

Measure: Climate Challenge for Business (E7)

Enhance Tucson business participation in voluntary greenhouse gas mitigation reductions, using EPA's Climate Leader program as a model and building on early successes of the City's Green Business Certification Program with a goal of growing private sector voluntary efforts in climate action throughout the City.

Emission reduction potential by 2020:	13,953 tCO ₂ e / yr.
Percentage of goal (2020):	0.6%
Total annual average implementation costs 2011-2020:	\$1.08 million
Entity that bears the costs of implementation:	City of Tucson or NGO program administrator (\$450,000) and businesses that invest \$1.3 million
Cost/Savings per tCO ₂ e <i>over lifetime of investments</i> :	Savings \$72 / tCO ₂ e
Net annual savings in 2020:	\$443,459
Entity that realizes the financial return:	Tucson businesses
Equitability (progressive/regressive, income/revenue neutral, etc):	Neutral
Potential unintended consequences:	If participating businesses do not follow through with their commitments to the program, program funds will be wasted

Note:

Financial analysis of this measure assumes that a typical business will invest \$26,000 and achieve energy savings of ~3X the investment, including savings from voluntary behavior changes by business personnel resulting from program participation.

Over the eight-year program period analyzed (2012-2019), 400 businesses invest \$10.4 million, the program administration costs \$3.6 million, and businesses save over the lifetime of their investments ~\$31 million (assuming a 10-year life of the investments). After investment costs and City program administration costs, net savings are projected at \$17.1 million.

The analysis is done assuming all savings are electricity costs; the reality will be that savings include water, natural gas and vehicle fuel costs.

Background information:

The U.S. Environmental Protection Agency (EPA) began the Climate Leaders program in 2002, creating a voluntary program for organizations to complete a corporate-wide greenhouse gas inventory, set a reduction goal and meet that goal.

Climate Leaders was a successor program to Climate Wise that EPA administered from 1994-2000. At that time, Climate Wise was folded into the EPA Energy Star program.

The EPA has recently announced that it will phase down services it offers under its Climate Leaders program over the coming year and encourage participating companies to transition to state or non-governmental programs.¹

Factoring into the agency's plans for the program are the many new developments in regulatory and voluntary programs that address greenhouse gas (GHG) emissions, including the first-ever mandatory GHG reporting rule that took effect on January 1, 2010.

In addition, several states and non-governmental organizations (NGOs) now offer climate programs that are now robust enough to serve companies in the Climate Leaders program.

As EPA phases down services the agency provides under the program – including technical assistance and setting greenhouse gas reduction goals – the agency will also take steps to assist the transition of the partners into non-federal programs that will allow them to go above and beyond mandatory reporting requirements to meet their goals. The agency will work with these programs to continue to stay involved in important initiatives related to corporate greenhouse gas accounting and to support companies' actions to reduce their GHG emissions.

The City of Tucson has created a Green Business Certification program that is already having success in working voluntarily with local businesses to reduce energy use and in the process lower their greenhouse gas emissions.

Goodmans Interior Structures piloted the Green Business Certification Program in 2009-2010 with a series of energy, water, waste, and pollution prevention audits. Goodmans occupies a 33,000 sq. ft. facility built in 1999 that is comprised of a 2-story office/retail showroom and an adjoining warehouse.

The energy evaluation illustrated how Goodmans was able to achieve a 13% reduction in their electricity use through behavioral and no-cost changes such as turning off bathroom lights when not in use, turning off vending machine lights (a \$200 a year savings!), and consolidating office space onto one floor.

Lighting is a big challenge for Goodmans because of their showroom and design needs. Recommendations were provided for energy efficient upgrades to existing lighting that will save an additional \$2,000 a year.

This form of voluntary energy efficiency retrofits also generates greenhouse gas emissions reductions. The key to using the City's Green Business Certification program to deliver additional greenhouse gas savings is to increasingly quantify pre- and post-program energy use so that emissions reductions can become transparent as well as useful for promoting higher levels of success by other participants in the program.

Status Quo / Business as Usual:

EPA is now largely phasing out its successful Climate Leaders program in favor of State, local and NGO leadership in voluntary greenhouse gas reduction. Absent any additional programs emerging in the Tucson area, the City's Green Business Certification (GBC) program remains the only existing mechanism for working with the private sector to achieve voluntary energy savings and associated GHG emissions reductions.

The existing GBC program has had a few early successes but has not yet been mainstreamed into the larger Tucson business community.

Description of Measure and Implementation Scenario:

This measure proposes that the City team with the business sector to develop and implement a greenhouse gas reduction challenge program for Tucson businesses.

Partners could include TEP and Southwest Gas, along with organizations such as the Southern Arizona Green Chamber of Commerce (SAGCC)², formed in early 2010, and other NGOs supportive of an enhanced level of climate mitigation, energy and water savings, and overall resource efficiency that would make Tucson businesses more competitive and keep more money in the local economy. The SAGCC has already established a Level Two membership that includes participation in the City's Green Business Certification Program.

We recommend that the new program challenge participating businesses to commit to continuous quantifiable improvement in reducing their energy and water use and reducing their waste generated. Benchmarking will be important at the outset to allow a "before and after" snapshot to be developed for each participating business and to publicly demonstrate the successes being achieved.

Businesses should consider entering their energy use data into EPA's Portfolio Manager energy data accounting system and this could even be made a requirement not only for participation in the challenge program but for all businesses as a condition of business license renewal.

Participation rate projections for voluntary programs, particularly new ones, is often highly conjectural. However, it seems reasonable to aim for a participation level that at a minimum includes some or all of the over 200 members of the Southern Arizona Green Chamber of Commerce.

These businesses have already demonstrated their commitment to enhanced environmental performance and represent a favorable initial audience for a community-wide corporate climate challenge. Since late October 2010, almost 30 new members have joined the SAGCOC.

If 200 participating members of the SAGCC are encouraged to join in a corporate climate challenge, either through a new, independent target-setting group or through an enhancement to the SAGCC's three levels of membership (already featuring a commitment to the City's Green Business Certification program), significant energy and greenhouse gas emissions could be realized.

Without knowing the annual energy consumption reflected in the operations of these 200 participating SAGCC members, it is difficult to project potential energy, cost and emissions savings. As a result, we recommend that a challenge program begin by challenging participants to benchmark and then reduce energy and water consumption by 10% after three years and 50% by 2020.

Energy use by size of business will vary greatly of course. For the purposes of showing the potential of a voluntary corporate climate challenge program, we assume an average annual electricity consumption of 130,000 kWh or about 10,800 kWh/month for a combination of 200 small, medium and large businesses. Some businesses will be responsible for multiples of this number while other, smaller firms may be responsible for only a fraction of the average number.

Has the Measure been implemented elsewhere and with what results:

The **City of Ft. Collins CO** represents one of many communities with successful voluntary greenhouse gas reduction programs for business. With 170 companies involved at the time, 2007 greenhouse gas emission reductions total 82,000 tons CO₂e.

There was an additional 3 billion gallons of water conserved through voluntary measures. Participants in the Ft. Collins "Climate Wise" program saved 200 million kWh of electricity and 4.2 million therms of natural gas between 2000 and 2007.

Energy/Emission analysis:

As stated above, without knowing the annual energy consumption reflected in the operations of these 200 participating SAGCC members, it is difficult to project potential energy, cost and emissions savings.

As a result, we recommend that a challenge program begin by challenging participants to benchmark and then reduce energy and water consumption by 10% after three years and 50% after eight years.

The challenge would focus on GHG reductions such that reductions of GHGs by any means, including vehicle fuels and natural gas, would be credited.

Energy use by size and nature of business will greatly vary. For the purposes of showing the potential of a voluntary corporate climate challenge program, we assume that only electricity would be saved, and savings would grow each year a business is enrolled into the program proportionate to its investment in energy savings.

This means a business invests \$1,733/yr (6.7% of its total investment of \$26,000 over eight years) each of the first three years in the program, achieving 3.3% more energy savings from their baseline year (year prior to enrollment).

After three years, the business would increase its annual investment to \$4,160/yr for the remaining five years of its eight-year commitment (16% of its total investment of \$26,000).

Some businesses will be responsible for multiples of this number while other, smaller firms may be responsible for only a fraction of the average number.

We assume that the average business participant has an average annual electricity consumption of 130,000 kWh/yr, and that 50 new businesses will be enrolled in the program per year from 2012-2019, totaling 400 by end of 2019.

We assume the participating businesses make an eight-year commitment to reduce GHGs 50%, and that the life of the investments is 10 years. The GHG savings from this program would be 13,953 tCO₂e in 2020. From 2012-2020 business participants will have saved 47,165 tCO₂e; over the 10-year lifetime of their investments they will save 235,822 tCO₂e.

Climate Change Impact Summary in tCO₂e:

COT 1990 Citywide GHG emissions (baseline):	5,461,020 tCO ₂ e
MCPA 7% reduction target for COT:	5,078,749
2012 BAU GHG emissions projection:	7,000,000
2020 BAU GHG emissions projection:	7,343,141
GHG emissions reduction to meet 7% goal (2012):	1,921,251
GHG emissions reduction to meet 7% goal (2020):	2,264,392
Contribution of this Measure in 2020:	13,953 tCO ₂ e

Economic analysis:

Measure Costs

Costs associated with achieving the energy reduction targets established above would vary from business to business depending on

- 1) Factors unique to the type of business activities conducted (service, manufacturing, warehousing, etc.);
- 2) The condition and existing energy efficiency of business spaces;
- 3) The availability of best practice technologies to respond to high-energy consumptive practices from business to business;
- 4) Access to capital; and
- 5) Other factors including employee incentives, customer pressure, investor interest, etc.

An aggressive corporate climate challenge program will require an investment in human resources necessary to manage a growing and versatile business client base, establish metrics, collect and report savings data, direct businesses to available resources (funding and technical), and promote the program.

We believe this would require 3 FTE and an operations budget of \$100,000 year at the outset, growing to an operations budget \$250,000 a year by 2020 to manage 400 businesses.

At the assumed \$100,000/yr per FTE, we project the investment by the City (or a non-profit using a diverse set of resources including City funds) to be \$400,000 per year from 2012-2015, jumping to \$500,000 per year 2016 through 2019.

Examples discussed throughout this report show that huge opportunity exists for saving energy at a high return on investment if capital is available. This analysis therefore

assumes that the participating businesses will save energy costs at a ratio of \$4 saved per \$1 invested. This ratio reflects the fact that huge savings can typically be achieved by behavior adjustments that don't require capital investment.

Using the average projected electricity rate for commercial accounts of \$0.10/kWh during the decade, and a (conservative) average life of ten years for the efficiency investments, this ratio means a business that invested \$26,000 in 2012 to achieve the average 130,000 kWh/yr. savings for ten years would achieve electricity savings of ~\$129,000, and a net savings of ~\$103,000.

This analysis assumes that average business investment costs would remain stable because of the recent history of energy efficiency investments declining in real dollars with technological improvements.

Total business investment for 400 businesses is therefore projected at $400 \times 26,000 = \$10.4$ million.

The measure's total investment is the business investment of \$10.4 million plus administration costs of \$3.6 million = \$14 million over eight years.

Measure Savings

From 2012 through 2020, businesses are projected to save a total of \$5.37 million. Over the ten-year life of the investments, total savings is projected at \$31.1 million.

Net Economic Impact

From 2012 through 2020, the program will cost the City \$3.6 million and businesses will not have yet recouped their energy saving investments such that 400 businesses will have a net cost ~\$0.8 million:

Measure Costs:	\$ 9.75 million
Measure Savings, lifetime:	\$ 5.37 million
Net cost:	\$ (4.38 million)

Over the 10 year lifetime of the investments, however, business savings are projected to be \$31.1 million against total business investments and City costs of ~\$14.0 million for a net savings of \$17.1 million

Dollar savings per saved tCO₂e:
In 2020: \$32
2012 through 2020: (\$93)
Lifetime of investments: \$72

The economic impact of the lifetime savings of \$17.1 million is estimated using the multiplier of 1.5 on energy savings: \$25.63 million.

Co-benefits:

Businesses voluntarily taking action to become more energy and resource efficient clearly gain a competitive advantage in the marketplace as overall costs of operation decline. Additionally, there is often an enhanced public image value for such businesses that translates into increased revenues from customers with shared values in the areas of energy savings, emissions reduction, and overall resources efficiency.

Equitability:

Voluntary programs are neutral from an equitability standpoint.

Potential unintended consequences:

None anticipated.

Endnotes

¹ USEPA News Release. September 15, 2010, at: <http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/dd1397789177301d8525779f005c7d9e!OpenDocument>.

² Southern Arizona Green Chamber of Commerce, at: <http://www.sagcc.org/>.