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California Energy Commission
Docket No. 11-AAER-2
Docket Unit
1516 Ninth Street, Mail Station 4
Sacramento, CA 95814-5504

Subject: **Comments on Notice of Proposed Action: Proposed Amendments
to Appliance Efficiency Regulations (Battery Charger Systems);
Docket Number 11-AAER-2**

The Consumer Electronics Association ("CEA") respectfully submits these comments in
response to the Notice of Proposed Action, Proposed Amendments to Appliance Efficiency
Regulations, CEC Docket Number 11-AAER-2, and related materials. Our comments
concern only the portion of this proceeding regarding battery charger systems.

CEA is the preeminent trade association promoting growth in the $190 billion U.S. consumer
electronics industry. CEA represents more than 2,000 corporate members involved in the
design, development, manufacturing, distribution and integration of audio, video, in-vehicle
electronics, wireless and landline communications, information technology, home
networking, multimedia and accessory products, as well as related services that are sold
through consumer channels. For many years, CEA has supported and advanced energy
efficiency in consumer electronics as part of the industry's broader commitment to
environmental sustainability. CEA's comprehensive approach to energy efficiency includes
industry initiatives related to public policy, consumer education, research and analysis, and
industry standards.

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I.   We remain opposed to CEC's pursuit of a duplicative rulemaking on consumer battery charger systems given the ongoing rulemaking on the same consumer device category at the national level by the U.S. Department of Energy.

As the CEC knows, pursuant to the Energy Independence and Security Act of 2007, the U.S. Department of Energy ("DOE") is well underway in a rulemaking on battery charger systems which will preempt any regulations for consumer battery chargers adopted in this CEC proceeding. DOE's forthcoming proposed rule for battery chargers is nearing the end of review at the Office of Management and Budget.

CEA recognizes that DOE is not addressing battery charger systems in the commercial market, where CEC certainly has an opportunity to pursue a rulemaking. However, CEC also has chosen to pursue its own regulation for consumer-related battery charger systems despite legitimate concerns about costly redundancy. Not only is the Commission's pursuit of regulations for battery charger systems in the consumer market unnecessary in light of the federal rulemaking already underway for these devices, it is also wasteful to the extent that California taxpayer and ratepayer money is being spent by the CEC and investor-owned utilities on the development of California regulations that to a large extent are superfluous.

As we and several other organizations have stated, if the CEC believes there are energy savings opportunities with battery charger systems for consumers in California, it should recognize that those savings would be dramatically larger at the national level. A national approach would benefit California consumers no matter where (in-state, out-of-state) or how (in stores, online, etc.) they purchase products with battery chargers in the future.

The CEC's development of energy efficiency regulations for battery chargers, which apparently would be effective close to the time that federal regulations for battery chargers would be effective, represents an extremely inefficient approach to supporting energy efficiency. For manufacturers to meet two sets of regulatory requirements within a narrow time frame is unnecessarily disruptive to the marketplace and costly for manufacturers. Additionally burdensome and unnecessary is the CEC's proposed marking requirements for battery charger systems, which would mandate that manufacturers apply a California-specific label to their products.

Unfortunately, with respect to "efforts to avoid unnecessary duplication" as described in the CEC's Initial Statement of Reasons for the proposed regulation, the CEC gives only passing acknowledgement of the DOE's battery charger rulemaking.[1]

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[1] See Initial Statement of Reasons: Proposed Amendments to Appliance Efficiency Regulations, October 7, 2011, page 14.

II.   A recent third-party review of the CEC's cost-benefit justification for its proposed battery charger regulation has identified several significant issues.

Earlier in this proceeding, CEA and other stakeholders expressed concerns about the quality of the data and analysis proffered in support of the CEC's proposed regulation for battery charger systems. In comments to the CEC in November 2010, CEA and others noted one of the most significant shortcomings in the PG&E/Ecos Consulting CASE report[2] used in support of the proposed regulation for battery chargers: the lack of current data on the power consumption of battery chargers available today. It does not make any sense to attempt to set rational energy efficiency standards if there is no current and reliable data for the base case.

Unfortunately, the use of stale and out-of-date data has been endemic in the CASE reports used to justify the CEC's regulations for electronics, as witnessed during the CEC's rulemakings on external power supplies as well as televisions.[3] In this proceeding on battery charger systems, the CASE report presents battery charger testing data from Ecos Consulting that is several years old. Clearly, this is an inappropriate and unreasonable basis upon which to consider new regulations.

The CEC's reliance on such reports based on old data presents concerns from an energy efficiency policy perspective. Pursuing energy efficiency standards for battery charger systems using outdated data artificially inflates the estimated energy "savings" from regulation, which in turn would present misleading claims to other policy makers and the public regarding contributions to California's energy savings and greenhouse gas emissions reduction goals. The CEC cannot fairly or objectively base crucial policy decisions regarding battery charger systems on such inaccurate and outdated information.

Flaws and errors in the CEC's cost-benefit analysis

Beyond the earlier concerns about outmoded data, we have found specific problems in the material that CEC recently presented in support of its proposed regulation for battery charger systems.

Last month, the CEC issued its Staff Report ("Staff Analysis of Battery Chargers and Self-Contained Lighting Controls," CEC-400-2011-001-SF) and its 45-Day Language ("Proposed Amendments to Appliance Efficiency Regulations," CEC-400-2011-005-45-DAY). In addition, at the time of the CEC's public hearing on October 24, 2011, the CEC issued a "Frequently Asked Questions" document regarding its energy efficiency standards for battery

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[2] Codes and Standards Enhancement (CASE) Initiative for PY2010: Title 20 Standards Development, "Analysis of Standards Options for Battery Charger Systems," October 1, 2010.

[3] See "Assessment of Analyses Performed for the California Energy Efficiency Regulations for Consumer Electronics Products," TIAX LLC, February 2, 2006, available at http://www.energy.ca.gov/appliances/documents/2006-01-30_workshop/2006-02-10_TIAX.PDF. See also comments by the Consumer Electronics Association to the California Energy Commission, November 2, 2009, available at http://www.energy.ca.gov/appliances/2009_tvregs/documents/comments/TN%2053944%2011-02-09%20CEA%20Comments%20Regarding%20Draft%2045-Day%20Language%20on%20Appliance%20Efficiency%20Standards%20for%20TV.pdf.

chargers. Following the recent issuance of these documents, CEA and other industry association stakeholders commissioned the Berkeley Research Group ("BRG") in Los Angeles, California, to conduct a third-party review of the CEC's material, particularly the Staff Report and CASE report. BRG's review is attached to these comments.

BRG's review examined the model CEC put forth for estimating the energy savings attributable to the proposed regulation for battery charger systems. BRG reviewed this model and found fault in the calculations as well as the underlying methodology. BRG corrected these errors and additionally created a new model to reflect a more realistic picture of the effects of the proposed regulation for battery charger systems on energy savings realized by California consumers.

When the potential energy savings from the proposed regulation for battery charger systems is more reasonably calculated, the costs to consumers outweigh the benefits in most cases. The corrected CEC approach and BRG's new model both show that CEC's proposed regulation has a net negative impact on consumers for a majority of battery charger-related product categories. According to California law, the CEC must not promulgate a regulation that will cost consumers more than it will save.[4]

III. Industry in California is concerned about the impact of CEC's regulation on product innovation and emerging technology.

In addition to the problems related to the CEC's cost-benefit analysis, stakeholders in the consumer electronics industry, many of which are located in California, have raised significant concerns about the proposed regulation's impact on product development and innovation, particularly related to new and innovative ways of charging battery-operated consumer electronics, such as loosely-coupled inductive charging. Based on feedback from members, CEA believes that the CEC's proposed regulation should cover only tightly-coupled battery charger systems.

In developing its proposed regulation, the CEC only considered a single class of inductive battery charger systems, i.e., tightly-coupled systems. Tightly-coupled inductive battery charger systems, which have been on the market for many years, require the charger and portable device to be closely aligned during charging. Several companies, including some CEA members, are currently developing a different wireless charging technology, termed loosely-coupled inductive charging, which offers highly desirable freedom of placement for devices during charging. With this new approach, consumers would have more flexibility in placing their devices on a surface for wireless charging.

Loosely-coupled inductive charging systems support the simultaneous and independent charging of multiple battery-powered devices placed anywhere on a charging pad or an appropriately-equipped table or vehicle console. In this way, loosely-coupled wireless charging systems will offer consumers more convenient charging options, eliminate the need to have a separate power adapter for each device, and reduce materials use. Wireless

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[4] California Public Resources Code, Section 25402(c)(1).

chargers using this technology are not yet on the market and thus were not considered by the CEC in the rulemaking. The statement made by Ecova, Inc., at the public hearing on October 24, 2011, that they examined loosely coupled charging systems is not correct. Tightly-coupled charger systems were the only type of wireless chargers that were considered. In fact, loosely-coupled wireless charging systems are not yet on the market and are in active development by several technology companies.

Therefore, to the extent the CEC decides to promulgate a regulation for battery charger systems, CEA respectfully requests that CEC limit its proposed requirements for inductive charger systems to tightly-coupled systems. As drafted, the proposed CEC regulation broadly covers all types of inductive charger systems, including loosely-coupled wireless charger systems that are first expected to be made available for sale in the 2012 to 2013 timeframe. This new class of wireless chargers should be exempted at this time from the proposed regulations to enable continued research and development in this innovative area and to support the attainment of important features desirable to consumers.

For these reasons, CEA requests that the CEC not unduly restrict the development of new technology, namely loosely-coupled wireless charging technology. Mandating appliance efficiency standards for developing technology, such as loosely-coupled inductive charging systems, could hamper innovation, limit consumer options, and be counterproductive to broader environmental sustainability goals.

IV. **In light of the problematic aspects of this and recent proceedings related to electronics, we urge the CEC to recognize market-oriented approaches as an alternative to appliance efficiency standards.**

For battery charger systems, the federal ENERGY STAR program is having a meaningful impact in moving the market toward higher levels of energy efficiency in ways that are beneficial to consumers, industry competition, and innovation. According to the U.S. Environmental Protection Agency ('EPA"), the market penetration of ENERGY STAR-compliant battery charger systems has increased in recent years, as illustrated below.

Estimated ENERGY STAR market penetration for battery charger systems

2006	0%
2007	16%
2008	15%
2009	27%
2010	34%

Source: ENERGY STAR Unit Shipment Data, U.S. EPA

As the CEC has stated, the ENERGY STAR specification for battery charger systems does not specify requirements for active charge mode. However, as the CEC acknowledges, the ENERGY STAR specification is now under revision, and the EPA already announced its intent to incorporate active charge mode into the next ENERGY STAR specification for battery charger systems. Given the success of ENERGY STAR, especially for electronics, we believe CEC should account for potential energy savings from such an approach to addressing energy efficiency in battery chargers. Unfortunately, in addressing "reasonable alternatives" including alternatives that "lessen impacts on small businesses," CEC does not appear to have conducted any serious analysis to determine the efficacy of ENERGY STAR in achieving energy savings for battery charger systems sold in California.[5]

Respectfully submitted,

/s/

Douglas Johnson
Vice President, Technology Policy

Enclosure: "A Critique of the Regulations on Battery Charging Systems Proposed by the California Energy Commission," C. Paul Wazzan, Ph.D., and Dawn Eash, M.S., Berkeley Research Group, November 18, 2011.

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[5] See Initial Statement of Reasons: Proposed Amendments to Appliance Efficiency Regulations, October 7, 2011, page 13-14.

A Critique of the Regulations on Battery Charging Systems
Proposed by the California Energy Commission

C. Paul Wazzan, Ph.D.*

Dawn Eash, M.S.

Abstract

The California Energy Commission ("CEC") seeks to amend its Appliance Efficiency Regulations to adopt efficiency standards, certification and marking requirements for large and small battery charger systems. The CEC has put forth a model for estimating the energy savings attributable to these proposed regulations. We have reviewed this model and found fault in the calculations as well as the methodology proposed. As such, we have corrected these errors and have additionally created a new model to reflect a more realistic picture of the effects of the proposed regulations on energy savings realized by California consumers. The corrected CEC approach and our new model both show that a majority of battery charger product categories have a consumer net negative impact as a result of the proposed regulations.

November 18, 2011

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I.   INTRODUCTION

The CEC filed its Staff Report containing its staff analysis of battery chargers and self-contained lighting controls in October 2011. This analysis was largely dependent on the CASE report prepared by Ecos Consulting last modified October 1, 2010. According to the Staff Report, the CEC's proposed regulations, once fully implemented, will save California ratepayers approximately $306 million per year.[1] The calculations required to estimate these savings are contained in the Appendices to the Staff Report (specifically A-7). While the CEC purports to calculate cumulative savings "up to the point where compliant products begin replacing noncompliant products", their model calculations actually estimate first year savings attributable to the regulation after a complete turnover of the current stock.[2] We find this simplistic approach to be fundamentally flawed and logically unsound as it fails to account for: 1) turnover (i.e., it takes new sales to turn over the existing stock – one could assume that design life equates to total stock turnover); 2) the time value of money; 3) the potential impact of pending U.S. Department of Energy ("DOE") regulations; 4) the incremental cost of compliance; and 5) technological improvements due to competition.

Moreover, the CEC calculations contain arithmetic errors and are based on outdated data which overstate product savings and understate the incremental costs of compliance.

This paper is organized as follows. First, we replicate the CEC model (see Exhibit 1) and then apply a series of corrections including math and logic. Second, we develop an economic model which more accurately reflects the expected first year costs and savings from the proposed regulations and which incorporates the shortcomings of the CEC approach as discussed above.

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[1] See "Energy Efficiency Standards for Battery Chargers: Frequently Asked Questions"
[2] See CEC Staff Report. Amendment to Appliance Efficiency Regulations. Docket # 11-AAER-2.
http://www.energy.ca.gov/2011publications/CEC-400-2011-009/CEC-400-2011-009.pdf

It is important to note that our analysis in Exhibit 3 simply corrects for math errors made by the CEC and incorporates the costs of compliance. As such, if the CEC believes that their model is correct, then the CEC cannot dispute the results contained in Exhibit 3.

II. CORRECTING FOR CALCULATION ERRORS

We were unable to replicate the results contained in A-7 of the Staff Report. Using the model provided to us by the CEC and using the data figures contained in the Staff Report, we generate Exhibit 2 which shows corrected first-year savings.

III. ACCOUNTING FOR THE COST OF COMPLIANCE

The CEC analysis provides estimates for the cost of complying with the proposed regulations. Unfortunately the CEC estimate of annual savings never incorporates these costs. The CEC effectively ignores its own estimated costs. Exhibit 3 incorporates these incremental costs. It should be noted that the estimates given in Exhibit 3 are wholly predicated on CEC's data, model and assumptions.

It is important to note that the Staff Report presents its findings as a summary of savings from all the affected products. Exhibit 3 clearly indicates that even under the CEC methodology, certain product categories will fail to be consumer net neutral (e.g., Emergency Systems, Personal Care, and Portable Electronics).

IV.   INCORPORATING DOE REGULATIONS

We assume that the DOE regulations take effect in 2014 and are identical to the CEC regulations which take effect one year prior in 2013. Consequently, any savings occurring in and beyond 2014 are attributable to the DOE regulations and are not included as part of the CEC savings. Exhibit 4 presents this analysis.

V.   INCORPORATING TECHNOLOGICAL INNOVATION DUE TO COMPETITION

We assume that compliance rates (with the proposed CEC regulation) will linearly increase by 10% annually (e.g., a product assumed to have 0% compliance in 2009 will have 40% compliance by 2013 due to natural competition and will continue to increase 10% annually). In assuming a 10% year by year technological improvement, we rely on information collected informally from industry sources and Energy Star historical compliance increases.[3] Note that the dispersion of the answers provided by industry at this time was significant. Our analysis is presented in Exhibit 5. Note that additional product categories have become consumer net negative (e.g., Handheld Barcode Scanners, Two-Way Radios and Three Phase Lift-Trucks).

VI.   INCORPORATING MANUFACTURER INPUT ON COSTS OF COMPLIANCE

Starting with Exhibit 5 as our current base, we now incorporate current cost and/or energy savings provided directly from industry. Our analysis is presented in Exhibit 6.

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[3] Battery charger compliance with Energy Star has increased from 15% in 2008, 27% in 2009 to an estimated 34% in 2010. See http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives.

At this point, it is readily apparent that most products are consumer net negative as a result of the proposed regulations using CEC's approach/model (e.g., Power tools and Laptops).

VII.   BRG APPROACH TO ESTIMATING POTENTIAL SAVINGS FROM PROPOSED CEC REGULATIONS

As discussed above, we believe the CEC model is fundamentally flawed. We propose a substitute model which more accurately reflects economic realities (e.g., turnover, design life, time value of money). We estimate a schedule of each product's conversion to compliance over time due to natural innovation in battery charging technology and compare the savings that could be yielded by regulating 100% compliance beginning in 2013. Our assumptions are as follows: 1) annual product turnover equals 1 divided by the design life (e.g., if a product has a design life of 10 years then 10% of the current stock will turnover each year); 2) cost and savings are equal to those reported in the CASE and Staff Reports, except where industry manufacturers have provided revised estimates[4]; and, 3) if the regulations are not enacted then the incremental cost of compliance is assumed to be zero since compliance would occur as part of the natural R&D process.

The "first year savings" using this more realistic approach eliminates savings over most product categories and leaves positive savings possible only for: 1) Auto/Marine/RV; 2) Personal Electric Vehicles; and 3) Portable Lighting. Our summary results are presented in Exhibit 7. Supporting product schedules are attached thereto.

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[4] Specifically, these revised estimates are for products in the cordless phone, laptop and power tool product categories and the estimates are shown in the support for Exhibit 7.

As a final point it is interesting to note that under both the CEC's flawed model as well as our more realistic approach a majority of products become consumer net negative as a result of the proposed regulations.

Exhibit 1
Savings From Table A-7 in the CEC's Staff Report

Product Category	Compliance	Discounted Design Life (Years)	Unit Incremental Cost Increase ($)	Unit Energy Savings (Kwh/yr)	Unit Cost Savings ($)	Net Unit Savings ($)	Stock Energy Savings (Gwh/yr)	Stock Energy Savings ($M)	Energy Savings of First Year Sales (Gwh)	Benefit / Cost
Auto/Marine/RV	0%	8.75	$ 10.00	313.9	$ 384.65	$ 374.65	656.1	$ 91.85	63.6	38.5
Cell Phones	90%	1.97	$ -	0.5	$ 0.12	$ 0.12	2.7	$ 0.37	1.9	0.0
Cordless Phones	0%	4.71	$ 0.40	13.4	$ 8.84	$ 8.44	178.3	$ 24.96	28.9	22.1
Personal Audio Electronics	90%	2.91	$ -	0.5	$ 0.20	$ 0.20	1.6	$ 0.22	0.7	0.0
Emergency Systems	10%	6.40	$ 3.00	15.9	$ 14.22	$ 11.22	77.1	$ 10.80	18.6	4.7
Laptops	10%	3.82	$ 0.50	16.8	$ 9.00	$ 8.50	369.4	$ 51.71	144.4	18.0
Personal Care	0%	4.71	$ 0.40	1.8	$ 1.19	$ 0.79	17.5	$ 2.46	3.8	3.0
Personal Electric Vehicles	10%	8.75	$ 12.00	536.8	$ 657.81	$ 645.81	106.3	$ 14.88	41.4	54.8
Portable Electronics	10%	4.71	$ 0.40	1.7	$ 1.13	$ 0.73	28.2	$ 3.95	5.1	2.8
Portable Lighting	0%	8.75	$ 0.40	8.6	$ 10.56	$ 10.16	10.3	$ 1.45	1.0	26.4
Power Tools	10%	5.57	$ 0.55	15.0	$ 11.65	$ 11.10	250.3	$ 35.04	46.9	21.2
Universal Bettery Charger	50%	7.21	$ 0.40	3.9	$ 3.96	$ 3.56	2.0	$ 0.27	0.2	9.9
Golf Cart / Electric Carts	50%	8.75	$ 200.00	807.6	$ 989.61	$ 789.61	100.1	$ 14.02	13.4	4.9
Emergency Backup Lighting	50%	8.75	$ 3.00	8.6	$ 10.48	$ 7.48	33.6	$ 4.70	8.6	3.5
Handheld Barcode Scanners	50%	7.21	$ 0.50	19.7	$ 19.86	$ 19.36	3.2	$ 0.44	0.3	39.7
Two-Way Radios	50%	7.21	$ 0.50	8.9	$ 8.94	$ 8.44	2.7	$ 0.37	0.3	17.9
Single Phase Lift-Trucks	0%	12.22	$ 200.00	1,032.5	$ 1,767.36	$ 1,567.36	30.8	$ 4.31	2.4	8.8
Three Phase Lift-Trucks	0%	12.22	$ 400.00	4,198.5	$ 7,185.73	$ 6,785.73	316.6	$ 44.32	24.5	18.0
Totals							**2,186.6**	**$ 306.12**		

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Exhibit 2

Savings From Table A-7 in the CEC's Staff Report When Calculations Are Corrected

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Product Category	2009 Stock (millions)	2010 Sales (millions)	Compliance	Discounted Design Life (Years)	Unit Incremental Cost Increase ($)	Unit Energy Savings (Kwh/yr)	Unit Cost Savings ($)	Net Unit Savings ($)	Stock Energy Savings (Gwh/yr)	Stock Energy Savings ($M)	Energy Savings of First Year Sales (Gwh)	Benefit / Cost
Source	CEC	CEC	CEC	CEC	CEC	CEC	CEC	CEC	1	2	3	CEC
Calculation	a	b	c	d	e	f	g	h	i	j	k	l
							= f * d * $0.14	= g - e	= a * f * (1 - c)	= i * $0.14	= b * f * (1 - c)	= g / e
Auto/Marine/RV	1.80	0.19	0%	8.75	$ 10.00	313.9	$ 384.64	$ 374.64	565.0	$ 79.10	58.2	38.5
Cell Phones	47.90	33.64	90%	1.97	$ -	0.5	$ 0.12	$ 0.12	2.2	$ 0.30	1.5	N/A
Cordless Phones	20.50	2.89	0%	4.71	$ 0.40	13.4	$ 8.83	$ 8.43	274.7	$ 38.46	38.7	22.1
Personal Audio Electronics	29.80	11.78	90%	2.91	$ -	0.5	$ 0.20	$ 0.20	1.5	$ 0.20	0.6	N/A
Emergency Systems	5.30	1.30	10%	6.40	$ 3.00	15.9	$ 14.22	$ 11.22	75.7	$ 10.60	18.6	4.7
Laptops	16.00	5.90	10%	3.82	$ 0.50	16.8	$ 9.00	$ 8.50	242.2	$ 33.91	89.2	18.0
Personal Care	8.70	1.91	0%	4.71	$ 0.40	1.8	$ 1.19	$ 0.79	15.7	$ 2.20	3.5	3.0
Personal Electric Vehicles	0.10	0.05	10%	8.75	$ 12.00	536.8	$ 657.82	$ 645.82	48.3	$ 6.76	22.8	54.8
Portable Electronics	10.30	2.18	10%	4.71	$ 0.40	1.7	$ 1.13	$ 0.73	15.9	$ 2.22	3.4	2.8
Portable Lighting	1.20	0.01	0%	8.75	$ 0.40	8.6	$ 10.56	$ 10.16	10.3	$ 1.45	0.1	26.4
Power Tools	15.30	3.01	10%	5.57	$ 0.55	15.0	$ 11.65	$ 11.10	205.9	$ 28.82	40.5	21.2
Universal Bettery Charger	0.90	0.11	50%	7.21	$ 0.40	3.9	$ 3.97	$ 3.57	1.8	$ 0.25	0.2	9.9
Golf Cart / Electric Carts	0.18	0.02	50%	8.75	$ 200.00	807.6	$ 989.62	$ 789.62	70.7	$ 9.89	8.0	4.9
Emergency Backup Lighting	7.90	2.00	50%	8.75	$ 3.00	8.6	$ 10.48	$ 7.48	33.8	$ 4.73	8.6	3.5
Handheld Barcode Scanners	0.26	0.02	50%	7.21	$ 0.50	19.7	$ 19.85	$ 19.35	2.6	$ 0.36	0.2	39.7
Two-Way Radios	0.60	0.03	50%	7.21	$ 0.50	8.9	$ 8.94	$ 8.44	2.7	$ 0.37	0.1	17.9
Single Phase Lift-Trucks	0.03	0.00	0%	12.22	$ 200.00	1,032.5	$ 1,767.07	$ 1,567.07	29.9	$ 4.19	2.2	8.8
Three Phase Lift-Trucks	0.07	0.01	0%	12.22	$ 400.00	4,198.5	$ 7,185.68	$ 6,785.68	310.7	$ 43.50	22.5	18.0
Totals									**1,909.4**	**$ 267.32**		

Notes and Sources:

1 This figure is incorrectly calculated in the CEC Staff report and is recalculated using the formula provided in the CEC's Staff Report: $B_{stock} = B_{energy\_savings} \times N_{2009\_stock} \times (1 - R_{compliance})$.

2 This figure is multiplied by the cost of energy per kilowatt to calculate the dollar value of the energy savings.

3 This figure is incorrectly calculated in the CEC Staff report and is recalculated using the formula provided in the CEC's Staff Report: $B_{stock} = B_{energy\_savings} \times N_{2010\_sales} \times (1 - R_{compliance})$.

Exhibit 3

Net Savings From Table A-7 in the CEC's Staff Report When Calculations Are Corrected

Product Category	2009 Stock (millions)	Compliance	Discounted Design Life (Years)	Unit Incremental Cost Increase ($)	Unit Energy Savings (Kwh/yr)	Stock Energy Savings (Gwh/yr)	Stock Energy Savings ($M)	Incremental Costs ($M)	Net Savings ($M)	Benefit / Cost Ratio
Source	CEC	CEC	CEC	CEC	CEC	1	2	3	4	5
Calculation	a	b	c	d	e	f = a * e * (1 - b)	g = f * $0.14	h = a * d	i = g - h	j = g / h
Auto/Marine/RV	1.80	0%	8.75	$ 10.00	313.9	565.0	$ 79.10	$ 18.00	$ 61.10	4.39
Cell Phones	47.90	90%	1.97	$ -	0.5	2.2	$ 0.30	$ -	$ 0.30	N/A
Cordless Phones	20.50	0%	4.71	$ 0.40	13.4	274.7	$ 38.46	$ 8.20	$ 30.26	4.69
Personal Audio Electronics	29.80	90%	2.91	$ -	0.5	1.5	$ 0.20	$ -	$ 0.20	N/A
Emergency Systems	5.30	10%	6.40	$ 3.00	15.9	75.7	$ 10.60	$ 15.90	$ (5.30)	0.67
Laptops	16.00	10%	3.82	$ 0.50	16.8	242.2	$ 33.91	$ 8.00	$ 25.91	4.24
Personal Care	8.70	0%	4.71	$ 0.40	1.8	15.7	$ 2.20	$ 3.48	$ (1.28)	0.63
Personal Electric Vehicles	0.10	10%	8.75	$ 12.00	536.8	48.3	$ 6.76	$ 1.20	$ 5.56	5.64
Portable Electronics	10.30	10%	4.71	$ 0.40	1.7	15.9	$ 2.22	$ 4.12	$ (1.90)	0.54
Portable Lighting	1.20	0%	8.75	$ 0.40	8.6	10.3	$ 1.45	$ 0.48	$ 0.97	3.02
Power Tools	15.30	10%	5.57	$ 0.55	15.0	205.9	$ 28.82	$ 8.42	$ 20.41	3.42
Universal Bettery Charger	0.90	50%	7.21	$ 0.40	3.9	1.8	$ 0.25	$ 0.36	$ (0.11)	0.69
Golf Cart / Electric Carts	0.18	50%	8.75	$ 200.00	807.6	70.7	$ 9.89	$ 35.00	$ (25.11)	0.28
Emergency Backup Lighting	7.90	50%	8.75	$ 3.00	8.6	33.8	$ 4.73	$ 23.70	$ (18.97)	0.20
Handheld Barcode Scanners	0.26	50%	7.21	$ 0.50	19.7	2.6	$ 0.36	$ 0.13	$ 0.23	2.75
Two-Way Radios	0.60	50%	7.21	$ 0.50	8.9	2.7	$ 0.37	$ 0.30	$ 0.07	1.24
Single Phase Lift-Trucks	0.03	0%	12.22	$ 200.00	1,032.5	29.9	$ 4.19	$ 5.80	$ (1.61)	0.72
Three Phase Lift-Trucks	0.07	0%	12.22	$ 400.00	4,198.5	310.7	$ 43.50	$ 29.60	$ 13.90	1.47
Totals						1,909.4	$ 267.32	$ 162.69	$ 104.63	

Notes and Sources:

1 This figure is incorrectly calculated in the CEC Staff report and is recalculated using the formula provided in the CEC's Staff Report:
$B_{stock} = B_{energy\_savings} \times N_{2009\_stock} \times (1 - R_{compliance})$.

2 This figure is multiplied by the cost of energy per kilowatt to calculate the dollar value of the energy savings.

3 This figure is incorrectly calculated in the CEC Staff report and is recalculated using the formula provided in the CEC's Staff Report:
$B_{stock} = B_{energy\_savings} \times N_{2010\_sales} \times (1 - R_{compliance})$.

4 Net savings are the dollar energy savings less the incremental costs.

5 Benefit / cost ratio is the ratio of energy savings to incremental costs. A ratio of less than 1 indicates that savings are less than total costs.

Exhibit 4
Energy Savings Prior to Implemation of DOE Regulations in 2014

Product Category	2013 Sales (millions)	Compliance 2009	Discounted Design Life (Years)	Unit Incremental Cost Increase ($)	Unit Energy Savings (Kwh/yr)	Energy Savings Prior to DOE Regulations (Gwh)	Dollar Savings Prior to DOE Regulations ($M)	Incremental Costs ($M)	Net Savings ($M)	Benefit / Cost Ratio
Source	CEC	CEC	CEC	CEC	CEC	1	2	3	4	5
Calculation	a	b	c	d	e	f $= a * e * (1 - b)$	g $= f * \$0.14$	h $= d * a$	i $= g - h$	j $= g / h$
Auto/Marine/RV	0.20	0%	8.75	$ 10.00	313.9	63.6	$ 8.90	$ 2.03	$ 6.88	4.39
Cell Phones	41.65	90%	1.97	$ -	0.5	1.9	$ 0.26	$ -	$ 0.26	N/A
Cordless Phones	2.15	0%	4.71	$ 0.40	13.4	28.9	$ 4.04	$ 0.86	$ 3.18	4.69
Personal Audio Electronics	13.73	90%	2.91	$ -	0.5	0.7	$ 0.09	$ -	$ 0.09	N/A
Emergency Systems	1.30	10%	6.40	$ 3.00	15.9	18.6	$ 2.60	$ 3.90	$ (1.30)	0.67
Laptops	9.54	10%	3.82	$ 0.50	16.8	144.4	$ 20.22	$ 4.77	$ 15.45	4.24
Personal Care	2.11	0%	4.71	$ 0.40	1.8	3.8	$ 0.54	$ 0.84	$ (0.31)	0.63
Personal Electric Vehicles	0.09	10%	8.75	$ 12.00	536.8	41.4	$ 5.79	$ 1.03	$ 4.77	5.64
Portable Electronics	3.31	10%	4.71	$ 0.40	1.7	5.1	$ 0.71	$ 1.32	$ (0.61)	0.54
Portable Lighting	0.01	0%	8.75	$ 0.40	8.6	0.1	$ 0.01	$ 0.00	$ 0.01	3.02
Power Tools	3.49	10%	5.57	$ 0.55	15.0	46.9	$ 6.57	$ 1.92	$ 4.65	3.42
Universal Bettery Charger	0.12	50%	7.21	$ 0.40	3.9	0.2	$ 0.03	$ 0.05	$ (0.02)	0.69
Golf Cart / Electric Carts	0.03	50%	8.75	$ 200.00	807.6	11.4	$ 1.59	$ 5.64	$ (4.04)	0.28
Emergency Backup Lighting	2.00	50%	8.75	$ 3.00	8.6	8.6	$ 1.20	$ 6.00	$ (4.80)	0.20
Handheld Barcode Scanners	0.03	50%	7.21	$ 0.50	19.7	0.3	$ 0.04	$ 0.01	$ 0.02	2.75
Two-Way Radios	0.03	50%	7.21	$ 0.50	8.9	0.1	$ 0.02	$ 0.01	$ 0.00	1.24
Single Phase Lift-Trucks	0.00	0%	12.22	$ 200.00	1,032.5	2.4	$ 0.34	$ 0.47	$ (0.13)	0.72
Three Phase Lift-Trucks	0.01	0%	12.22	$ 400.00	4,198.5	24.5	$ 3.43	$ 2.34	$ 1.10	1.47
Totals						**402.8**	**$ 56.39**	**$ 31.19**	**$ 25.20**	

Notes and Sources:

1 Energy savings assuming DOE regulations go into effect in 2014 and only 2013 energy savings can be attributed to CEC regulations.

2 This figure is multiplied by the cost of energy per kilowatt to calculate the dollar value of the energy savings.

3 Net costs are per unit incremental costs multiplied by the first year sales.

4 Net savings are the dollar energy savings less the incremental costs.

5 Benefit / cost ratio is the ratio of energy savings to incremental costs. A ratio of less than 1 indicates that savings are less than total costs.

Exhibit 5

Energy Savings Prior to Implemention of DOE Regulations and Increased Compliance Rates Due to Technological Innovation

Product Category	2013 Sales (millions)	Compliance 2009	Discounted Design Life (Years)	Unit Incremental Cost Increase ($)	Unit Energy Savings (Kwh/yr)	Compliance 2013	Energy Savings Prior to DOE Regulations With Increased Compliance (Gwh)	Dollar Savings Prior to DOE Regulations With Increased Compliance ($M)	Incremental Costs ($M)	Net Savings ($M)	Benefit / Cost Ratio
Source	CEC	CEC	CEC	CEC	CEC	1	2	3	4	5	6
Calculation	a	b	c	d	e	f	g	h	i	j	k
							= a * e * (1 - f)	= g * $0.14	= d * a	= h - i	= h / i
Auto/Marine/RV	0.20	0%	8.75	$ 10.00	313.9	40%	38.2	$ 5.34	$ 2.03	$ 3.32	2.64
Cell Phones	41.65	90%	1.97	$ -	0.5	100%	0.0	$ -	$ -	$ -	N/A
Cordless Phones	2.15	0%	4.71	$ 0.40	13.4	40%	17.3	$ 2.42	$ 0.86	$ 1.56	2.81
Personal Audio Electronics	13.73	90%	2.91	$ -	0.5	100%	0.0	$ -	$ -	$ -	N/A
Emergency Systems	1.30	10%	6.40	$ 3.00	15.9	50%	10.3	$ 1.44	$ 3.90	$ (2.46)	0.37
Laptops	9.54	10%	3.82	$ 0.50	16.8	50%	80.2	$ 11.23	$ 4.77	$ 6.46	2.35
Personal Care	2.11	0%	4.71	$ 0.40	1.8	40%	2.3	$ 0.32	$ 0.84	$ (0.52)	0.38
Personal Electric Vehicles	0.09	10%	8.75	$ 12.00	536.8	50%	23.0	$ 3.22	$ 1.03	$ 2.19	3.13
Portable Electronics	3.31	10%	4.71	$ 0.40	1.7	50%	2.8	$ 0.40	$ 1.32	$ (0.93)	0.30
Portable Lighting	0.01	0%	8.75	$ 0.40	8.6	40%	0.1	$ 0.01	$ 0.00	$ 0.00	1.81
Power Tools	3.49	10%	5.57	$ 0.55	15.0	50%	26.1	$ 3.65	$ 1.92	$ 1.73	1.90
Universal Bettery Charger	0.12	50%	7.21	$ 0.40	3.9	90%	0.0	$ 0.01	$ 0.05	$ (0.04)	0.14
Golf Cart / Electric Carts	0.03	50%	8.75	$ 200.00	807.6	90%	2.3	$ 0.32	$ 5.64	$ (5.32)	0.06
Emergency Backup Lighting	2.00	50%	8.75	$ 3.00	8.6	90%	1.7	$ 0.24	$ 6.00	$ (5.76)	0.04
Handheld Barcode Scanners	0.03	50%	7.21	$ 0.50	19.7	90%	0.1	$ 0.01	$ 0.01	$ (0.01)	0.55
Two-Way Radios	0.03	50%	7.21	$ 0.50	8.9	90%	0.0	$ 0.00	$ 0.01	$ (0.01)	0.25
Single Phase Lift-Trucks	0.00	0%	12.22	$ 200.00	1,032.5	40%	1.4	$ 0.20	$ 0.47	$ (0.26)	0.43
Three Phase Lift-Trucks	0.01	0%	12.22	$ 400.00	4,198.5	40%	14.7	$ 2.06	$ 2.34	$ (0.28)	0.88
Totals							220.5	$ 30.87	$ 31.19	$ (0.32)	

Notes and Sources:

1 Compliance increases by 10% annually due to natural techonological innovation each year from year 2009 to 2013. This estimate is based on historical Energy Star data.
Battery charger compliance with Energy Star has increased from 15% in 2008, 27% in 2009 and an estimated 24% in 2010.
See http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives.

2 Energy savings assuming DOE regulations go into effect in 2014 and only 2013 energy savings can be attributed to CEC regulations. This figure also includes the increased compliance figures due to technological innovations.

3 This figure is multiplied by the cost of energy per kilowatt to calculate the dollar value of the energy savings.

4 This figure is the unit incremental cost increase multiplied by the sales.

5 Net savings are the dollar energy savings less the incremental costs.

6 Benefit / cost ratio is the ratio of energy savings to incremental costs. A ratio of less than 1 indicates that savings are less than total costs.

Exhibit 6

Energy Savings Prior to Implemention of DOE Regulations, Increased Compliance Rates Due to Technological Innovation, and Modified Costs and Energy Savings Based on Industry Input

Product Category	2013 Sales (millions)	Compliance 2009	Discounted Design Life (Years)	Unit Incremental Cost Increase ($)	Unit Energy Savings (Kwh/yr)	Compliance 2013	Energy Savings Prior to DOE Regulations With Increased Compliance (Gwh)	Dollar Savings Prior to DOE Regulations With Increased Compliance ($M)	Incremental Costs ($M)	Net Savings ($M)	Benefit / Cost Ratio
Source	CEC	CEC	CEC	CEC/Industry	CEC/Industry	1	2	3	4	5	6
Calculation	a	b	c	d	e	f	g = a * e * (1 - f)	h = g * $0.14	i = d * a	j = h - i	k = h / i
Auto/Marine/RV	0.20	0%	8.75	$ 10.00	313.9	40%	38.2	$ 5.34	$ 2.03	$ 3.32	2.64
Cell Phones	41.65	90%	1.97	$ -	0.5	100%	0.0	$ -	$ -	$ -	N/A
[7] Cordless Phones	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$ -	N/A
Personal Audio Electronics	13.73	90%	2.91	$ -	0.5	100%	0.0	$ -	$ -	$ -	N/A
Emergency Systems	1.30	10%	6.40	$ 3.00	15.9	50%	10.3	$ 1.44	$ 3.90	$ (2.46)	0.37
[8] Laptops	9.54	10%	3.82	$ 0.03	0.0	50%	0.0	$ -	$ 0.29	$ (0.29)	0.00
Personal Care	2.11	0%	4.71	$ 0.40	1.8	40%	2.3	$ 0.32	$ 0.84	$ (0.52)	0.38
Personal Electric Vehicles	0.09	10%	8.75	$ 12.00	536.8	50%	23.0	$ 3.22	$ 1.03	$ 2.19	3.13
Portable Electronics	3.31	10%	4.71	$ 0.40	1.7	50%	2.8	$ 0.40	$ 1.32	$ (0.93)	0.30
Portable Lighting	0.01	0%	8.75	$ 0.40	8.6	40%	0.1	$ 0.01	$ 0.00	$ 0.00	1.81
[9] Power Tools	3.49	10%	5.57	$ 3.76	11.3	50%	19.7	$ 2.76	$ 13.12	$ (10.35)	0.21
Universal Bettery Charger	0.12	50%	7.21	$ 0.40	3.9	90%	0.0	$ 0.01	$ 0.05	$ (0.04)	0.14
Golf Cart / Electric Carts	0.03	50%	8.75	$ 200.00	807.6	90%	2.3	$ 0.32	$ 5.64	$ (5.32)	0.06
Emergency Backup Lighting	2.00	50%	8.75	$ 3.00	8.6	90%	1.7	$ 0.24	$ 6.00	$ (5.76)	0.04
Handheld Barcode Scanners	0.03	50%	7.21	$ 0.50	19.7	90%	0.1	$ 0.01	$ 0.01	$ (0.01)	0.55
Two-Way Radios	0.03	50%	7.21	$ 0.50	8.9	90%	0.0	$ 0.00	$ 0.01	$ (0.01)	0.25
Single Phase Lift-Trucks	0.00	0%	12.22	$ 200.00	1,032.5	40%	1.4	$ 0.20	$ 0.47	$ (0.26)	0.43
Three Phase Lift-Trucks	0.01	0%	12.22	$ 400.00	4,198.5	40%	14.7	$ 2.06	$ 2.34	$ (0.28)	0.88
Totals							116.6	$ 16.33	$ 37.04	$ (20.71)	

Notes and Sources:

1 Compliance increases by 10% annually due to natural techonological innovation each year from year 2009 to 2013. This estimate is based on historical Energy Star data.
Battery charger compliance with Energy Star has increased from 15% in 2008, 27% in 2009 and an estimated 24% in 2010.
See http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives.

2 Energy savings assuming DOE regulations go into effect in 2014 and only 2013 energy savings can be attributed to CEC regulations. This figure also includes the increased compliance figures due to technological innovations.

3 This figure is multiplied by the cost of energy per kilowatt to calculate the dollar value of the energy savings.

4 This figure is the unit incremental cost increase multiplied by the sales.

5 Net savings are the dollar energy savings less the incremental costs.

6 Benefit / cost ratio is the ratio of energy savings to incremental costs. A ratio of less than 1 indicates that savings are less than total costs.

7 Based on industry input, attributing power consumption to battery functions versus other telephony functions is impossible given the nature of cordless phone design.
As such, this product category should be excluded as it would require radical product design or could facilitate a manufacturer's complete exit from the California market.

8 Based on industry input, the vast majority of laptops already meet the CEC's proposed standards, thus the energy savings earned with the proposed regulations will be negligible.
While most believe there will be no cost to comply with the regulations, manufacturers will incur a cost to prove compliance and for mandatory marking.

9 Based on industry input regarding the retail impact to consumers and the internal testing of compliant regulations.

Exhibit 7
Net Energy Savings Attributable to CEC Regulations Over the
Design Life and Prior to DOE Regulations

Market Segment	Product Category	Net Savings Over Design Life ($M)[1]	First Year Net Savings ($M)[2]
Small Consumer	Auto/Marine/RV	$ 0.01	$ 3.32
	Cell Phones	$ -	$ -
	Cordless Phones[3]	$ -	$ -
	Personal Audio Electronics	$ -	$ -
	Emergency Systems	$ (12.02)	$ (1.41)
	Laptops	$ (0.68)	$ (0.18)
	Personal Care	$ (2.63)	$ (0.47)
	Personal Electric Vehicles	$ 0.13	$ 0.56
	Portable Electronics	$ (5.57)	$ (0.97)
	Portable Lighting	$ (0.13)	$ 0.04
	Power Tools	$ (56.37)	$ (8.24)
	Universal Battery Charger	$ (0.34)	$ (0.04)
	Golf Cart / Electric Carts	$ (42.04)	$ (4.54)
Small Non-Consumer	Emergency Backup Lighting	$ (20.00)	$ (2.20)
	Handheld Barcode Scanners	$ (0.13)	$ (0.01)
	Two-Way Radios	$ (0.25)	$ (0.03)
Large Non-Consumer	Single Phase Lift-Trucks	$ (4.19)	$ (0.22)
	Three Phase Lift-Trucks	$ (18.26)	$ (0.23)

Notes and Sources:

1 These figures include savings over the entire design life of the product category
beginning in 2013. This model assumes that beginning in 2013, all sales will be compliant and
that sales are just the uniform turnover of the 2013 stock on a yearly basis over the design
life of each of the product groups. These savings and costs estimates are then discounted
to get the present value of the net savings in 2012.

2 This figure includes only the first year savings from the CEC regulations prior to the
implementation of the DOE regulations, the increased compliance rates due to
technological innovation, and also includes revised costs and energy savings estimates
based on input from industry. This model assumes increased compliance from 2009 estimates of
10% per year (i.e. from 10% in 2013 to 20% in 2014, etc.). These savings and costs estimates
are then discounted to get the present value of the net savings in 2012.

3 Based on input from industry, the regulations surrounding cordless phones are incompatible with
current cordless phone design. The only recourse for manufacturers would be to completely
redesign the product architecture or to exit the California market completely. As such, meeting
the CEC's proposed regulations is currently treated as 'technologically infeasible.'

Exhibit 7 Support

Auto / Marine / RV

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Auto/Marine/RV	10.0	0%	$10.00	313.90	**$43.95**	1.8	0.18	3%	3%	0.19	0.2	2.09

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation								**Net Savings Assuming No Regulation**				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 8.92	$ 2.09	$ 2.03	$ 6.89	40%	0.08	26.24	$ 3.67	$ 3.57
2	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 8.66	$ 2.09	$ 1.97	$ 6.69	50%	0.10	32.80	$ 4.59	$ 4.33
3	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 8.41	$ 2.09	$ 1.91	$ 6.49	60%	0.13	39.36	$ 5.51	$ 5.04
4	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 8.16	$ 2.09	$ 1.86	$ 6.30	70%	0.15	45.92	$ 6.43	$ 5.71
5	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 7.92	$ 2.09	$ 1.80	$ 6.12	80%	0.17	52.48	$ 7.35	$ 6.34
6	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 7.69	$ 2.09	$ 1.75	$ 5.94	90%	0.19	59.04	$ 8.27	$ 6.92
7	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 7.47	$ 2.09	$ 1.70	$ 5.77	100%	0.21	65.61	$ 9.18	$ 7.47
8	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 7.25	$ 2.09	$ 1.65	$ 5.60	100%	0.21	65.61	$ 9.18	$ 7.25
9	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 7.04	$ 2.09	$ 1.60	$ 5.44	100%	0.21	65.61	$ 9.18	$ 7.04
10	313.90	2.09	10%	100%	0.21	65.61	$ 9.18	$ 6.83	$ 2.09	$ 1.56	$ 5.28	100%	0.21	65.61	$ 9.18	$ 6.83

	Total	$ 60.52			Total	$ 60.50

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
  http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Cell Phones

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Cell Phones	2.0	90%	$0.00	0.45	**$0.06**	47.9	28.27	19%	2%	33.64	41.65	59.1

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

						Net Savings Assuming Regulation							Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)		Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l		m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k		= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	0.45	59.10	50%	100%	29.55	13.30	$ 1.86	$ 1.81	$ -	$ -	$ 1.81		100%	29.55	13.30	$ 1.86	$ 1.81
2	0.45	59.10	50%	100%	29.55	13.30	$ 1.86	$ 1.75	$ -	$ -	$ 1.75		100%	29.55	13.30	$ 1.86	$ 1.75

									Total	$ 3.56					Total	$ 3.56

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Cordless Phones

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Cordless Phones	5.0	0%	$0.00	0.00	$0.00	20.5	3.21	-10%	-9%	2.89	2.15	13.3

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation								Net Savings Assuming No Regulation			
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	0.00	13.30	20%	100%	2.66	-	$ -	$ -	$ -	$ -	$ -	40%	1.06	-	$ -	$ -
2	0.00	13.30	20%	100%	2.66	-	$ -	$ -	$ -	$ -	$ -	50%	1.33	-	$ -	$ -
3	0.00	13.30	20%	100%	2.66	-	$ -	$ -	$ -	$ -	$ -	60%	1.60	-	$ -	$ -
4	0.00	13.30	20%	100%	2.66	-	$ -	$ -	$ -	$ -	$ -	70%	1.86	-	$ -	$ -
5	0.00	13.30	20%	100%	2.66	-	$ -	$ -	$ -	$ -	$ -	80%	2.13	-	$ -	$ -

	Total	$ -		Total	$ -

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
   http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Personal Audio Electronics

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Personal Audio Electronics	3.0	90%	$0.00	0.49	**$0.07**	29.8	10.52	12%	2%	11.78	13.73	31.6

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	0.49	31.60	33%	100%	10.53	5.16	$ 0.72	$ 0.70	$ -	$ -	$ 0.70	100%	10.53	5.16	$ 0.72	$ 0.70
2	0.49	31.60	33%	100%	10.53	5.16	$ 0.72	$ 0.68	$ -	$ -	$ 0.68	100%	10.53	5.16	$ 0.72	$ 0.68
3	0.49	31.60	33%	100%	10.53	5.16	$ 0.72	$ 0.66	$ -	$ -	$ 0.66	100%	10.53	5.16	$ 0.72	$ 0.66

	Total	$ 2.04			Total	$ 2.04

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.

http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Emergency Systems

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Emergency Systems	7.0	10%	$3.00	15.87	**$2.22**	5.3	1.3	0%	0%	1.3	1.3	5.4

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

				Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.66	$ 2.31	$ 2.25	$ (0.58)	50%	0.39	6.12	$ 0.86	$ 0.83
2	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.62	$ 2.31	$ 2.18	$ (0.57)	60%	0.46	7.35	$ 1.03	$ 0.97
3	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.57	$ 2.31	$ 2.12	$ (0.55)	70%	0.54	8.57	$ 1.20	$ 1.10
4	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.52	$ 2.31	$ 2.06	$ (0.53)	80%	0.62	9.79	$ 1.37	$ 1.22
5	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.48	$ 2.31	$ 2.00	$ (0.52)	90%	0.69	11.02	$ 1.54	$ 1.33
6	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.44	$ 2.31	$ 1.94	$ (0.50)	100%	0.77	12.24	$ 1.71	$ 1.44
7	15.87	5.40	14%	100%	0.77	12.24	$ 1.71	$ 1.39	$ 2.31	$ 1.88	$ (0.49)	100%	0.77	12.24	$ 1.71	$ 1.39

| | | | | | | | | | | Total | $ (3.74) | | | | Total | $ 8.28 |

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Laptops

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Laptops	4.0	10%	$0.03	0.00	**$0.00**	16	4.57	29%	12%	5.9	9.54	24.4

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

							Net Savings Assuming Regulation							**Net Savings Assuming No Regulation**			
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)		Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l		m	n	o	p	q
			$= 1\,/\,\text{Design Life}$	$= 100\%$	$= c * d * e$	$= b * f$	$= g * \$0.14$	$= h\,/\,(1.03)^a$	$= f *$ Unit Cost of Regulation	$= j\,/\,(1.03)^a$	$= i - k$		$=$ Compliance $+ 4(10\%) + 10\% * (a - 1)$	$= c * d * m$	$= b * n$	$= o * \$0.14$	$= p\,/\,(1.03)^a$
1	0.00	24.40	25%	100%	6.10	-	$ -	$ -	$ 0.18	$ 0.18	$ (0.18)		50%	3.05	-	$ -	$ -
2	0.00	24.40	25%	100%	6.10	-	$ -	$ -	$ 0.18	$ 0.17	$ (0.17)		60%	3.66	-	$ -	$ -
3	0.00	24.40	25%	100%	6.10	-	$ -	$ -	$ 0.18	$ 0.17	$ (0.17)		70%	4.27	-	$ -	$ -
4	0.00	24.40	25%	100%	6.10	-	$ -	$ -	$ 0.18	$ 0.16	$ (0.16)		80%	4.88	-	$ -	$ -

| | | | | | | | | | | Total | $ (0.68) | | | | | Total | $ - |

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Personal Care

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Personal Care	5.0	0%	$0.40	1.81	**$0.25**	8.7	1.84	4%	3%	1.91	2.11	9.68

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			$= 1 / \text{Design Life}$	$= 100\%$	$= c * d * e$	$= b * f$	$= g * \$0.14$	$= h / (1.03)^a$	$= f * \text{Unit Cost of Regulation}$	$= j / (1.03)^a$	$= i - k$	$= \text{Compliance} + 4(10\%) + 10\% * (a - 1)$	$= c * d * m$	$= b * n$	$= o * \$0.14$	$= p / (1.03)^a$
1	1.81	9.68	20%	100%	1.94	3.50	$ 0.49	$ 0.48	$ 0.77	$ 0.75	$ (0.28)	40%	0.77	1.40	$ 0.20	$ 0.19
2	1.81	9.68	20%	100%	1.94	3.50	$ 0.49	$ 0.46	$ 0.77	$ 0.73	$ (0.27)	50%	0.97	1.75	$ 0.25	$ 0.23
3	1.81	9.68	20%	100%	1.94	3.50	$ 0.49	$ 0.45	$ 0.77	$ 0.71	$ (0.26)	60%	1.16	2.10	$ 0.29	$ 0.27
4	1.81	9.68	20%	100%	1.94	3.50	$ 0.49	$ 0.44	$ 0.77	$ 0.69	$ (0.25)	70%	1.36	2.45	$ 0.34	$ 0.31
5	1.81	9.68	20%	100%	1.94	3.50	$ 0.49	$ 0.42	$ 0.77	$ 0.67	$ (0.24)	80%	1.55	2.80	$ 0.39	$ 0.34

	Total	$ (1.30)		Total	$ 1.33

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Personal Electric Vehicles

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Personal Electric Vehicles	9.7	10%	$12.00	536.84	**$75.16**	0.1	0.04	18%	24%	0.05	0.09	0.22

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation							Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.65	$ 0.27	$ 0.26	$ 1.39	50%	0.01	6.09	$ 0.85	$ 0.83
2	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.61	$ 0.27	$ 0.26	$ 1.35	60%	0.01	7.31	$ 1.02	$ 0.96
3	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.56	$ 0.27	$ 0.25	$ 1.31	70%	0.02	8.52	$ 1.19	$ 1.09
4	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.51	$ 0.27	$ 0.24	$ 1.27	80%	0.02	9.74	$ 1.36	$ 1.21
5	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.47	$ 0.27	$ 0.23	$ 1.24	90%	0.02	10.96	$ 1.53	$ 1.32
6	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.43	$ 0.27	$ 0.23	$ 1.20	100%	0.02	12.18	$ 1.70	$ 1.43
7	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.39	$ 0.27	$ 0.22	$ 1.16	100%	0.02	12.18	$ 1.70	$ 1.39
8	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.35	$ 0.27	$ 0.21	$ 1.13	100%	0.02	12.18	$ 1.70	$ 1.35
9	536.84	0.22	10%	100%	0.02	12.18	$ 1.70	$ 1.31	$ 0.27	$ 0.21	$ 1.10	100%	0.02	12.18	$ 1.70	$ 1.31
9.7	536.84	0.22	10%	100%	0.02	8.52	$ 1.19	$ 0.90	$ 0.19	$ 0.14	$ 0.75	100%	0.02	8.52	$ 1.19	$ 0.90

		Total	$ 11.91				Total	$ 11.78

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
   http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Portable Electronics

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Portable Electronics	5.2	10%	$0.40	1.71	$0.24	10.3	2	9%	18%	2.18	3.31	18.5

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation							Net Savings Assuming No Regulation			
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	1.71	18.50	19%	100%	3.56	6.08	$ 0.85	$ 0.83	$ 1.42	$ 1.38	$ (0.55)	50%	1.78	3.04	$ 0.43	$ 0.41
2	1.71	18.50	19%	100%	3.56	6.08	$ 0.85	$ 0.80	$ 1.42	$ 1.34	$ (0.54)	60%	2.13	3.65	$ 0.51	$ 0.48
3	1.71	18.50	19%	100%	3.56	6.08	$ 0.85	$ 0.78	$ 1.42	$ 1.30	$ (0.52)	70%	2.49	4.26	$ 0.60	$ 0.55
4	1.71	18.50	19%	100%	3.56	6.08	$ 0.85	$ 0.76	$ 1.42	$ 1.26	$ (0.51)	80%	2.85	4.87	$ 0.68	$ 0.61
5	1.71	18.50	19%	100%	3.56	6.08	$ 0.85	$ 0.73	$ 1.42	$ 1.23	$ (0.49)	90%	3.20	5.48	$ 0.77	$ 0.66
5.2	1.71	18.50	19%	100%	0.71	1.22	$ 0.17	$ 0.15	$ 0.28	$ 0.24	$ (0.10)	100%	0.71	1.22	$ 0.17	$ 0.15

	Total	$ (2.71)		Total	$ 2.85

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Portable Lighting

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Portable Lighting	10.0	0%	$0.40	8.62	**$1.21**	1.2	0.01	1%	1%	0.01	0.01	1.2

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			$= 1 /$ Design Life	$= 100\%$	$= c * d * e$	$= b * f$	$= g * \$0.14$	$= h / (1.03)^a$	$= f *$ Unit Cost of Regulation	$= j / (1.03)^a$	$= i - k$	$=$ Compliance $+ 4(10\%) + 10\% * (a - 1)$	$= c * d * m$	$= b * n$	$= o * \$0.14$	$= p / (1.03)^a$
1	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.14	$ 0.05	$ 0.05	$ 0.09	40%	0.05	0.41	$ 0.06	$ 0.06
2	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.14	$ 0.05	$ 0.05	$ 0.09	50%	0.06	0.52	$ 0.07	$ 0.07
3	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.13	$ 0.05	$ 0.04	$ 0.09	60%	0.07	0.62	$ 0.09	$ 0.08
4	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.13	$ 0.05	$ 0.04	$ 0.09	70%	0.08	0.72	$ 0.10	$ 0.09
5	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.12	$ 0.05	$ 0.04	$ 0.08	80%	0.10	0.83	$ 0.12	$ 0.10
6	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.12	$ 0.05	$ 0.04	$ 0.08	90%	0.11	0.93	$ 0.13	$ 0.11
7	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.12	$ 0.05	$ 0.04	$ 0.08	100%	0.12	1.03	$ 0.14	$ 0.12
8	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.11	$ 0.05	$ 0.04	$ 0.08	100%	0.12	1.03	$ 0.14	$ 0.11
9	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.11	$ 0.05	$ 0.04	$ 0.07	100%	0.12	1.03	$ 0.14	$ 0.11
10	8.62	1.20	10%	100%	0.12	1.03	$ 0.14	$ 0.11	$ 0.05	$ 0.04	$ 0.07	100%	0.12	1.03	$ 0.14	$ 0.11

	Total	$	0.83		Total	$	0.95

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Power Tools

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Power Tools	6.5	10%	$3.76	11.32	**$1.58**	15.3	2.87	5%	5%	3.01	3.49	18.6

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

						Net Savings Assuming Regulation							Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	11.32	18.60	15%	100%	2.86	32.39	$ 4.53	$ 4.40	$ 10.76	$ 10.45	$ (6.04)	50%	1.43	16.20	$ 2.27	$ 2.20
2	11.32	18.60	15%	100%	2.86	32.39	$ 4.53	$ 4.27	$ 10.76	$ 10.14	$ (5.87)	60%	1.72	19.44	$ 2.72	$ 2.56
3	11.32	18.60	15%	100%	2.86	32.39	$ 4.53	$ 4.15	$ 10.76	$ 9.85	$ (5.70)	70%	2.00	22.67	$ 3.17	$ 2.91
4	11.32	18.60	15%	100%	2.86	32.39	$ 4.53	$ 4.03	$ 10.76	$ 9.56	$ (5.53)	80%	2.29	25.91	$ 3.63	$ 3.22
5	11.32	18.60	15%	100%	2.86	32.39	$ 4.53	$ 3.91	$ 10.76	$ 9.28	$ (5.37)	90%	2.58	29.15	$ 4.08	$ 3.52
6	11.32	18.60	15%	100%	2.86	32.39	$ 4.53	$ 3.80	$ 10.76	$ 9.01	$ (5.21)	100%	2.86	32.39	$ 4.53	$ 3.80
6.5	11.32	18.60	15%	100%	1.43	16.20	$ 2.27	$ 1.87	$ 5.38	$ 4.44	$ (2.57)	100%	1.43	16.20	$ 2.27	$ 1.87

	Total	$ (36.29)		Total	$ 20.08

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
   http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Universal Battery Charger

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Universal Battery Charger	8.0	50%	$0.40	3.93	**$0.55**	0.9	0.11	3%	3%	0.11	0.12	1

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

						Net Savings Assuming Regulation							Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.07	$ 0.05	$ 0.05	$ 0.02	90%	0.11	0.44	$ 0.06	$ 0.06
2	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.06	$ 0.05	$ 0.05	$ 0.02	100%	0.13	0.49	$ 0.07	$ 0.06
3	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.06	$ 0.05	$ 0.05	$ 0.02	100%	0.13	0.49	$ 0.07	$ 0.06
4	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.06	$ 0.05	$ 0.04	$ 0.02	100%	0.13	0.49	$ 0.07	$ 0.06
5	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.06	$ 0.05	$ 0.04	$ 0.02	100%	0.13	0.49	$ 0.07	$ 0.06
6	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.06	$ 0.05	$ 0.04	$ 0.02	100%	0.13	0.49	$ 0.07	$ 0.06
7	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.06	$ 0.05	$ 0.04	$ 0.02	100%	0.13	0.49	$ 0.07	$ 0.06
8	3.93	1.00	13%	100%	0.13	0.49	$ 0.07	$ 0.05	$ 0.05	$ 0.04	$ 0.01	100%	0.13	0.49	$ 0.07	$ 0.05

Total	$ 0.13		Total	$ 0.48

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Golf Cart / Electric Carts

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Golf Cart / Electric Carts	10.0	50%	$200.00	807.62	**$113.07**	0.175	0.017	16%	11%	0.02	0.03	0.248

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

				Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.72	$ 4.96	$ 4.82	$ (2.09)	90%	0.02	18.03	$ 2.52	$ 2.45
2	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.64	$ 4.96	$ 4.68	$ (2.03)	100%	0.02	20.03	$ 2.80	$ 2.64
3	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.57	$ 4.96	$ 4.54	$ (1.97)	100%	0.02	20.03	$ 2.80	$ 2.57
4	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.49	$ 4.96	$ 4.41	$ (1.92)	100%	0.02	20.03	$ 2.80	$ 2.49
5	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.42	$ 4.96	$ 4.28	$ (1.86)	100%	0.02	20.03	$ 2.80	$ 2.42
6	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.35	$ 4.96	$ 4.15	$ (1.81)	100%	0.02	20.03	$ 2.80	$ 2.35
7	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.28	$ 4.96	$ 4.03	$ (1.75)	100%	0.02	20.03	$ 2.80	$ 2.28
8	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.21	$ 4.96	$ 3.92	$ (1.70)	100%	0.02	20.03	$ 2.80	$ 2.21
9	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.15	$ 4.96	$ 3.80	$ (1.65)	100%	0.02	20.03	$ 2.80	$ 2.15
10	807.62	0.25	10%	100%	0.02	20.03	$ 2.80	$ 2.09	$ 4.96	$ 3.69	$ (1.60)	100%	0.02	20.03	$ 2.80	$ 2.09

	Total	$ (18.39)		Total	$ 23.65

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Emergency Backup Lighting

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Emergency Backup Lighting	10.0	50%	$3.00	8.55	**$1.20**	7.9	2	0%	0%	2	2	7.85

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate   3%

	Net Savings Assuming Regulation											Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.91	$ 2.36	$ 2.29	$ (1.37)	90%	0.71	6.04	$ 0.85	$ 0.82
2	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.89	$ 2.36	$ 2.22	$ (1.33)	100%	0.79	6.71	$ 0.94	$ 0.89
3	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.86	$ 2.36	$ 2.16	$ (1.30)	100%	0.79	6.71	$ 0.94	$ 0.86
4	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.83	$ 2.36	$ 2.09	$ (1.26)	100%	0.79	6.71	$ 0.94	$ 0.83
5	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.81	$ 2.36	$ 2.03	$ (1.22)	100%	0.79	6.71	$ 0.94	$ 0.81
6	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.79	$ 2.36	$ 1.97	$ (1.19)	100%	0.79	6.71	$ 0.94	$ 0.79
7	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.76	$ 2.36	$ 1.91	$ (1.15)	100%	0.79	6.71	$ 0.94	$ 0.76
8	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.74	$ 2.36	$ 1.86	$ (1.12)	100%	0.79	6.71	$ 0.94	$ 0.74
9	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.72	$ 2.36	$ 1.80	$ (1.08)	100%	0.79	6.71	$ 0.94	$ 0.72
10	8.55	7.85	10%	100%	0.79	6.71	$ 0.94	$ 0.70	$ 2.36	$ 1.75	$ (1.05)	100%	0.79	6.71	$ 0.94	$ 0.70

Total $ (12.07)   Total $ 7.92

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Handheld Barcode Scanners

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Handheld Barcode Scanners	8.0	50%	$0.50	19.67	$2.75	0.26	0.02	6%	7%	0.02	0.03	0.32

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate   3%

		Net Savings Assuming Regulation										Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.11	$ 0.02	$ 0.02	$ 0.09	90%	0.04	0.71	$ 0.10	$ 0.10
2	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.10	$ 0.02	$ 0.02	$ 0.08	100%	0.04	0.79	$ 0.11	$ 0.10
3	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.10	$ 0.02	$ 0.02	$ 0.08	100%	0.04	0.79	$ 0.11	$ 0.10
4	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.10	$ 0.02	$ 0.02	$ 0.08	100%	0.04	0.79	$ 0.11	$ 0.10
5	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.10	$ 0.02	$ 0.02	$ 0.08	100%	0.04	0.79	$ 0.11	$ 0.10
6	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.09	$ 0.02	$ 0.02	$ 0.08	100%	0.04	0.79	$ 0.11	$ 0.09
7	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.09	$ 0.02	$ 0.02	$ 0.07	100%	0.04	0.79	$ 0.11	$ 0.09
8	19.67	0.32	13%	100%	0.04	0.79	$ 0.11	$ 0.09	$ 0.02	$ 0.02	$ 0.07	100%	0.04	0.79	$ 0.11	$ 0.09

Total $ 0.63

Total $ 0.76

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.

http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Two-Way Radios

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Small Charger	Two-Way Radios	8.0	50%	$0.50	8.86	**$1.24**	0.6	0.028	0%	0%	0.03	0.03	0.6

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

	Net Savings Assuming Regulation											Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.09	$ 0.04	$ 0.04	$ 0.05	90%	0.07	0.60	$ 0.08	$ 0.08
2	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.09	$ 0.04	$ 0.04	$ 0.05	100%	0.08	0.66	$ 0.09	$ 0.09
3	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.09	$ 0.04	$ 0.03	$ 0.05	100%	0.08	0.66	$ 0.09	$ 0.09
4	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.08	$ 0.04	$ 0.03	$ 0.05	100%	0.08	0.66	$ 0.09	$ 0.08
5	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.08	$ 0.04	$ 0.03	$ 0.05	100%	0.08	0.66	$ 0.09	$ 0.08
6	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.08	$ 0.04	$ 0.03	$ 0.05	100%	0.08	0.66	$ 0.09	$ 0.08
7	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.08	$ 0.04	$ 0.03	$ 0.05	100%	0.08	0.66	$ 0.09	$ 0.08
8	8.86	0.60	13%	100%	0.08	0.66	$ 0.09	$ 0.07	$ 0.04	$ 0.03	$ 0.04	100%	0.08	0.66	$ 0.09	$ 0.07

		Total	$ 0.39				Total	$ 0.64

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Single Phase Lift-Trucks

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Large Charger	Single Phase Lift-Trucks	15.0	0%	$200.00	1,032.47	**$144.55**	0.029	0.002	7%	1%	0	0	0.0298

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

				Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
			= 1 / Design Life	= 100%	= c * d * e	= b * f	= g * $0.14	= h / (1.03)^a	= f * Unit Cost of Regulation	= j / (1.03)^a	= i - k	= Compliance + 4(10%) + 10% * (a - 1)	= c * d * m	= b * n	= o * $0.14	= p / (1.03)^a
1	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.28	$ 0.40	$ 0.39	$ (0.11)	40%	0.00	0.82	$ 0.11	$ 0.11
2	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.27	$ 0.40	$ 0.37	$ (0.10)	50%	0.00	1.03	$ 0.14	$ 0.14
3	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.26	$ 0.40	$ 0.36	$ (0.10)	60%	0.00	1.23	$ 0.17	$ 0.16
4	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.26	$ 0.40	$ 0.35	$ (0.10)	70%	0.00	1.44	$ 0.20	$ 0.18
5	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.25	$ 0.40	$ 0.34	$ (0.10)	80%	0.00	1.64	$ 0.23	$ 0.20
6	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.24	$ 0.40	$ 0.33	$ (0.09)	90%	0.00	1.85	$ 0.26	$ 0.22
7	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.23	$ 0.40	$ 0.32	$ (0.09)	100%	0.00	2.05	$ 0.29	$ 0.23
8	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.23	$ 0.40	$ 0.31	$ (0.09)	100%	0.00	2.05	$ 0.29	$ 0.23
9	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.22	$ 0.40	$ 0.30	$ (0.08)	100%	0.00	2.05	$ 0.29	$ 0.22
10	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.21	$ 0.40	$ 0.30	$ (0.08)	100%	0.00	2.05	$ 0.29	$ 0.21
11	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.21	$ 0.40	$ 0.29	$ (0.08)	100%	0.00	2.05	$ 0.29	$ 0.21
12	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.20	$ 0.40	$ 0.28	$ (0.08)	100%	0.00	2.05	$ 0.29	$ 0.20
13	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.20	$ 0.40	$ 0.27	$ (0.08)	100%	0.00	2.05	$ 0.29	$ 0.20
14	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.19	$ 0.40	$ 0.26	$ (0.07)	100%	0.00	2.05	$ 0.29	$ 0.19
15	1,032.47	0.03	7%	100%	0.00	2.05	$ 0.29	$ 0.18	$ 0.40	$ 0.26	$ (0.07)	100%	0.00	2.05	$ 0.29	$ 0.18

	Total	$ (1.32)		Total	$ 2.87

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives

Exhibit 7 Support

Three Phase Lift-Trucks

Market Segment	Product	Design Life (Years)	Compliance	Unit Cost of Regulation ($)	Unit Energy Savings (Kwh/yr)	First Year Unit Energy Savings ($)	Stock 2009 (million)	Sales 2009 (million)	CAGR Sales 2010	CAGR Sales 2013	Sales 2010 (million)	Sales 2013 (million)	Stock 2013 (million)
Large Charger	Three Phase Lift-Trucks	15.0	0%	$400.00	4,198.48	$587.79	0.074	0.005	7%	1%	0.01	0.01	0.0754

*These figures come from the CEC Report. See Appendices A-1 - A-7

Discount Rate	3%

					Net Savings Assuming Regulation								Net Savings Assuming No Regulation				
Year	Unit Energy Savings (Kwh/yr)	Stock Beginning of Year - 2013 (million)	Turnover	Compliance of New Sales[1]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)	Costs ($M)	Present Value of Costs ($M)	Net Savings With Regulations ($M)	Compliance of New Sales[2]	Compliant Turnover Sales (million)	Energy Savings (Gwh/yr)	Energy Savings ($M)	Present Value of Savings ($M)
a	b	c	d = 1 / Design Life	e = 100%	f = c * d * e	g = b * f	h = g * $0.14	i = h / (1.03)^a	j = f * Unit Cost of Regulation	k = j / (1.03)^a	l = i - k	m = Compliance + 4(10%) + 10% * (a - 1)	n = c * d * m	o = b * n	p = o * $0.14	q = p / (1.03)^a
1	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.87	$ 2.01	$ 1.95	$ 0.92	40%	0.00	8.44	$ 1.18	$ 1.15
2	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.79	$ 2.01	$ 1.90	$ 0.89	50%	0.00	10.55	$ 1.48	$ 1.39
3	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.70	$ 2.01	$ 1.84	$ 0.86	60%	0.00	12.66	$ 1.77	$ 1.62
4	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.63	$ 2.01	$ 1.79	$ 0.84	70%	0.00	14.77	$ 2.07	$ 1.84
5	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.55	$ 2.01	$ 1.73	$ 0.81	80%	0.00	16.88	$ 2.36	$ 2.04
6	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.47	$ 2.01	$ 1.68	$ 0.79	90%	0.00	18.99	$ 2.66	$ 2.23
7	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.40	$ 2.01	$ 1.63	$ 0.77	100%	0.01	21.10	$ 2.95	$ 2.40
8	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.33	$ 2.01	$ 1.59	$ 0.75	100%	0.01	21.10	$ 2.95	$ 2.33
9	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.26	$ 2.01	$ 1.54	$ 0.72	100%	0.01	21.10	$ 2.95	$ 2.26
10	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.20	$ 2.01	$ 1.50	$ 0.70	100%	0.01	21.10	$ 2.95	$ 2.20
11	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.13	$ 2.01	$ 1.45	$ 0.68	100%	0.01	21.10	$ 2.95	$ 2.13
12	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.07	$ 2.01	$ 1.41	$ 0.66	100%	0.01	21.10	$ 2.95	$ 2.07
13	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 2.01	$ 2.01	$ 1.37	$ 0.64	100%	0.01	21.10	$ 2.95	$ 2.01
14	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 1.95	$ 2.01	$ 1.33	$ 0.62	100%	0.01	21.10	$ 2.95	$ 1.95
15	4,198.48	0.08	7%	100%	0.01	21.10	$ 2.95	$ 1.90	$ 2.01	$ 1.29	$ 0.61	100%	0.01	21.10	$ 2.95	$ 1.90

		Total	$ 11.27			Total	$ 29.53

Notes and Sources:

1 100% compliance because the regulations will take effect in year 1.

2 Since year 1 represents 2013, and assuming a 10% growth rate based on a conservative estimate of Energy Star's market penetration growth, compliance in 2013 will assume a 40% increase in compliance from 2009, plus an additional 10% per year.
http://www.energystar.gov/index.cfm?c=partners.unit_shipment_data_archives