ 11,806,667	$ 32,012,562
2002	Consumption	litres					6,200,157.0	21,759,689.5	27,959,846.8	27,959,846.8
		kWH	175,477,178	137,118,356	23,972,522	336,568,058				336,568,057.8
	Energy	GJ	631,717.8	493,626.0	86,301.1	1,211,646.7	156,966.0	550,878.2	707,849.0	1,919,495.7
	(41) GHG	tCO2e	7,136.1	5,576.1	974.9	13,687	9,576.79	33,610.13	43,186.9	56,874.0
	Expenditure	approx. $	$ 11,546,398	$ 7,198,714	$ 1,730,816	$ 20,475,931	$ 2,134,738	$ 7,491,944	$ 9,626,746	$ 30,102,677
2003	Consumption	litres					6,654,565.0	21,335,108.5	27,989,673.9	27,989,673.9
		kWH	157,711,048	132,653,721	22,654,960	313,019,729				313,019,729.3
	Energy	GJ	567,759.7	477,553.4	81,557.8	1,126,872.2	168,470.0	540,129.3	708,604.6	1,835,476.8
	(35) GHG	tCO2e	5,467.3	4,598.7	785.4	10,851	10,278.67	32,954.32	43,233.0	54,084.3
	Expenditure	approx. $	$ 10,377,387	$ 6,964,320	$ 1,635,688	$ 18,977,397	$ 2,569,168	$ 8,236,972	$ 10,806,220	$ 29,783,617
2004	Consumption	litres					6,266,556.5	21,768,771.5	28,035,328.2	28,035,328.2
		kWH	187,300,944	144,140,916	25,780,616	357,222,478				357,222,478.0
	Energy	GJ	674,283.3	518,907.3	92,810.2	1,286,003.2	158,647.0	551,108.1	709,759.9	1,995,763.1
	(24) GHG	tCO2e	4,432.8	3,411.3	610.1	8,454	9,679.35	33,624.15	43,303.5	51,757.8
	Expenditure	approx. $	$ 12,324,402	$ 7,567,398	$ 1,861,360	$ 21,753,164	$ 2,617,676	$ 9,093,284	$ 11,711,038	$ 33,464,201
2005	Consumption	litres					7,256,505.5	22,828,318.5	30,084,824.7	30,084,824.7
		kWH	171,981,194	153,887,410	24,577,249	350,445,855				350,445,855.1
	Energy	GJ	619,132.2	553,994.6	88,478.1	1,261,607.1	183,709.0	577,932.1	761,647.1	2,023,254.2
	(25) GHG	tCO2e	4,242.2	3,795.9	606.2	8,644	11,208.44	35,260.74	46,469.2	55,113.5
	Expenditure	approx. $	$ 11,316,363	$ 8,079,089	$ 1,774,477	$ 21,169,932	$ 3,398,617	$ 10,691,744	$ 14,090,472	$ 35,260,403
2006	Consumption	litres					6,759,358.5	22,061,380.0	28,820,738.9	28,820,738.9
		kWH	171,103,625	155,708,346	24,276,391	351,088,364				351,088,363.6
	Energy	GJ	615,973	560,550.0	87,395.0	1,263,920	171,123	558,516.0	729,644.2	1,993,564.3
	(26) GHG	tCO2e	4,505.7	4,100.3	639.3	9,245	10,440.54	34,076.12	44,516.7	53,762.0
	Expenditure	approx. $	$ 11,258,619	$ 8,174,688	$ 1,752,755	$ 21,186,065	$ 3,422,460	$ 11,170,319	$ 14,592,884	$ 35,778,949
2007	Consumption	litres					7,890,836.0	21,823,078.5	29,713,915.5	29,713,915.5
		kWH	182,416,681	165,005,013	24,859,169	372,280,866				372,280,865.8
	Energy	GJ	656,700	594,018.0	89,493.0	1,340,214	199,768	552,483.0	752,257.7	2,092,471.4
	(25) GHG	tCO2e	4,499.6	4,070.1	613.2	9,183	12,188.23	33,708.04	45,896.3	55,079.2
	Expenditure	approx. $	$ 12,019,650	$ 8,671,541	$ 1,796,579	$ 22,487,773	$ 4,586,515	$ 12,326,270	$ 16,912,809	$ 39,400,583
2008	Consumption	litres					7,794,930.0	21,503,997.5	29,298,928.3	29,298,928.3
		kWH	182,416,484	181,477,164	24,323,468	388,217,118				388,217,118.0
	Energy	GJ	656,699	653,317.7	87,564.5	1,397,584	197,340	544,405.0	741,751.4	2,139,335.9
	(26) GHG	tCO2e	4,742.8	4,718.4	632.4	10,094	12,040.09	33,215.18	45,255.3	55,348.9
	Expenditure	approx. $	$ 12,230,106	$ 9,536,689	$ 1,799,666	$ 23,566,465	$ 5,245,209	$ 14,107,825	$ 19,353,061	$ 42,919,526
2009	Consumption	litres					7,370,028.5	18,366,710.0	25,736,739.1	25,736,739.1
		kWH	186,880,727	191,271,019	24,174,852	402,326,601				402,326,601.2
	Energy	GJ	672,233	688,025.2	86,959.9	1,447,221	186,583	464,980.0	651,568.9	2,098,790.1
	(25) GHG	tCO2e	4,730.5	4,841.7	611.9	10,184	10,729.3	26,236.9	36,966.2	47,150.4
	Expenditure	approx. $	$ 13,600,503	$ 10,503,548	$ 1,886,736	$ 25,990,792	$ 4,367,033	$ 10,626,172	$ 14,993,226	$ 40,984,018
2010	Consumption	litres					8,626,247.0	21,124,955.5	29,751,202.5	29,751,202.5
		kWH	177,406,854	222,907,154	22,054,198	422,368,206				422,368,206.0
	Energy	GJ	638,154	801,824.3	79,331.6	1,519,310	218,386	534,809.0	753,195.0	2,272,505.1
	(25) GHG	tCO2e	4,491	5,642	558	10,691	10,984.82	26,900.89	37,885.7	48,577
	Expenditure	approx. $	$ 14,195,359	$ 13,280,245	$ 1,963,823	$ 29,439,427	$ 3,916,142	$ 9,118,753	$ 13,034,895	$ 42,474,322
2011	Consumption	litres					8,756,597.0	20,348,741.0	29,105,338.0	29,105,338.0
		kWH	187,255,325	188,433,060	24,702,582	400,390,967				400,390,967.0
	Energy	GJ	673,580	677,817	88,858	1,440,255	221,686	515,158	736,844.0	2,177,099.3
	(19) GHG	tCO2e	3,555	3,577	469	7,601	11,150.81	25,912.45	37,063.3	44,665
	Expenditure	approx. $	$ 15,752,532	$ 11,978,744	$ 2,183,542	$ 29,914,818	$ 3,975,302	$ 8,784,686	$ 12,759,988	$ 42,674,806
2012	Consumption	litres					8,832,160.5	19,600,848.0	28,433,008.5	28,433,008.5
		kWH	179,985,206	187,137,582	24,172,706	391,295,494				391,295,494.0
	Energy	GJ	647,429	673,157	86,952	1,407,538	223,599	496,224	719,823.0	2,127,360.7
	(14) GHG	tCO2e	2,458	2,556	330	5,343	11,247.03	24,960.07	36,207.1	41,551
	Expenditure	approx. $	$ 16,649,189	$ 12,948,995	$ 2,333,465	$ 31,931,649	$ 4,106,193	$ 8,689,799	$ 12,795,991	$ 44,727,640
2013	Consumption	litres					8,055,274.5	19,878,572.5	27,933,847.0	27,933,847.0
		kWH	166,391,496	184,042,131	24,428,104	374,861,731				374,861,731.0
	Energy	GJ	598,531	662,022	87,871	1,348,423	203,931	503,255	707,186.0	2,055,609.5
	(11) GHG	tCO2e	1,757	1,943	258	3,958	10,257.73	25,313.73	35,571.5	39,529
	Expenditure	approx. $	$ 15,538,193	$ 12,248,824	$ 2,328,291	$ 30,115,308	$ 3,926,131	$ 9,215,094	$ 13,141,225	$ 43,256,533

Mobile Energy Use

			Fleet Usage: gasoline	E5 gasoline	E10 gasoline	B5 biodiesel	B10 biodiesel	B20 biodiesel	diesel	diesel(s) subtotal	subtotal	Transit: B5 biodiesel	Transit: diesel	Transit: subtotal	Passenger Vehicles: gasoline
1990 (estimated)	Consumption	litres	470,647.0						728,573.7	728,573.7	1,199,220.7				19,284,750.0
		kWH													
	Energy	GJ	16,473.5						27,904.0	27,904.0	44,377.5		-		675,000.0
	(27) GHG	tCO2e	1,134.3						2,011	2,010.9	3,145.1				46,476.2
	Expenditure	approx. $	$ 296,508						$ 284,144	$ 284,144	$ 580,651			$ -	$ 14,463,563
2000	Consumption	litres	764,536.6						1,343,525.5	1,343,525.5	2,108,063.3		658,990.3	658,990.3	26,223,488.8
		kWH													
	Energy	GJ	26,760.1						51,456.4	51,456.4	78,217.7		25,239.0	25,239.0	917,868.0
	(40) GHG	tCO2e	1,842.5						3,708	3,708.1	5,551.9		1,818.8	1,818.8	63,198.6
	Expenditure	approx. $	$ 573,402						$ 1,007,644	$ 1,007,644	$ 1,581,048		$ 599,681	$ 599,681	$ 19,143,147
2001	Consumption	litres	664,838.8						1,196,214.2	1,196,214.2	1,861,052.6		842,759.3	842,759.3	26,413,679.3
		kWH													
	Energy	GJ	23,270.5						45,814.4	45,814.4	69,085.1		32,277.3	32,277.3	924,525.0
	(61) GHG	tCO2e	1,602.3						3,302	3,301.6	4,904.0		2,326.0	2,326.0	63,657.0
	Expenditure	approx. $	$ 531,871						$ 956,971	$ 956,971	$ 1,488,843		$ 766,911	$ 766,911	$ 19,546,123
2002	Consumption	litres	662,834.3						1,206,987.2	1,206,987.2	1,869,821.2		839,903.2	839,903.2	26,383,766.5
		kWH													
	Energy	GJ	23,200.4						46,227.0	46,227.0	69,427.6		32,167.9	32,167.9	923,478.0
	(41) GHG	tCO2e	1,597.4						3,331	3,331.3	4,929.0		2,318.1	2,318.1	63,584.9
	Expenditure	approx. $	$ 556,781						$ 1,013,869	$ 1,013,869	$ 1,570,651		$ 764,312	$ 764,312	$ 20,315,500
2003	Consumption	litres	605,513.2						1,346,646.2	1,346,646.2	1,952,158.9		867,463.3	867,463.3	26,487,275.6
		kWH													
	Energy	GJ	21,194.0						51,575.9	51,575.9	72,769.9		33,223.4	33,223.4	927,101.0
	(35) GHG	tCO2e	1,459.3						3,717	3,716.7	5,176.0		2,394.2	2,394.2	63,834.3
	Expenditure	approx. $	$ 538,907						$ 1,198,515	$ 1,198,515	$ 1,737,423		$ 789,392	$ 789,392	$ 21,454,693
2004	Consumption	litres	568,827.3						1,321,678.3	1,321,678.3	1,890,505.0		921,024.2	921,024.2	24,032,684.0
		kWH													
	Energy	GJ	19,910.0						50,619.6	50,619.6	70,529.5		35,274.8	35,274.8	841,186.0
	(24) GHG	tCO2e	1,370.9						3,648	3,647.8	5,018.6		2,542.0	2,542.0	57,918.8
	Expenditure	approx. $	$ 540,386						$ 1,255,594	$ 1,255,594	$ 1,795,981		$ 838,132	$ 838,132	$ 20,427,781
2005	Consumption	litres	510,643.0			43,107.6		60,026.9	1,165,550.4	1,268,684.9	1,779,327.2		976,181.8	976,181.8	25,344,647.0
		kWH													
	Energy	GJ	17,873.4			1,651.0		2,299.0	44,640.0	48,590.0	66,463.1		37,387.3	37,387.3	887,107.0
	(25) GHG	tCO2e	1,230.6			108.6		127.4	3,217	3,452.9	4,683.2		2,694.3	2,694.3	61,080.6
	Expenditure	approx. $	$ 510,643			$ 47,418		$ 66,030	$ 1,165,550	$ 1,278,998	$ 1,789,642		$ 888,325	$ 888,325	$ 24,330,861
2006	Consumption	litres	565,016.0			55,013.8		117,364.5	1,549,521.9	1,721,901.3	2,286,916.9		904,215.0	904,215.0	25,428,300.0
		kWH													
	Energy	GJ	19,776.6			2,107.0		4,495.0	59,345.9	65,949.1	85,725.7		34,631.0	34,631.0	890,035.0
	(26) GHG	tCO2e	1,361.7			138.6		249.0	4,277	4,665.6	6,027.3		2,495.6	2,495.6	61,282.2
	Expenditure	approx. $	$ 598,917			$ 60,515		$ 129,101	$ 1,642,493	$ 1,832,110	$ 2,431,029		$ 822,836	$ 822,836	$ 25,682,583
2007	Consumption	litres	556,073.0			121,260.0		71,855.0	1,571,079.0	1,764,194.8	2,320,267.3	318,923.0	557,856.0	876,779.0	25,917,732.6
		kWH													
	Energy	GJ	19,463.0			4,644.2		2,752.0	60,769.3	68,166.4	87,629.2	12,214.6	21,365.6	33,580.2	907,166.0
	(25) GHG	tCO2e	1,340.1			305.6		152.5	4,336	4,795.0	6,135.1	803.7	1,539.7	2,343.4	62,461.7
	Expenditure	approx. $	$ 622,802			$ 122,473		$ 66,825	$ 1,429,682	$ 1,618,980	$ 2,241,783	$ 322,112	$ 507,649	$ 829,761	$ 27,472,797
2008	Consumption	litres	612,787.0			94,309.0		36,891.0	1,400,888.0	1,532,087.3	2,144,874.0	829,336.3		829,337.9	25,453,527.3
		kWH													
	Energy	GJ	21,448.0			3,612.0		1,412.9	53,653.3	58,677.5	80,125.7	31,763.2		31,764.8	890,918.0
	(26) GHG	tCO2e	1,476.8			237.7		78.3	3,866	4,181.7	5,658.7	2,089.9	-	2,091.5	61,343.0
	Expenditure	approx. $	$ 680,194			$ 126,374		$ 47,220	$ 1,653,048	$ 1,826,642	$ 2,506,837	$ 1,111,311	$ -	$ 1,111,313	$ 30,035,162
2009	Consumption	litres	540,164.3			80,926.9		-	1,528,107.0	1,609,032.8	2,149,196.4	808,540.0		808,540.0	25,091,745.4
		kWH													
	Energy	GJ	18,906.2			3,099.5		-	58,525.8	61,624.1	80,530.0	30,966.7		30,966.7	878,255.0
	(25) GHG	tCO2e	1,301.8			203.9		-	4,218	4,420.4	5,721.9	1,970.7	-	1,970.7	60,471.1
	Expenditure	approx. $	$ 512,886			$ 77,690		$ -	$ 1,421,140	$ 1,498,829	$ 2,011,715	$ 970,248	$ -	$ 970,248	$ 25,593,580
2010	Consumption	litres	538,507.6			73,399.3		-	1,459,664.0	1,533,063.3	2,071,570.9	552,933.0		552,933.0	27,105,644.7
		kWH									-			-	
	Energy	GJ	18,848.2			2,811.2		-	55,904.4	58,715.6	77,563.8	21,177.1		30,773.0	948,745.0
	(25) GHG	tCO2e	1,272.4			185.0		-	3,871	4,056.4	5,328.8	1,393.4	-	1,393.4	62,058.4
	Expenditure	approx. $	$ 565,433			$ 84,147			$ 1,524,606	$ 1,608,753	$ 2,174,186	$ 580,580	$ -	$ 580,580	$ 28,731,983
2011	Consumption	litres	557,119.7			60,328.0		-	1,655,955.0	1,716,283.0	2,273,402.7	393,617.0		393,617.0	25,623,747.3
		kWH									-			-	
	Energy	GJ	19,499.6			2,310.5		-	63,422.3	65,732.8	85,232	15,075.3		30,615	896,876
	(19) GHG	tCO2e	1,316.4			152.0		-	4,346.0	4,498.1	5,814.4	1,014.7	-	1,014.7	60,545.4
	Expenditure	approx. $	$ 646,259			$ 69,981			$ 1,854,715	$ 1,924,696	$ 2,570,955	$ 413,298	$ -	$ 413,298	$ 33,054,634
2012	Consumption	litres	381,728.0	22,659.0	153,790.5	35,495.0	31,226.0	-	1,698,325.0	1,765,046.0	2,323,223.5		142,777.3	142,777.3	25,838,684.4
		kWH								-	-			-	
	Energy	GJ	13,360.8	793.1	5,382.8	1,359.4	1,195.9	-	65,045.0	67,600.4	87,137		5,468.3	24,408	904,399
	(14) GHG	tCO2e	901.9	53.5	363.4	89.4	78.7	-	4,457.2	4,625.4	5,944.2	-	387.2	387.2	61,053.3
	Expenditure	approx. $	$ 480,977	$ 22,660	$ 193,776	$ 44,369	$ 40,906		$ 2,122,906	$ 2,208,181	$ 2,905,594	$ -	$ 171,333	$ 171,333	$ 33,073,516
2013	Consumption	litres	255,029.0	11,884.1	165,424.9	62,242.3		-	1,539,045.7	1,601,288.0	2,033,626.0	167,439.9		167,439.9	26,280,882.6
		kWH								-	-			-	
	Energy	GJ	8,926.2	416.0	5,790.0	2,383.9	-	-	58,944.7	61,328.6	76,461	6,412.9	-	24,665	919,877
	(11) GHG	tCO2e	602.6	28.1	390.9	156.9	-	-	4,039.2	4,196.1	5,217.6	436.1	-	436.1	62,098.1
	Expenditure	approx. $	$ 341,739	$ 15,925	$ 216,707	$ 82,160			$ 2,031,540	$ 2,113,700	$ 2,688,070	$ 221,021	$ -	$ 221,021	$ 35,216,383

Waste, Grand Totals and Intensity Performance

	Waste: Landfill (GHG, tCO2e)	Grand Totals: Energy	Grand Totals: GHG	Grand Totals: Expenditure	GHG Intensity (tCO2e/PE)	Energy Intensity (GJ/PE)	Expenditure Intensity (GJ/PE)
1990 (estimated)	8,855.7	1,575,063	75,762	$ 25,545,973	n/a	n/a	n/a
2000	17,100.3	2,861,869	142,587	$ 49,346,965	5.53	111.1	$ 1,915
2001	18,240.6	2,923,130	152,061	$ 53,814,438	5.80	111.4	$ 2,051
2002	19,273.8	2,944,569	146,980	$ 52,753,140	6.06	121.5	$ 2,176
2003	20,273.4	2,868,571	145,762	$ 53,765,125	6.36	125.1	$ 2,345
2004	21,294.0	2,942,753	138,531	$ 56,526,096	5.77	122.7	$ 2,356
2005	22,239.0	3,014,212	145,811	$ 62,269,232	6.29	130.0	$ 2,686
2006	22,997.0	3,003,956	146,564	$ 64,715,396	5.90	121.0	$ 2,607
2007	6,881.0	3,120,847	132,900	$ 69,944,924	5.15	120.9	$ 2,710
2008	2,469.0	3,142,144	126,911	$ 76,572,839	5.10	126.2	$ 3,076
2009	2,595.0	3,088,542	117,909	$ 69,559,561	4.70	123.2	$ 2,774
2010	2,409	3,329,587	119,767	$ 73,961,071	4.38	121.7	$ 2,704
2011	2,072	3,189,823	114,111	$ 78,713,693	4.60	128.5	$ 3,171
2012	2,147	3,143,305	111,082	$ 80,878,083	4.21	119.1	$ 3,065
2013	2,376	3,076,612	109,657	$ 81,382,006	4.22	118.4	$ 3,131

Appendix B

RMOW Energy and GHG Emissions Assessment - 2013

By Division, Department and Worksgroup - showing potential carbon carbon costs related to 'neutrality' commitment

WHISTLER

Division	Dept.	Workgroup	Organizational Unit	Totals: cost ($)	mobile fuels (Litres)	mobile fuels (GJ)	stationary gas (GJ)	Electricity (GJ)	Total Energy Use	GHGs (tCO_2e)
1100			**Mayor & Council**	$ 1,530	1,141.4	39.6	-	-	40	**2.70**
	1101		Mayor & Council	$ 1,530	1,141.4	40	-	-	40	2.70
				$ -	-	-				-
1200			**CAO Office**	$ 3,567	2,662.0	92	-	-	92	**6.29**
	1201		Administrator	$ 3,524	2,629.6	91	-	-	91	6.21
	3100		Human Resources	$ 43	32.4	1	-	-	1	0.08
				$ -	-	-				-
5000			**Resort Experience**	$ 487,770	78,643.3	2,821	4,791	12,815	20,427	**467.86**
	5100		General Manager	$ 2,330	1,739.6	60	-	-	60	4.11
	1401		Partnership & Economic Services	$ 257	195.1	7	-	-	7	0.44
	5200		Resort Parks Planning	$ 898	683.4	24	-	-	24	1.53
	1402		Village Animation	$ 1,466	1,105.7	38	-	-	38	2.54
	5400		Resort Planning	$ 559	417.1	14	-	-	14	0.98
	5300		Park/Village Operations	$ 475,979	69,527.3	2,511	4,791	12,815	20,118	447.28
	7200		Building Dept.	$ 5,828	4,435.1	154	-	-	154	10.09
	8300		Environment Stewardship	$ 710	540.1	19	-	-	19	1.28
				$ -	-	-				-
6000			**Infrastructure Services**	$ 861,015	149,305.7	5,591	2,939	27,740	36,271	**609.95**
	6100		General Manager	$ 1,155	878.6	30	-	-	30	1.97
	6200		Development Services	$ 34	25.5	1	-	-	1	0.06
	6400		Transportation	$ 151,707	76,971.5	2,940	-	1,591	4,532	207.45
	6500		Central Services	$ 2,414	1,751.9	61	4	-	64	4.24
	6600		Environmental Operations	$ 85,463	64,947.1	2,369	-	-	2,369	159.15
	8200		Water Utility	$ 250,632	-	-	-	9,948	9,948	29.20
	8300		Sewer Utility	$ 316,689	4,731.1	171	2,936	14,137	17,244	200.55
	6600		Solid Waste	$ 52,212	-	-	-	2,064	2,064	6.06
	6800		Transit	$ -	-	-	-	-	-	-
	6800		Emergency Planning	$ -	-	-	-	-	-	-
				$ -	-	-				-
7000			**Corporate & Community Services**	$ 299,146	48,030.2	1,761	4,389	8,534	14,684	**366.67**
	7100		CCS General	$ 2,750	2,092.4	73	-	-	73	4.94
	2200		Lesgislative Services	$ 333	248.4	9	-	-	9	0.59
	2300		Financial Services	$ 180	134.6	5	-	-	5	0.32
	2400		Fiscal Planning	$ 31	23.5	1	-	-	1	0.06
	2500		Information Technology	$ 744	560.3	19	-	-	19	1.29
	4100		Bylaw	$ 14,517	6,814.6	236	-	214	451	15.92
	4300		Fire	$ 32,622	24,776.9	923	-	-	923	62.28
	5800		Meadow Park Sports Centre	$ 232,604	1,698.8	59	4,389	8,319	12,768	249.09
	4200		RCMP	$ 472	359.3	12	-	-	12	0.81
	5500		Whistler Public Library	$ 367	279.6	10	-	-	10	0.66
	5700		Recreation	$ 14,525	11,041.9	415	-	-	415	30.71
				$ -	-	-				-
				$ 1,653,027	279,782.6	10,304	12,119	49,090	71,513	**1,453.47**
									bio tCO_2e	22.96

APPENDIX C – Summary of Emission Factors

Summary of Emission Factors

based on 2012 BC Best Practices Methodology for Quantifying GHG Emissions, BC Ministry of Environment (Sept, 2012)

Stationary Emissions

Source Fuel	TOTAL (Petro)		Key Conversion	
	t CO2e/GJ	tCO2e/litre		
Natural Gas	0.0503	n/a		
Propane	0.0610	0.001544	0.025310	GJ/litre
Diesel (B0)	0.0728	0.002790	0.038300	GJ/litre

Mobile Emissions

Light Duty Vehicles

Source Fuel	TOTAL (Petro)		TOTAL (Bio)		TOTAL (All)		Key Conversion	
	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre		
Gasoline (E0)	0.0709	0.00248	0.00000	0.0000	0.0709	0.002483	0.03500	GJ/litre
E5 Gasoline	0.0675	0.00236	0.00319	0.0001	0.0707	0.002436	0.03500	GJ/litre
E10 Gasoline	0.0641	0.00224	0.00638	0.0001	0.0705	0.002389	0.03500	GJ/litre
Diesel (B0)	0.0713	0.00273	0.00000	0.0000	0.0713	0.002732	0.03830	GJ/litre
B4 Diesel (RLCFR)	0.0685	0.00262	0.00275	0.0001	0.0713	0.002722	0.03830	GJ/litre
B5 Diesel	0.0678	0.00260	0.00343	0.0001	0.0712	0.002720	0.03830	GJ/litre
B10 Diesel	0.0643	0.00246	0.00687	0.0002	0.0711	0.002707	0.03830	GJ/litre
B20 Diesel	0.0572	0.00219	0.01373	0.0003	0.0710	0.002681	0.03830	GJ/litre
Propane	0.0605	0.00153	0.00000	0.0000	0.0605	0.001532	0.02531	GJ/litre
Natural Gas	0.0562		0.000000	0.0000	0.0562		0.05379	GJ/kg

Light Duty Trucks (incl. SUVs & Minivans)

Source Fuel	TOTAL (Petro)		TOTAL (Bio)		TOTAL (All)		Key Conversion	
	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre		
Gasoline (E0)	0.0720	0.00252	0.00000	0.0000	0.0720	0.002519	0.03500	GJ/litre
E5 Gasoline	0.0685	0.00240	0.00319	0.0001	0.0717	0.002471	0.03500	GJ/litre
E10 Gasoline	0.0650	0.00228	0.00638	0.0001	0.0714	0.002422	0.03500	GJ/litre
Diesel (B0)	0.0713	0.00273	0.00000	0.0000	0.0713	0.002733	0.03830	GJ/litre
B4 Diesel (RLCFR)	0.0685	0.00262	0.00275	0.0001	0.0713	0.002722	0.03830	GJ/litre
B5 Diesel	0.0678	0.00260	0.00343	0.0001	0.0713	0.002720	0.03830	GJ/litre
B10 Diesel	0.0643	0.00246	0.00687	0.0002	0.0712	0.002707	0.03830	GJ/litre
B20 Diesel	0.0572	0.00219	0.01373	0.0003	0.0710	0.002681	0.03830	GJ/litre
Propane	0.0605	0.00153	0.00000	0.0000	0.0605	0.001532	0.02531	GJ/litre
Natural Gas	0.0562		0.000000	0.0000	0.0562		0.05379	GJ/kg

Heavy Duty Vehicles

Source Fuel	TOTAL (Petro)		TOTAL (Bio)		TOTAL (All)		Key Conversion	
	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre		
Gasoline (E0)	0.0672	0.00235	0.00000	0.0000	0.0672	0.002352	0.03500	GJ/litre
E5 Gasoline	0.0640	0.00224	0.00319	0.0001	0.0672	0.002235	0.03500	GJ/litre
E10 Gasoline	0.0607	0.00212	0.00638	0.0001	0.0671	0.002117	0.03500	GJ/litre
Diesel (B0)	0.0708	0.00271	0.00000	0.0000	0.0708	0.002712	0.03830	GJ/litre
B4 Diesel (RLCFR)	0.0680	0.00260	0.00275	0.0001	0.0708	0.002722	0.03830	GJ/litre
B5 Diesel	0.0673	0.00258	0.00343	0.0001	0.0707	0.002720	0.03830	GJ/litre
B10 Diesel	0.0638	0.00244	0.00687	0.0002	0.0707	0.002707	0.03830	GJ/litre
B20 Diesel	0.0568	0.00218	0.01373	0.0003	0.0705	0.002681	0.03830	GJ/litre

Off Road Vehicles

Source Fuel	TOTAL (Petro)		TOTAL (Bio)		TOTAL (All)		Key Conversion	
	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre	t CO2e/GJ	tCO2e/litre		
Gasoline (E0)	0.0675	0.00236	0.00000	0.0000	0.0675	0.002361	0.03500	GJ/litre
E5 Gasoline	0.0642	0.00225	0.00319	0.0001	0.0674	0.002243	0.03500	GJ/litre
E10 Gasoline	0.0609	0.00213	0.00638	0.0001	0.0673	0.002125	0.03500	GJ/litre
Diesel (B0)	0.0785	0.00301	0.00000	0.0000	0.0785	0.003007	0.03830	GJ/litre
B4 Diesel (RLCFR)	0.0754	0.00289	0.00275	0.0001	0.0782	0.002722	0.03830	GJ/litre
B5 Diesel	0.0746	0.00286	0.00343	0.0001	0.0781	0.002720	0.03830	GJ/litre
B10 Diesel	0.0707	0.00271	0.00687	0.0002	0.0776	0.002707	0.03830	GJ/litre
B20 Diesel	0.0630	0.00241	0.01373	0.0003	0.0767	0.002681	0.03830	GJ/litre

APPENDIX D –Summary of 2013 Corporate Carbon Neutral Commitment

RMOW Energy and GHG Emissions Assessment - 2013

By Division, Department and Worksgroup - showing potential carbon carbon costs related to 'neutrality' commitment

WHISTLER

Division	Dept.	Workgroup	Organizational Unit	Totals GHGs (tCO2e)	carbon cost ($) (not GST)
1100			**Mayor & Council**	**2.70**	$ 67.42
	1101		Mayor & Council	2.70	$ 67.42
				-	
1200			**CAO Office**	**6.29**	$ 157.24
	1201		Administrator	6.21	$ 155.33
	3100		Human Resources	0.08	$ 1.92
				-	
5000			**Resort Experience**	**467.86**	$ 11,849.06
	5100		General Manager	4.11	$ 102.69
	1401		Partnership & Economic Services	0.44	$ 1.36
	5200		Resort Parks Planning	1.53	$ 38.33
	1402		Village Animation	2.54	$ 63.44
	5400		Resort Planning	0.98	$ 24.60
	5300		Park/Village Operations	447.28	$ 11,334.43
	7200		Building Dept.	10.09	$ 252.31
	8300		Environment Stewardship	1.28	$ 31.90
				-	
6000			**Infrastructure Services**	**609.95**	$ 15,445.57
	6100		General Manager	1.97	$ 49.28
	6200		Development Services	0.06	$ 1.50
	6400		Transportation	207.45	$ 5,262.39
	6500		Central Services	4.24	$ 105.93
	6600		Environmental Operations	159.15	$ 4,054.97
	8200		Water Utility	29.20	$ 729.98
	8300		Sewer Utility	200.55	$ 5,013.83
	6600		Solid Waste	6.06	$ 227.69
	6800		Transit	-	$ -
	6800		Emergency Planning	-	$ -
				-	
7000			**Corporate & Community Services**	**366.67**	$ 9,166.73
	7100		CCS General	4.94	$ 123.60
	2200		Lesgislative Services	0.59	$ 14.67
	2300		Financial Services	0.32	$ 7.95
	2400		Fiscal Planning	0.06	$ 1.39
	2500		Information Technology	1.29	$ 32.32
	4100		Bylaw	15.92	$ 397.96
	4300		Fire	62.28	$ 1,557.06
	5800		Meadow Park Sports Centre	249.09	$ 6,227.36
	4200		RCMP	0.81	$ 20.14
	5500		Whistler Public Library	0.66	$ 16.51
	5700		Recreation	30.71	$ 767.77
				-	
				1,453.47	$ 36,686.02

Verified Emission Reduction (VERs)

2010 – 2012 Carbon Neutrality: The RMOW has purchased and retired Verified Emission Reduction credits equal to its entire corporate carbon footprint for every year between 2010 and 2012 inclusive. A summary is provided below:

Year	VERs	Project	Certification Standard	Registry	Vendor
2010	1,145 tonnes	Mare Monastir Wind Farm, Turkey	Gold Standard – project reference: GS368	GS APX Registry	Offsetters Clean Technology Inc.
	1,145 tonnes	Sun Select Aldegrove Biomass Boiler, British Columbia	ISO 14064-3 and CDM additionality tool	Markit Registry	Offsetters Clean Technology Inc.
2011	1,063 tonnes	Mare Monastir Wind Farm, Turkey	Gold Standard – project reference: GS368	Markit Registry	Offsetters Clean Technology Inc.
	1,063 tonnes	Sun Select Aldegrove Biomass Boiler, British Columbia	ISO 14064-3 and CDM additionality tool	Markit Registry	Offsetters Clean Technology Inc.
2012	973 tonnes	Mare Monastir Wind Farm, Turkey	Gold Standard – project reference: GS368	Markit Registry	Offsetters Clean Technology Inc.
	974 tonnes	Sun Select Aldegrove Biomass Boiler, British Columbia	ISO 14064-3 and CDM additionality tool	Markit Registry	Offsetters Clean Technology Inc.

2013 Carbon Neutrality. The RMOW, in support of the Cheakamus Community Forest (CCF) has delayed the purchase of VERs to allow time for the CCF to fully explore the potential for the creation of third-party certified VERs locally. The CCF is currently working with Provincial Ministries, representatives from the Pacific Carbon Trust and others to execute on a proposed carbon offset project designed to leverage the new Provincial Forest Carbon Offset Protocol (in particular, increased carbon storage approaches governed under the Improved Forest Management (IFM) section of the protocol).

At the conclusion of the third party validation and verification processes, the CCF will be in a position to provide high quality, independently certified VERs for potential purchase by the RMOW. At this point, RMOW staff feel that the benefits of supporting a local offset project, the co-benefits associated with the IFM approaches, and the independent, third party rigour that is being applied to the CCF project, justify the delay in achieving formal neutrality with respect to 2013 corporate operations.

The CCF anticipates that they will have the ability to vend VERs by late 2014.

Consistent with our commitments in both the UBCM Climate Action Charter, and the RMOW Carbon Neutral Plan, the RMOW remains committed to achieving carbon neutrality with respect to 2013 corporate operations. All RMOW departments have been charged internally for the costs associated with the RMOW carbon neutrality commitments. All departments continue to use the price signals that these costs imply ($25/tCO2e) to improve financial decision making and preference cost-effective projects and initiatives that are capable of continuously reducing carbon emissions, and decreasing carbon costs across corporate operations. See Appendix D above for more detail.

Key Variance Summary – Traditional Services Scope Boundary

The following is a summary of the variances in the inventory scope boundary between the 2013 RMOW corporate inventory and the corporate emissions boundary described within *The Carbon Neutral Workbook–Helping Local Governments Understand How to be Carbon Neutral in their Corporate Operations.*

Traditional Service Area	Variance from 'Workbook' Traditional Service Approach
Administration & Governance	• All local government buildings related to this service area **are included** • All local government vehicles used for governance and administration **are included** • Staff travel for conferences and meetings **is included** • Fuel for staff vehicles used in the execution of administration and governance responsibilities **is included** • Although partially funded by local government, the chamber of commerce building space is **not included** • Although partially funded by the local government, Tourism Whistler's building assets and corporate travel is **not included** (Tourism Whistler is a membership–based tourism marketing not-for-profit organization) • Consultant travel associated with work on specific contracts related to this service area is **not included** • The Whistler Housing Authority (WHA) is **not included**
Drinking, Storm and Waste Water	• All municipally owned and operated water intakes, wells, reservoirs, dams, treatment facilities, distribution systems, and collection systems **are included** • All municipal vehicles used within the provision and maintenance of these services **is included** • The privately operated VanWest water distribution system in Function Junction is **not included** • Heavy vehicles used for gravel extraction on Fitzimmons Creek is **not included**
Solid Waste Collection, Transportation and Diversion	*Note that the operation of the entire solid waste management system (solid waste, recycling & compost) is a service contracted out by the local government – renewal of this contract is expected in 2012* • The operation of buildings at the Solid Waste and Recycling Transfer Station **is Included** • The operation of buildings and infrastructure at the Composting Facility (located at the Transfer Station) is **not included –** • The operation of the heavy vehicles at the Transfer Station (both Compost Facility responsibilities & Transfer Station responsibilities) are **not currently included** • The pick-up and transfer of waste, recycling and compost from local community compactor sites to the Transfer Station **is not included** • The transfer of solid waste, recycling and compost beyond the Transfer Station **is not included**
Roads & Traffic Operations	• The operation of buildings related to the provision of this service area **are included** • The operation of vehicles related to the operation, roads, trails street lights/signals, bike lanes, parking lots and sidewalks **is included** • Road resurfacing activities **are included** • Vehicles used for snow removal on municipal roads **is not included** • Snow removal for Day Ski parking lots is **not included** • Snow removal for municipal roads in Function Junction & Cheakamus crossing is **not included** (contracted) • Vehicles used for snow removal on strata roads **is not included** • Vehicles used for the snow removal within the Whistler village pedestrian environment **are not included.**
Arts, Recreation & Cultural Services	• The operation of all municipally-owned recreation facilities (parks, recreation centres, libraries, theatres) **is included** • The operation of municipally-owned parks vehicles and equipment used for the maintenance and operation of parks and parkland areas **is included** • All electricity and natural gas used at municipal festival and event stages and village infrastructure locations **is included** • Third party vehicles used in the delivery and execution of local festivals and events is **not included**
Fire Protection	• All fire protection vehicles **are included** • All energy consumed by local fire halls **is included** • Private vehicles used by 'paid-on-call' firefighters to travel to their home fire hall when responding to a call is **not included**

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