



ROOS INSTRUMENTS, INC.

Corporate Social Responsibility (CSR)

2012 Annual Report

ROOS Instruments has supplied Automated Test Equipment for the world's most innovative semiconductor technology. Now ROOS continues to lead the ATE industry with a Corporate Social Responsibility (CSR) management system focused on reaching aggressive goals that reduce our impact on the environment.

This report is available online - roos.com/green.

2012 Energy Facts

Natural Gas: 2,190 Therms

Electricity: 201,336 Kilowatt Hours*

GHG (Scope 1&2): 15,611 kg CO₂ -e

*100% of electricity offset by RECs

5% Solar, 95% Wind



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Again in 2012, Roos Instruments continued improvements in our energy reduction and material reuse plans and evaluated the impact of upgrading our lighting systems to exceed recently updated standards. Other projects, including refreshed weatherstripping and battery recycling program, reduced our environmental footprint even farther.

Purchasing 100% green energy since 2005 has helped us reach a higher standard of environmental responsibility and encouraged us to take this concept one step further. We are proud to offer our flagship product, Cassini, as one of the most energy efficient automated test platforms available.

“We see this initiative as a wise investment in our future. Meeting energy needs with clean power and reducing the energy footprint of any investment, be it our company or the products we make, is very rewarding.” -- Cathy Rossi-Roos, Roos Instruments COO.

Accomplishments

7 Years of 100% Renewable Electricity

(5% Solar, 95% Wind)

Over 1.48 million kWh purchased since 2005

Year	2005	2006	2007	2008	2009	2010	2011	2012
kWh	200,114	202,634	210,240	230,975	218,975	208,594	209,113	201,336
% Change	-1.95%	1.24%	3.62%	8.98%	-5.51%	-4.94%	0.25%	-3.86%

Awarded Environmental Innovator 2010

Awarded 2011

Silicon Valley Power issues the Environmental Innovation Award to organizations for “all around efforts to support energy efficiency and renewable energy.”

"Green Team" Awards for RI Employees after energy audit and training. *January 2013*

Employee's nominated for introducing Battery Recycling program, Junk Mail “opt-out” program, and weatherstripping upgrades.

At Desk Recycling - quarterly recycling, reduce waste, reuse components *Since 2009*

Each desk has a dedicated recycling container, facilities empties weekly and reports "good to great" compliance and notifies individuals of incorrectly discarding recyclable material in a waste bin. Our vendor, Waste Management, switched from taking only paper and cardboard (separated) to accepting all forms of plastic, glass, aluminum, and paper in one container, increasing individual compliance.

Reduce Travel - Telecommuting and Virtual/Web Conferencing

Since 2006

Goals for 2012

12% Reduction of Electricity¹

205,257 kWh Target

201,336 kWh Actual (Target Achieved)

10% Reduction of Natural Gas²

1961 Therms Target

2190 Therms Actual (10% Over)

Encourage corporate environmental responsibility with focused programs to increase awareness and building efficiency and increase individual employee participation with “Green Team” awards and incentives. Reduce all energy usage by 12% of “peak demand.”

Planned Goals for 2013 and Beyond

- Maintain Energy Consumption at present levels, including anticipated growth
- Cascading requirements - Vendor incentives (monetary and preference) to voluntarily participate in creating a CSR of their own.
- Strive for 100% recycling with facility reviews where all recyclable material is recovered from waste bins prior to dumping.
- Increase energy efficiency of ROOS systems with software and hardware engineering related to supporting sleep and low power modes.
- Replace existing fluorescent lighting fixtures based on Silicon Valley Power’s sponsored energy audit to update to modern lighting standards for brightness, install motion sensors, and replace some fixtures with LEDs, to save hazardous waste disposal fees, and reduce energy use over the fixtures’ lifetime.

¹88% of 2008 levels (Peak demand) or 205,257 kWh/yr (2008 Annual Usage = 233,247 kWh)

²90% of 2008 levels (Peak demand) or 1961 Therms/yr (2008 Annual Usage = 2179 Therms)

Green Power Partners

Silicon Valley Power



100% renewable energy from Silicon Valley Power/3Degrees°. Verifiable RECs available upon request.¹

EPA



ROOS Instruments participates with the EPA Green Power partnership.

RI has purchased 100% renewable energy for every year since 2005.²

The following suppliers and customers have implemented a similar Corporate Responsibility and Environmental Management System. Thank you for helping ROOS Instruments promote good environmental stewardship in the semiconductor industry.



¹ Send an email to "admin@roos.com" to request RECs from Silicon Valley Power

² EPA: <http://www.epa.gov/greenpower/partners/partners/roosinstrumentsinc.htm>

Green Projects

RI Santa Clara, CA

Building Area: ~19,600 feet² , Constructed 1978

5000 feet² redeveloped 2007 with modern HVAC, high efficiency motion sensing lights

The projects listed below contributed to successfully achieving the 2012 targets.

Total Expected Annual Impact for All Projects in 2012: **1,550 kWh**
0.1% of 2012 Target kWh

<i>Name of Project</i>	<i>Potential Impact¹</i>
Power Usage Audit: Measure kWh of various systems around RI to create estimated usage profiles. Replace, virtualize, and reduce where appropriate.	1,000 kWh
Power conservation: Turn off lights when not in use. Use motion sensors for lights frequently left on.	500 kWh
Workstation Upgrades: Recommissioned 1 PCs with new/high efficiency models.	50 kWh
HVAC maintenance: Assure optimum performance. (managed by Environmental Systems)	100 Therms
Other CSR Goals: <ul style="list-style-type: none">● Reclaim Used Equipment: Any ROOS equipment can be returned to Santa Clara factory for recycling. Incentives like free shipping may be available. Publicized online roos.com/contact, and on printed material like docs & service/training manuals.● Increase recycling compliance with “unified” recycling bins located throughout the building that is used for plastic, aluminum and paper instead of separate bins.● Supply “Green certified” office cleaner and post consumer recycled paper products in restrooms and kitchens and environmentally friendly cleaning chemicals.	

¹ Potential Impacts were computed with the following calculators:
EPA's www.epa.gov/cleanenergy/energy-resources/calculator.html
CO2 Footprint Calculator: www.carbonify.com/carbon-calculator.htm

Future Green Projects

<i>Name of Project</i>	<i>Potential Impact</i>
<p>"Leave Off" Stickers: Light switch plates to clearly identify where lighting can be reduced.</p>	1,000 kWh
<p>Virtual Trade Shows vs Real Trade Shows:</p>	Saving 0.23 Tons of CO2
<p>Cloud Infrastructure: Hosted computing vs Onsite Server power consumption</p>	5,000 kWh
<p>Clean Living Replacing all non-biodegradable products used in the break rooms like foam cups and plates to more biodegradable ones.</p>	Waste Reclaim
<p>Sweater & Shorts Days: Wear warm clothing and leave temp down to 68 two days a week in Winter Wear cool clothing and leave temp up to 76 two days a week in Summer</p>	500 Therms
<p>Lighting Reduction: Reduce lighting by removing bulbs from 4x fixtures to 2x. Perform recommendations from Energy Audit including retrofitting some light fixtures and adding motion sensors.</p>	1,000 kWh
<p>Land Care: Mulching and using non-toxic chemicals for lawn maintenance.</p>	Hazardous Material Reduction
<p>Purchase RECs to offset 100% GHG Emissions:</p>	100% GHG Offsets

Employee Activities

<p>Recycle Program: 100% of recyclable material is collected in dedicated bins.</p>	
<p>Green Waste: recycle all electronics that are not in use. (GreenMouse)</p>	
<p>Annual Employee Training and Audits (Carpool, how to reduce paper, proper tire inflation, etc...)</p>	
<p>Enabling mobile workforce: Provide smart phones, laptops and other materials for mobile and remote offices.</p>	2,000 kWh
<p>Web conference Instead of face to face meetings, use remote presence (video chat) for sales/support</p>	Saving 2.91 Tons of CO2
<p>Cascading CSR Notice Top 10 vendor CSR Questionnaire - Cascading requirement letter and questionnaire</p>	Reduce Scope 3 GHG
<p>Earth Hour Turn off lights for an hour on March 26th at 8:30pm and encourage people to join. Send email to City of Santa Clara, Employees, Suppliers, Customers to encourage participation.</p>	
<p>Vendor Letter and qualification: Promote vendors who have their own Green programs on our roos.com/green page. Prefer "green" vendors by clearly marking them in our vendor contact databases to enable increased purchasing of equipment and services from preferred sources.</p>	

Compliance Enforcement

All local and national environmental laws, regulations and contractual requirements are followed by ensuring appropriate signs and labeling are posted. Employees are notified of changes to requirements via email and are required to attend annual safety training programs appropriate to their tasks. All vendors are certified and approved legal operations, only verified if suspected of violations.

Projects are reviewed by assigned personnel and milestones used to show progress.
OSHA - Computer Workstations & Material Safety Data Sheets (MSDS)

Employees are asked to complete the [Green Audit & Survey](#)
All locations (RI Headquarters in Santa Clara and remote offices) are included in this program.

Safety Program

All Employees should complete formal training including: workstation ergonomics, lifting, emergency plans, and distracted driving. Employees working on the production of RI systems should complete electronics safety, soldering iron, lighting, ventilation, lead exposure training courses. Employees who regularly ship equipment must learn about back safety, maintaining a safe working environment (i.e. no cluttered floors) and proper lighting.

"Green Team" awards given to RI employees annually to encourage innovation and participation.

Innovator - finds new and effective ways to meet or define goals

Grind - the person recognized for doing the most to lower consumption, increase reuse or do the most recycling @ RI Santa Clara

Guru - the person who proves the most aware of RI's current programs (answers most questions right, random drawing if tie)

Example "Green Team" Guru survey questions:

How many kWhs did ROOS consume last year?

How many Watts does a typical Cassini (8 TIMs) use in an hour?

What is the Thermostat set at right now?

How many Therms (Natural Gas) has RI used last year?

How many average total miles do RI employees collectively commute per day?
(excluding visits from employees not located near Santa Clara)

Greenhouse Gas (GHG) Emissions

Greenhouse Gas Emissions and Carbon Dioxide Equivalent (CO₂ -e) are calculated using the GHG Corporate Protocol standard¹. 0% of Scope 1 and 100% of Scope 2 GHG Emissions are offset by Renewable Energy Credits. No change from 2011.

Total Scope 1 & 2

16,039 kg CO₂ -e

Equivalent to 11,442 kg CO₂, 2.09 kg CH₄, 2.09 kg N₂O

Scope1: Generated by ROOS Instruments

Includes RI vehicles, appliances (refrigerators), HVAC systems, facilities and landscaping.

2000 Tundra 4WD, 6 cyl, 3.4 L (Petroleum - Transportation) ²	4,445 kg CO₂ -e
2 Office Refrigerators (Leaking Refrigerant) ³	38 kg CO₂ -e
12 Air Conditioning Units (Leaking Refrigerant) ⁴	100 kg CO₂ -e
Natural Gas (Heating with Natural Gas): 2,190 Therms ⁵	10,597 kg CO₂ -e
Facilities (Gas Lawn Care, Blower, etc.) ⁶	142 kg CO₂ -e

Scope 1 Total:

15,611 kg CO₂ -e

Scope2: Generated by electricity producers for ROOS Instruments (Silicon Valley Power)

100% renewable sources. Natural Gas usage is included in Scope 1.

Electricity: 201,336 kWh

152,937 kg CO₂ -e

100% Offset by Renewable Energy Credits

Scope 2 Total:

0 kg CO₂ -e

¹ Scope1 GHG emissions calculation. <http://www.ghgprotocol.org/calculation-tools/faq>

² Annual mileage is 7,500 miles/year @ 15 mpg = 0.0667 gallons per mile = 500 gallons of gasoline per year

³ KitchenAid Model: KSF5200EWHO, 5.125 oz of R134b, 0.145291306 kg

Kenmore Model: 106.9618412, 1992, 6.25 oz R12 0.17718452 kg = 0.322 kg total

Global Warming Potential Table HFC 134a, 1300 R404a, 3260 R407b, 2285 R407c, 1526 R410A, 1725 source:

http://www.epa.vic.gov.au/climate-change/carbon-management/Worksheet_1-Refrigerants.pdf

⁴ GHG emissions from refrigerants (kg CO₂-e) = Recharge capacity (kg) X Annual leakage rate x Global Warming Potential - 37.72 kg CO₂ -e = 0.322 kg x 0.09 x 1300; Air conditioners/chillers Annual leakage rate = 0.09 (9%) - www.fueleconomy.gov

⁵ 0.005 metric tons CO₂/therm - <http://www.epa.gov/cleanenergy/energy-resources/refs.html>

⁶ According to the EPA, and one gas-powered [lawn mower emits](#) as many pollutants as 8 new vehicles driving 55mph for the same period of time. 30 min per week, for 12 months, equals 16 hours, approx 16 gallons of gas.

<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

Energy Usage Details

Electricity generated by Silicon Valley Power

Conservation efforts are monitored with vendor supplied meters and (where appropriate) audits at the plug with a "Kill-a-Watt" monitoring device or built-in metering device.

By Year

2005 ¹	2006	2007	2008	2009	2010	2011	2012
200,114	202,634	210,240	230,975	218,975	208,594	209,113	201,336
-1.95%	1.24%	3.62%	8.98%	-5.51%	-4.95%	0.25%	-3.72%

2012 By Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
14451	14617	13317	14718	2559	18326	19967	23474	21562	22025	20522	16385
14%	-4%	4%	9%	-85%	20%	-4%	4%	20%	-7%	10%	-6%

Basis for monthly % is the previous year (2011)

Natural Gas provided by PG&E

Conservation efforts are monitored with vendor supplied meters.

By Year

2008	2009	2010	2011	2012
2179	1881	1982	2317	2190
N/A	-16%	5%	14%	-1%

2012 By Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
492	324	226	99	31	33	15	15	10	7	379	559
-36%	-32%	42%	-1%	-24%	200%	275%	1400%	233%	-73%	275%	14%

Basis for monthly % is the months of peak demand (2008)

¹ Started purchasing Renewable Energy Credits in 2005