

# State of Nevada



## **Five-Year Strategic Plan for the Adoption and Implementation of New Energy Codes 2012 – 2017**

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**Nevada State Office of Energy and  
Renewable Energy and Energy Efficiency Authority**

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## **Acknowledgments:**

The development of the Five Year Strategic Plan for the Adoption and Implementation of New Energy Codes has been funded by American Recovery and Reinvestment Act funds from the U.S. Department of energy's Building Codes Energy Program.

Thank you to NV Energy for their generosity in hosting stakeholder meetings that have been and continue to be essential to these efforts.

Special thanks to the many building code officials and construction industry people who participated in numerous stakeholder meetings and also responded to surveys and telephone interviews to help the consultants and the Nevada State Office of Energy (NSOE) and the Renewable Energy and Energy Efficiency Authority (REEEA) better understand both the opportunities and the challenges associated with the adoption and implementation of new energy codes.

The consultant team extends their appreciation to NSOE Director and Acting State Energy Commissioner Stacey Crowley, NSOE Deputy Director Stephanie Brooks and REEEA Management Analyst spearheading much of the energy codes project, Emily Nunez for their tremendous efforts.

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# **Nevada Strategic Plan for the Adoption and Implementation of New Energy Codes 2012-2017**

## **Executive Summary**

There are many compelling reasons why Nevada needs to proceed with the adoption and implementation of the 2009 IECC energy code and referenced ASHRAE Standard 90.1-2007, and to implement a measurement and verification process to assure a 90% rate of code compliance by 2017. These include: a state-level commitment to the effort, the approval of ARRA funds for the effort, economic, environmental and industry opportunities, and general support from the local municipalities and the public. With the exception of the ARRA funding, which expires in 2012, the need to develop a process for consideration, adoption and implementation of future energy codes promulgated by the International Code Council (ICC) can be supported by all of these reasons. The purpose of this document is to guide the State in the process of adoption and implementation of the 2009 IECC and, over the next five years, in the process of considering future energy code adoption - based upon the codes developed by the International Code Council (ICC) on a three year cycle.

Ultimately, consumer expectations may be the strongest reasons for implementing the 2009 IECC and future energy codes and for working to ensure that there is a high rate of code compliance. Buyers and occupants of homes and commercial buildings have an expectation that they are getting “full value” for their investment in new and remodeled residential and/or commercial buildings. It is their expectation that these buildings are being constructed in accordance with the latest generally-accepted building technology as reflected in current building codes, with the presumption that local building departments are validating this when issuing a certificate of occupancy.

While the Nevada State Office of Energy (NSOE) and the Renewable Energy and Energy Efficiency Authority (REEEA) have been utilizing ARRA funds to provide extensive code training throughout Nevada, there are many people who will still be in need of training after the ARRA funding is no longer available. Some of the State’s local jurisdictions have code enforcement processes which are insufficient to bring about a high level of code compliance. As a result, their processes need to be improved in some manner, including identification of how code enforcement can be provided more efficiently and how code adoption, implementation and enforcement will be funded.

The 90% compliance measurement and verification (M&V) requirement (pursuant to the acceptance of ARRA funds) presents its own unique set of challenges. The measurement and verification process is still in the process of development, and questions remain as to who will do the plan review and inspection portions of the process. In the Las Vegas metro area, the local jurisdictions want to handle this “in

house” – otherwise known as a second-party M&V process. In the Reno-Sparks/Carson City metro area, the early indication from building code officials is that they want to have an independent third-party handle the M&V process. There has not yet been sufficient response from the rural areas to determine if there is a consensus or majority decision towards either alternative. Perhaps the greatest two problems related to the 90% compliance issue are:

- 1) The State of Nevada is responsible for the M&V process, but the ARRA funds will no longer be available for most of the projected M&V process timeframe; and
- 2) Currently, there don't seem to be any consistent reliable cost estimates for the M&V process, particularly for commercial construction.

There are a number of national, regional and Nevada entities that can provide resources to assist with the code adoption, implementation and compliance verification processes. As the State proceeds efforts will be made to utilize these resources as fully as possible.

### Key Decisions to Be Made:

To proceed, NSOE/REEEA must make some critical decisions and needs key information about code enforcement and the 90% compliance M&V in each of three regions in the State (Las Vegas, Reno-Sparks/Carson city and Rural), to wit:

- 1) Who will do plan reviews for 2009 IECC energy code enforcement? In the Las Vegas metro area, it appears that all energy code plan reviews will be done by building code officials. In the Reno-Sparks/Carson City metro area, the building departments have a history of doing residential and some commercial plan reviews in-house but outsourcing the plan reviews for complex buildings. In some of the rural areas, it may make sense to have discussions about how to best accomplish the energy code plan review process.
- 2) Who will do inspections for 2009 IECC energy code enforcement? In Reno and Las Vegas, the building departments have indicated they will be handling this effort. In some of the rural jurisdictions, while the local jurisdictions are responsible for inspections it may make sense to have discussions about how to best accomplish code enforcement.
- 3) What is the incremental cost associated with transitioning from the 2006 IECC to the 2009 IECC for the code enforcement efforts? True incremental costs cannot be determined until Nevada begins the M&V sampling, since there will be a linkage between the change in codes and the level of compliance.
- 4) What is the incremental effort and associated cost in code enforcement associated with moving from the current level of compliance (not yet measured in Nevada, but probably in a range between 65-80% for residential construction) to a 90% level of compliance? Again, to be determined – but sampling in Nevada must be conducted first.

Note: The M&V process is a separate process layered on top of the code enforcement process – sort of a “quality control” feedback loop to help the construction industry and code enforcement officials determine how well the new codes are being followed and enforced. The M&V process will be conducted for a small subset of all construction, consisting of 44 projects in each of four categories: 1) new residential; 2) residential remodel; 3) new commercial and 4) commercial remodel, for a total of 176 projects in Nevada. It involves collecting information at the plan review stage and at various stages of construction through inspection. Pacific Northwest National Laboratory (PNNL), which is the entity overseeing and providing technical support for the M&V process, recommends an independent third-party process, but still presented first-party and second-party processes as options for compliance evaluation.

- 5) Who will do plan review evaluation for the M&V process; building departments or independent third-parties?
- 6) Who will do site (inspection) evaluations for the M&V process; building departments or independent third-parties?
- 7) If building departments handle the M&V plan review and/or site evaluations, would there be a benefit to have independent third-party validation of the M&V processes? If local jurisdictions desire some sort of independent validation, they might consider using the Energy Code Ambassadors. Energy Code Ambassadors, if they agree, might be able to handle the M&V process or provide a third-party validation.
- 8) What are the estimated costs associated with the M&V process? A process will need to be developed for making this determination. One alternative for estimating these costs for commercial construction would be to hire an Architectural and Engineering firm experienced in plan review and inspections to create a table/matrix associated with building occupancy, type and complexity of construction, and tied to construction costs – much like the ICC table that is typically used by local jurisdictions for determining building fees. For residential construction, HERS providers and other certified energy auditors have significant experience in third-party evaluations.
- 9) What are the preferred options for funding these M&V efforts after the expiration of ARRA funding? What are the State’s best options and chances for securing funding? Is this something that can be tasked to the collaborative team<sup>1</sup> to determine, or perhaps done with assistance of outside partners such as the Southwest Energy Efficiency Program (SWEET) or the Building Codes Assistance Project (BCAP)?

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<sup>1</sup> This Five Year Strategic Plan proposes the formation of a statewide Nevada Energy Collaborative. See Nevada Action Item 1 below.

## Action Items:

The following recommendations are specific action steps that NSOE/REEEA should take in order to advance the adoption and implementation of the 2009 IECC energy code and referenced ASHRAE Standard 90.1-2007, and to implement a measurement and verification process to assure a 90% rate of code compliance by 2017, as well as to develop an ongoing process and infrastructure for the consideration and adoption of future energy efficiency codes.

### ❖ Nevada Action Item 1: Statewide Energy Code Collaborative.

**Organize a Statewide Nevada Energy Code Collaborative along the lines of the Idaho model, for the purpose of: 1) assisting with the evaluation, adoption and implementation of new energy codes; 2) consideration of new or revised processes to improve levels of code compliance; 3) expansion of energy code outreach and awareness throughout local governments, the construction industry and the general public; and 4) consideration of and pursuing other resources that could be utilized to advance energy efficiency through energy codes in Nevada. NSOE/REEEA should identify key participants/stakeholders for achieving success, with participants providing geographic and industry-sector diversity, as well as a method of funding the collaborative after ARRA funding is no longer available.**

### ❖ Nevada Action Item 2: Energy Code Training.

**In the area of energy code training, NSOE/REEEA should:**

- 1. Investigate having Community Colleges offer courses for students interested in becoming building code officials or design or construction professionals, with appropriate tuition levels to cover costs of these classes;**
- 2. Utilize the College of Extended Studies at UNR and/or UNLV, and/or private entities, to provide classes qualifying for CEUs for professionals desiring to enhance their skills and obtain needed CEUs in their professions. Students typically pay fees to take these classes. This is “the traditional model” for providing this sort of training, and when provided through Extended Studies, the university system distance learning infrastructure is often used to provide training in rural areas of the State;**
- 3. Continue to coordinate with the Southern Nevada chapter of the International Codes Council (SNICC) for energy code classes to be offered at the Educode Conference held annually in Las Vegas, which provides ICC CEUs to building code officials. While ARRA funds were utilized to provide scholarships to Nevada building code officials in 2011, the traditional model is for the building code officials to either pay for their own registration and travel expenses or to be reimbursed by their local jurisdictions. The Northern Nevada ICC chapter can also be utilized to promote and host training events;**



4. **NSOE could continue to sponsor free training across Nevada, which would require identification of a funding source after the ARRA funding ends;**
5. **Utilize the network of energy code ambassadors (building code official volunteers specifically trained to provide energy code training and advice) to provide peer training and construction industry training (which would also required a funding source after the ARRA funding ends); and**
6. **Utilize the support volunteered by NV Energy to sponsor energy code training throughout its service territory.**

❖ **Nevada Action Item 3: Potential for Rural Jurisdiction Collaboration.**

**NSOE/REEEA needs to encourage the rural counties and cities to come together – perhaps inviting or organizing the meeting through the Nevada Association of County Officials (NACO) and the Nevada League of Cities - and make decisions about how they wish to proceed with code enforcement (plan review and inspection). Code enforcement is the responsibility of local jurisdictions.**

**The collaborative team or NSOE/REEEA could provide examples of systems and methods including regional code enforcement models (i.e. traveling Energy Code Ambassadors).**

This is the most urgent of the action items, since the state adoption process of the 2009 IECC energy code is well under way, and when the code is adopted and becomes effective, it will set a minimum level for all jurisdictions in Nevada. Until other funding options are developed, the rural jurisdictions should assume that the costs of code enforcement will be covered through building permit fees, regardless of who does the plan review and inspection. After a statewide collaborative is formed, it might work with rural jurisdictions to explore the potential for state assistance if there is not an appropriate level of compliance with the new energy code.

❖ **Nevada Action Item 4: Selecting an Option for Measurement and Verification – Reno-Sparks and Rural Jurisdictions.**

**NSOE/REEEA will need to work with the Reno-Sparks/Carson City metro area jurisdictions and the rural jurisdictions to determine how they will proceed either doing their own sampling or using a certified third-party entity to conduct the M&V process. In either case, a primary issue will be how to fund the M&V efforts for all of these years when ARRA funds are no longer available. As part of this consideration, there will need to be a determination of what type of expertise/certification will be needed by an evaluator.**

❖ **Nevada Action Item 5: Options for Funding Incremental Costs of Code Enforcement and Measurement and Verification Efforts after ARRA.**

**NSOE/REEEA should continue to investigate and involve key stakeholders (perhaps through the collaborative suggested in Action item 1) in reviewing options for funding both the higher costs of plan review and inspections associated with the 2009 IECC and the costs of M&V in years after the ARRA funds are not longer available.**

With the adoption of any or all of these action items, NSOE/REEEA, should consider the following operational processes:

- Assign corresponding roles and actions to each key participant/stakeholder,
- Establish milestones for tracking progress toward the 90% goal, and
- Provide a schedule for completing actions.

Having transitioned from the fastest growing state in the nation for the last three decades to the state worst hit by the Great Recession, Nevada should take the opportunity of this slower period of growth to become a national model for energy efficiency and renewable energy. Becoming a leader in energy code adoption and implementation is absolutely a key component in this decision.

## Why Does Nevada Need an Energy Codes Strategic Plan?

**1. Governor's Assurance Certification:** At the height of the Great Recession in March of 2009, in order for Nevada to receive over \$34.7 million in ARRA funds, Nevada's former Governor executed a Governor's Assurance Certificate and letter committing Nevada to the adoption of the 2009 IECC energy code and ANSI/ASHRAE/IESNA Standard 90.1-2007. These documents further committed Nevada to adopt a plan to achieve 90% compliance within eight years (Appendix 1).

Nevada's current Governor, Brian Sandoval, has expressed his interest in growing the energy efficiency industry in Nevada and accordingly has determined that the State's commitment to adopt the 2009 IECC energy code and referenced ASHRAE Standard 90.1 - 2007 is exempt from his executive order barring the implementation of any new regulations in Nevada.

**2. NRS 701.220:** As indicated on page 3 of the Governor's letter, the Governor "*directed the Nevada State Office of Energy (NSOE) to introduce a bill and work with the 2009 Nevada Legislators and local governments for the modification of NRS 701.220 subsection 4, so that the governing body of a local government that enforces a building code shall adopt and enforce the standards adopted by NSOE as the minimum standards.*"

Nevada Revised Statute (NRS) 701.220 (see Appendix 2 for the entire NRS 701.220) includes the following language:

1. The Commissioner shall adopt regulations for the conservation of energy in buildings, including manufactured homes. Such regulations must include the adoption of the most recent version of the *International Energy Conservation Code*, issued by the International Code Council, and any

amendments to the *Code* that will not materially lessen the effective energy savings requirements of the *Code* and are deemed necessary to support effective compliance and enforcement of the *Code*, and must establish the minimum standards for:

- (a) The construction of floors, walls, ceilings and roofs;
- (b) The equipment and systems for heating, ventilation and air-conditioning;
- (c) Electrical equipment and systems;
- (d) Insulation; and
- (e) Other factors which affect the use of energy in a building.

↳ The regulations must provide for the adoption of the most recent version of the *International Energy Conservation Code*, and any amendments thereto, every third year.

. . .

4. The standards adopted by the Commissioner are the minimum standards for the conservation of energy and energy efficiency in buildings in this State. The governing body of a local government that is authorized by law to adopt and enforce a building code:

- (a) Except as otherwise provided in paragraph (b), shall incorporate the standards adopted by the Commissioner in its building code;
- (b) May adopt higher or more stringent standards and must report any such higher or more stringent standards, along with supporting documents, to the Commissioner; and
- (c) Shall enforce the standards adopted.

**3. Economic Reasons:** While \$34.7 million was a significant amount of money much needed by Nevada during the recession, neither the Governor nor the Legislature would have taken the actions cited above unless the energy-code adoption made “good economic sense” for the State of Nevada. The following are some of the economic aspects of energy-efficient building codes that have motivated governments and the building design and construction industries across the U.S. to adopt energy-efficient building codes.

New construction cost-benefit analysis: The net financial benefit (energy cost savings) is significant relative to the net incremental cost for buildings constructed in accordance with the new energy codes (2009 IECC or ASHRAE standard 90.1–2007) compared to preceding energy codes. Analyses for Nevada’s two climate zones show annual energy cost savings ranging from 2.7% to 6.1% for non-residential conditioned space, and from 2.7% to 6.3% for residential space when comparing ASHRAE 90.1-2007 to IECC 2006.<sup>2</sup> For single family residences, the comparison of 2009 IECC versus 2006 IECC estimates annual energy cost savings ranging from 13% to 17%, or \$205 to \$252 per year for a “typical” single family house.<sup>3</sup> The incremental residential construction costs to achieve these savings are estimated at around \$777. When typical mortgage financing is assumed (20% down would be \$155), residential home buyers recover their incremental down payment within the first year of ownership and benefit from net annual cost savings of at least \$160 thereafter, as do subsequent occupants of the premises for the lifetime of those residences (at least 50 years). The range of net benefit achieved over a presumed 50 year life span is \$10,250 to \$12,600 for an initial cost of \$777, not factoring in the time value of money or escalation rates for future energy costs.

<sup>2</sup> [http://www.energycodes.gov/publications/techassist/90-1-2007\\_Commercial\\_Nationwide\\_Analysis.pdf](http://www.energycodes.gov/publications/techassist/90-1-2007_Commercial_Nationwide_Analysis.pdf)

<sup>3</sup> <http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level>

Utility infrastructure and rate-payer cost-benefit comparison: Energy saved at the point of use not only reduces the need for that amount of energy to be produced at the source, but also reduces the amount of energy required for transmission (losses), as well as costs associated with new production facilities needed to accommodate growing energy requirements in the region. Further, most energy production involves some level of environmental impact mitigation cost, and this, too, is avoided through energy efficiency. Over time, significant portions of all of these various savings (avoided costs) accrue to rate payers.

In Nevada (climate zones 3 and 5), if one assumes a 50 year life for new residential units, the transition from the 2006 IECC to the 2009 IECC results in energy savings at a cost equivalent to less than \$0.005/kWh or \$0.14/therm. To be conservative, if the assumed life of the units is shortened to 20 years, the comparisons stated in energy-production cost equivalencies are of less than \$0.34 per therm or \$0.012 per kWh (see Appendix 3). This is significantly lower than the cost of providing energy through electrical generation or the direct use of natural gas for space and water heating. As greater energy efficiency is achieved through new construction incorporating new codes, the weighted average use of energy per square foot will decrease. Energy efficiency codes reduce energy demand across the board for all new construction; just as rising demand pushes prices up, energy efficiency can help keep energy prices low.

Economic impact analysis: Nevada imports the vast majority of fuels used to produce the energy consumed in the state – approximately 89% in 2008 according to DOE.<sup>4</sup> Nevada’s 2008 expenditures for coal and natural gas were estimated to be in excess of \$2.6 billion. Importation of energy results in the exportation of dollars. Just as base industries have an economic multiplier effect through exports (resulting in importing dollars, which then ripple through the local economy), energy efficiency results in what is known as **import substitution**, resulting in a similar economic impact multiplier effect. In this instance, improvements in new construction will be substituted for future energy consumption. The increased construction expenditures will produce non-recurring positive economic impacts, and fewer dollars being exported for energy over the lifetime of those buildings means more money will be available to be spent locally on other goods and services, creating an ongoing positive economic impact in the local communities and in the State.

**4. Environmental Reasons:** Energy efficiency is often acknowledged as the quickest, cheapest and cleanest way to reduce energy use and lower greenhouse gas emissions. Cutting inefficient, wasteful energy use in the building sector makes great sense because buildings (including residential) account for 70 percent of the electricity and 40 percent of the total energy used in the United States. Since the average lifespan of a building is 50 years or more, achievable and cost-effective energy efficiency requirements put in place today will affect building energy usage through 2061 and beyond. Because energy codes reduce building energy consumption, those codes also reduce power plant emissions of greenhouse gases and air pollutants from the burning of fossil fuels. Electricity production is one of the leading generators of air pollution in our local communities and globally – pollutants

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<sup>4</sup> [http://www.eia.doe.gov/emeu/states/\\_seds.html](http://www.eia.doe.gov/emeu/states/_seds.html)

include mercury, sulfur dioxide, nitrous oxides, and carbon dioxide. Energy efficient codes also create more comfortable living and working environments (keeping people warm in the winter and cool in the summer) while also providing improved indoor air quality.

Because a building functions best as an integrated system in which all parts are designed to work together, and because retrofits to components such as HVAC systems and building envelope can be difficult to accomplish after initial construction, the most effective energy savings can be achieved at least cost when a building is initially constructed to energy efficient codes such as the 2009 IECC.

**5. Consumer Expectations:** Information such as vehicle mileage standards and energy star appliance ratings are leading to increasing consumer expectations about efficiency and operating cost information in other areas – such as home energy use. For example:

November 9, 2010. WASHINGTON, D.C. — Consumers Union today commented on a new program by the U.S. Department of Energy (DOE) called the Home Energy Score, which lets homeowners compare the energy consumption of their homes to other homes. The Home Energy Score for your house would be similar to the mile-per-gallon rating for your vehicle.  
([http://www.consumersunion.org/energy/press\\_releases/cu-says-department-of-energy's-home-energy-score-program-could-help-consumers-save-money](http://www.consumersunion.org/energy/press_releases/cu-says-department-of-energy's-home-energy-score-program-could-help-consumers-save-money))

In Nevada's region:

- 85% of consumers want to know the home's energy operating costs before they buy
- 77% believe that disclosure of energy use allows them to make informed decisions
- 59% have made some sort of EE upgrade in the past 5 years (most common is CFLs though)
- 75% of people believe that homebuilders should not make less efficient homes at the consumers' expense

Nationally:

- 54% of people who pay \$300+ on energy bills make less than \$60K  
(Source: 2011 Survey by BCAP report to be published July 2011)

When it comes to homes and commercial building, there is an even more basic “consumer expectation”. ***Buyers and occupants of homes and commercial buildings have an expectation that they are getting “full value” for their investment in new and remodeled residential and/or commercial buildings. It is their expectation that these buildings are being constructed in accordance with the latest generally-accepted building technology as reflected in current building codes, with the presumption that the local building departments are validating this when issuing a certificate of occupancy.*** There are three distinct implications inherent in these expectations: 1) that building contractors and designers accept the adopted codes as a minimum requirement for design and construction, 2) that the governmental jurisdictions are “staying current” in their adoption of the latest codes, and 3) that the local building departments are ensuring that construction is being done in accordance with these codes.

**6. Industry Participation and Support:** The building industry in the 21<sup>st</sup> century has participated with energy advocates to keep an eye on promotion of codes that fulfill national needs for energy independence and also keep housing cost at an affordable level. In the City of Elko, for example, the

design professionals (architects and engineers) pushed for the adoption of the 2009 IECC so that they would be able to utilize the most current materials and systems in their designs.

One major development has been the introduction of the voluntary National Green Building Standards ICC 700-2008. National and local home builder organizations worked for many years with the code industry to design, codify and endorse the Green Standards. The standards go beyond the normal energy code encumbrance and approaches energy savings from a global perspective with such concepts as passive and active solar opportunities.

Associated Builders & Contractors (ABC) – ABC is a construction trade association established in 1977, representing all of Nevada. The Nevada chapter is one of the 79 chapters of the national Associated Builders and Contractors, Inc. (ABC) established in 1950 provides programs and services to help ensure that the needs of the merit shop contractors and the construction industry as a whole are adequately met and represented. ABC has a green building certification. [www.abcnevada.org](http://www.abcnevada.org)

Associated General Contractors (AGC) – AGC is represented in both Las Vegas and Reno. Established in 1918, the Associated General Contractors of America is the oldest, largest and most respected construction trade association in the United States. Many courses and training have been provided in LEED and Green Building practices. [www.nevadaagc.org](http://www.nevadaagc.org)

Builders Association of Northern Nevada (BANN) – Chartered in 1956, the Builders Association of Northern Nevada is a non-profit organization affiliated with the National Association of Home Builders and is committed to education, information, representation and benefits to their membership, community and the building industry. [www.thebuilders.com](http://www.thebuilders.com)

BANN, their members, and the Business Environmental Program of the University of Nevada (UNR-BEP) collaborated through a working group process to develop Built Green Nevada. Builders are encouraged to voluntarily participate demonstrating that the homes they build are high quality, high performing homes with reduced environmental impacts, lower operating costs, and improved livability. The ICC 700 provides a rating system that allows for differentiation of homes. The home rating system includes numerous elements in the areas of:

- Lot Design, Preparation, and Development
- Resource Efficiency
- Water Efficiency
- Energy Efficiency
- Indoor Environmental Quality
- Operations, Maintenance, and Building Owner Education

The Rating system is supported by the National Association of Home Builder's Green Building Certification. This green certification is designed to ensure the quality and high performance of its certified homes by incorporating an independent third party review and inspection service utilizing trained and certified raters. Specific documentation is required by the standard to be eligible for scoring, ensuring that green features are constructed, installed, perform as designed, and provide higher value when rated.

The ICC 700 includes energy saving components such as the Energy Star program. NAHB worked closely with Energy Star to promote special ratings for the contractor if the features were include in new and remodeled homes. The provisions of the energy chapter were designed to reduce energy consumption of buildings by reducing the use of fossil fuels as a source of building energy and reducing green house gas emissions attributed to such use. The goal is to encourage the use of on-site renewable energy sources leading to the construction of net-zero-energy buildings by 2050.

National Association of Office and Industrial Properties (NAIOP) – The Commercial Real Estate Development Association, is the leading organization for developers, owners and related professionals in office, industrial and mixed-use real estate. NAIOP provides unparalleled industry networking and education, and advocates for effective legislation on behalf of our members. NAIOP advances responsible, sustainable development that creates jobs and benefits the communities in which our members work and live. [www.naiop.org/northern\\_nevada/](http://www.naiop.org/northern_nevada/)

Southern Nevada Home Builders Association (SNHBA) - Founded in 1953 by 12 local homebuilders and incorporated with the State in 1954, the Southern Nevada Home Builders Association ranks as the oldest and largest local trade organization representing the residential construction industry. It has nearly 300 members, working in all facets of the homebuilding industry. SNHBA and the Green Building Initiative started work to develop a local green building program in 2005. The association's Green Building Committee developed the localized requirements for participation in the program. [www.snhba.com](http://www.snhba.com)

In 2005, the SNHBA, representing the residential construction industry in southern Nevada, collaborated with the Green Building Initiative, based in Portland, Oregon, to develop a local green building program based on southern Nevada's unique climate and environmental constraints. SNHBA's Green Building Committee, consisting of some 30 stakeholders including industry representatives, engineers, product suppliers, utilities, and local governmental jurisdictions, looked to the National Association of Home Builders' "Model Green Building Guidelines" as the starting point for their green building program. The Southern Nevada Green Building Partnership Guidelines provide a voluntary customized green building program that maintains housing affordability.

#### Other Nevada Entities Supporting Energy-Efficiency:

- ASHRAE of Southern Nevada: <http://www.ashraesn.com/>
- HomeFree Nevada (Nevada's Home Performance with Energy Star): <http://www.homefreenevada.org/>
- Nevada Energy Star Partners: <http://www.thinkenergystar.com/>
- Northern Nevada Chapter of ASHRAE: <http://www.nonevashrae.org/>
- NV Energy: <http://www.nvenergy.com/>
- Southern Nevada Air Conditioning and Refrigeration Service Contractors Association: <http://www.snarsca.com/>
- Southern Nevada Building Performance Professionals: <http://snbpp.org/>



- Southwest Gas: <http://www.swgas.com/>
- The American Institute of Architects, Nevada Chapter: <http://www.aianevada.org/>
- U.S. Green Building Council, Nevada Chapter: <http://www.usgbcnv.org/>

**7. Political Support:** At the State level, renewable energy and energy efficiency has been identified by the current and two former Governors, the Lt. Governor, the Nevada Commission for Economic Development and by the Legislative leaders of both political parties as a key to Nevada’s economic future.

Nevada has adopted one of the most aggressive renewable energy portfolio standards (RPS) in the country, pursuant to NRS 704.7801 - NRS 704.7828, with the following schedule currently in effect:

- 6% renewable energy/efficiency in 2005 and 2006
- 9% renewable energy/efficiency in 2007 and 2008
- 12% renewable energy/efficiency in 2009 and 2010
- 15% renewable energy/efficiency in 2011 and 2012
- 18% renewable energy/efficiency in 2013 and 2014
- 20% renewable energy/efficiency in 2015 through 2019
- 22% renewable energy/efficiency in 2020 through 2024
- 25% renewable energy/efficiency in 2025 and thereafter<sup>5</sup>

Note: For utilities to meet the RPS, they sometimes have to purchase energy from renewable sources at a cost that is higher than the costs of producing this energy with fossil fuels. Meanwhile, the effective cost of energy saved through new building codes is at a fraction of the cost of energy produced by fossil fuels.

While efficiency measures can be used to satisfy a portion of the RPS requirement (capped at 25% of the total standard in any particular year), energy efficiency resulting from new building codes generally does not meet some of the qualifying requirements – so it can’t be included in the numerator of the RPS ratio. *However, building codes will help to reduce total electricity demand, thereby increasing the effective percentage of energy supplied by renewable energy by reducing the denominator in the ratio.*

At the local level, all of the largest jurisdictions (Carson City, Clark County, Henderson, Las Vegas, North Las Vegas, Mesquite, Reno, Sparks and Washoe County) are actively supporting climate protection, energy efficiency, green building construction and/or sustainability through numerous organizations and affiliations. The local elected officials and professional managers of Nevada’s population centers are supportive of energy efficiency and renewable energy.

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<sup>5</sup> Database of State Incentives for Renewables and Efficiency.  
[http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=NV01R&state=NV&CurrentPageID=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NV01R&state=NV&CurrentPageID=1)



## Challenges to Nevada's Adoption and Implementation of New Energy Codes

Two gap analysis reports were completed for the Renewable Energy and Energy Efficiency Authority (REEEA): one by the Building Codes Assistance Project (BCAP) and another locally-focused study conducted by the UNR Business Environmental Program (BEP) in conjunction with the Builders Association of Northern Nevada (BANN) and the Southern Nevada Builders Home Association (SNHBA).

The BEP study identified four basic types of gaps (challenges) that must be overcome or mitigated in the adoption and implementation of new energy-efficiency building codes:

- 1) Energy efficiency knowledge gaps: building code officials and building industry personnel need more knowledge about the new building materials, design and construction processes, and approaches for evaluating energy efficiency that form the basis for the new energy codes;
- 2) Energy codes process gaps: building code officials and industry people need to know what new regulations will require, what the timing will be for adoption, what the timing will be for implementation, and who will be responsible for the various aspects of enforcement;
- 3) Resources: all parties are anxious to know what resources may be needed and what resources the State may make available to implement the new energy codes; and
- 4) Compliance: there is a general question throughout the State asked by those aware of the compliance requirement as to how the State will determine the compliance alternatives in a manner that meets the State's obligation to the federal government while also recognizing local preferences and resource availability (or lack thereof).

Further, the BEP study determined that the gaps were different in each of three geographic regions: the Las Vegas Metro area, the Reno-Sparks/Carson City Metro area, and Rural Nevada. The most significant challenge appears to be the lack of infrastructure and resources needed for code adoption and implementation in Rural Nevada. The next greatest challenge seems to be identifying the resources needed to accommodate the higher level of effort that will be required for plan review and inspection to assure that the new codes are being followed and to measure and verify compliance (the 90% compliance requirement associated with receiving the \$34.7 million of ARRA funding) on an ongoing basis – particularly in the face of building department staff reductions resulting from the current recession and the drop in permit fees that fund building departments.

The BCAP study identified a number of specific challenges Nevada faces in the adoption and implementation of the 2009 IECC, several of which are also noted in the BEP study:

Gaps for Energy Code Adoption:

1. The state does not have an automatic energy code review and update process on a three-year cycle. Current rules required by the state legislature cause the update cycle to be on a two year delay compared to the IECC publication process.

2. Some stakeholders in rural regions in the state are unaware of the development of NRS 701.220 or are indifferent towards the development of the new code.
3. Nevada has not adopted a modern energy code for state funded buildings, nor one that “pushes the market” in leading by example.
4. Nevada currently has two statewide energy efficiency policies under development, but it is unknown to what extent, if any, they will address building codes.
5. Rural areas are slow to adopt an energy code.

Gaps for Energy Code Implementation:

1. Currently there is no data available for the State to know the current level of compliance. There is not a method in place to measure and evaluate compliance with the energy code.
2. Nevada lacks a funding mechanism to implement many of the recommendations within this report.

Gaps for Stakeholder Participation:

1. Many consumers do not realize that there is a mandatory statewide energy code, or if their home and/or business premises meet the code and others are unaware of the amount of energy and money they would save if they lived in a home or if their business occupied premises that were built to the latest model energy codes.
2. Product manufacturers in the state are an untapped resource.

Addressing these gaps is another potential area for a statewide collaborative team to participate in developing recommendations.

## Resources Available to Support Nevada’s Adoption and Implementation of New Energy Codes

Resources currently available to support adoption and implementation of new energy codes can be categorized in several ways: Public resources and private resources, resources available in the short term and resources available in the long term.

### Nevada Public Resources:

Nevada State Office of Energy (NSOE) and the Renewable Energy and Energy Efficiency Authority (REEEA): On February 16, 2011, Governor Sandoval proposed consolidating REEEA with the Nevada State Office of Energy and announced the Energy Director, Stacey Crowley, as Nevada’s Acting Energy Commissioner, pursuant to SB426. Programs and regulations currently under REEEA include the creation of a comprehensive statewide energy plan, adopting regulations for evaluating energy consumption in residences and energy conservation in buildings, and granting partial property, sales and use tax abatements to qualifying renewable energy facilities.

The Energy Conservation in Buildings Program is currently funded 100% through ARRA funds, which are due to sunset April 30, 2012. NSOE/REEEA currently has one Program Manager working on this project, and is working with the Commissioner to begin the rulemaking process to adopt the 2009 IECC. For most of Nevada, sampling against the 2009 codes will begin after July 1, 2012 when the new law is anticipated to go into effect. Unfortunately, after April 2012, ARRA funding will no longer be available so the NSOE/REEEA is currently applying for other federal funding to support the ongoing efforts of this project and to achieve 90% compliance by 2017. If funding is not secured, the NSOE will be short staffed and will need to pull other staff members to carry out the program as time allows.

University of Nevada, Reno Business Environmental Program (BEP): The Business Environmental Program is a statewide outreach program through UNR with offices in Las Vegas and Reno hosted by NV Energy. BEP receives no university funding, but is entirely funded by “soft money” coming through a variety of state and federal contracts and grants, mostly in the areas of environmental compliance and pollution prevention, but with some short term funding for energy efficiency assistance. BEP is currently providing support to NSOE/REEEA for adoption and implementation of the 2009 IECC energy code and referenced ASHRAE Standard 90.1 – 2007 through two contracts which are scheduled to be completed in May and December 2011. Partnering with BEP are the Builders Association of Northern Nevada, the Southern Nevada Home Builders Association, K energy (Boise, Idaho), and the Building Codes Assistance Project (Washington, DC and New York).

Two of the BEP staff recently received “train-the-trainer” energy codes training, and have the skills needed to provide codes training to building department employees and construction industry personnel, as well as provide technical assistance – essentially responding to questions. Two key

employees have strong backgrounds in energy efficiency programs and policy. Several other key BEP employees are experienced in supporting training events, webinars and similar programs for information dissemination. The ability of BEP to continue providing such resources is dependent upon future funding dedicated to these efforts.

Local Governmental Building Departments: The building departments in the Las Vegas metro area worked together (Southern Nevada Building Officials – or SNBO) and have already adopted the 2009 IECC - with several amendments (all reviewed and deemed more stringent by PNNL), to become effective July 2011. This collaborative effort is significant and should benefit implementation of the 2009 IECC in the region.

A number of jurisdictions in northern Nevada formed a steering committee for the adoption of the 2006 IECC. While certainly not as progressive as the Las Vegas metro building departments, this cooperation in northern Nevada represents a “resource” that can probably be utilized again to assist with local adoption and implementation of the 2009 IECC.

By Nevada law (NRS 275), Nevada building code officials are required to become certified by a code officials’ association (International Code Council – or ICC). According to ICC, there were 48 plan examiners and building inspectors in Nevada with energy inspector certifications in 2010.

At this time, within Nevada only the Las Vegas metro area building departments are substantially ready for implementation of the 2009 IECC energy code. Throughout all of the State, the economic crisis has led many building departments to significantly reduce the size of their staffs, and they have limited flexibility for dealing with the scale of change that will be required with the implementation of the 2009 IECC energy code. For example, in some building departments attending 2009 IECC training can mean that no one is left to handle ongoing work. Some building department budgets have little or no allowance for travel expense to attend training. Any additional time requirements for plan review and inspection to assure proper implementation of the 2009 IECC energy codes will be problematic in many, if not most Nevada communities.

### National and Regional Resources / Partners:

As previously noted, there are a number of national and regional entities that are currently available to assist the state with adoption and implementation of new energy codes. Resources vary from advocacy to research, technical and policy analysis, as well as providing training and materials on energy efficiency and the energy codes. A number of these are listed in Appendix 4.

It is recommended that NSOE/REEEA contact these agencies as needed for the implementation, measurement and compliance of the codes and/or adoption of future codes.

## Options for Nevada’s Current Adoption, Implementation, Enforcement and Measurement & Verification (90% Compliance) of New Energy Codes

As Nevada moves forward with the process set in motion by NRS 701.220 towards the adoption and implementation of the 2009 IECC energy code and referenced ASHRAE Standard 90.1 – 2007, there are a number of choices to be made by the State and the local jurisdictions.

To organize an examination of the many decisions to be made and options available, the authors of this Strategic Plan decided to begin by reviewing the recommendations made in the BCAP Gap Analysis. While some of these recommendations are based upon an inherent assumption that Nevada can/will fund the recommended items, and while that is highly unlikely in the current economic and fiscal environment, the recommendations are still worthy of listing as they help to formulate action items that the State will need to consider. These BCAP recommendations can be grouped into several major categories, and for each category there are options for Nevada, along with some recommended Action Items.

### Energy Code / Energy Policy Outreach & Adoption Processes:

**BCAP Recommendation #1:** The state should adopt an automatic review and update process for future iterations of the model energy code to lock in future energy savings and remove speculation after the release of each new model energy code.

**BCAP Recommendation #2:** The state could make extra measure for outreach to rural areas of the state.

**BCAP Recommendation #3:** The state should adopt energy codes [for State buildings] that are more stringent than state energy codes. By requiring a more stringent energy code for state-funded buildings, the state demonstrates fiscal responsibility with tax payer dollars. In addition, more stringent requirements familiarize and train the construction industry and code enforcement officials, and increase demand for “greener” products from product suppliers, manufacturers and service providers. More efficient public buildings also help governments hedge against uncertain future energy costs and availability, and reduce a government’s susceptibility to fuel price volatility while creating jobs and stimulating the local economy.

**BCAP Recommendation #4:** Nevada should consider incorporating building energy codes into its Energy Conservation Plan currently under development. This will link energy codes as one policy that can support related policies (e.g., energy efficiency can help make the RPS goals easier to achieve; energy efficiency can help reduce emissions in EPA non-attainment areas; support of energy codes can help achieve EERS goals).

**BCAP Recommendation #6:** REEEA should continue outreach targeted at local involvement in the adoption of the statewide code, and establish itself as the go-to organization for energy code implementation issues.

For adoption of the 2009 IECC, the NSOE/REEEA has organized many stakeholder meetings and is complying with the requirements of NRS 701.220 for public workshops and hearings. However, REEEA has not been able to utilize any existing statewide stakeholder organization in this effort – since no such established organization exists. Previously, Nevada had the Renewable Energy and Energy Efficiency Task Force, but it didn't undertake involvement in the energy code adoption process.

In anticipation of the recurring three-year cycle for considering new energy codes, NSOE/REEEA could repeat the ad hoc process currently being employed for adoption of the 2009 IECC energy codes. A better option would be to establish a statewide Nevada Energy Code Collaborative, involving stakeholders representing different geographic regions and interests to evaluate new energy code adoption and implementation processes for the State.

A model for this could be the Idaho Energy Code Collaborative which has been in existence for over ten years. Its membership includes representatives from the Association of Idaho Cities, the State of Idaho, the Building Contractors Association, Idaho Association of Building Code Officials, Idaho chapter of the American Architects Association, Idaho Realtors Association and legislators. Anyone who feels they are a stakeholder can be a member. When new codes are released by the International Codes Council, the Idaho Energy Codes Collaborative meets once or twice per quarter until implementation is going well. Their budget has been around \$140,000 per year, and the money has come from the Northwest Energy Efficiency Alliance (NEEA). Nevada would need to identify a funding source if it were to pursue this sort of statewide code collaboration in the future. NEEA receives a majority of its funding from the Bonneville Power Administration, which is a federal non-profit and is part of the U.S. DOE. There is no similar entity in the southwest to fund these types of efforts.

❖ **Nevada Action Item 1: Statewide Energy Code Collaborative.**

**Organize a Statewide Nevada Energy Code Collaborative along the lines of the Idaho model, for the purpose of: 1) assisting with the evaluation, adoption and implementation of new energy codes; 2) consideration of new or revised processes to improve levels of code compliance; 3) expansion of energy code outreach and awareness throughout local governments, the construction industry and the general public; and 4) consideration of and pursuing other resources that could be utilized to advance energy efficiency through energy codes in Nevada. NSOE/REEEA should identify key participants/stakeholders for achieving success, with participants providing geographic and industry-sector diversity, as well as a method of funding the collaborative after ARRA funding is no longer available.**

The Idaho Energy Code Collaborative was initiated in 2002, and its members include the following organizations, plus other interested parties:

Associated General Contractors of America  
Associated Builders and Contractors  
Association of Idaho Cities  
Idaho Association of Building Officials  
Idaho Association of Counties  
Idaho Association of Realtors  
Idaho Building Contractors Association  
Building Contractors Association of Southwestern Idaho  
BCA of Southeast Idaho  
BCA of the Wood River Valley  
Eastern Idaho Home Builders Association  
Lewis-Clark Building Contractors Association  
Magic Valley Builders Association  
North Idaho Building Contractors Association  
Panhandle Building Contractors Association  
Salmon River Builders Association  
Snake River Valley Building Contractors Association  
Upper Valley Building Contractors Association  
American Institute of Architects Idaho Chapter  
    Eastern Section  
    Mountain Section  
    Northern Section  
    Central Section  
Idaho Fire Chiefs Association  
Idaho Society of Professional Engineers  
Idaho State Independent Living Council  
Southwest Idaho Building Trades  
Idaho Building Trades

The collaborative is a key participant in the Negotiated Rule Making Process, which is undertaken by the Idaho Building Code Board for the adoption of any new energy codes by the State of Idaho.

More information can be found at: <http://www.idahocities.org/index.aspx?nid=189>

## Energy Code Implementation Processes:

The energy code implementation process involves several elements: 1) local code adoption and implementation, 2) training of building codes officials and industry personnel, and 3) code enforcement including plan review and inspection. For each of these elements, there are choices to be made at both the local and state levels.

### Local code adoption and implementation:

**BCAP Recommendation #2:** The state could make extra measure for outreach to rural areas of the state.

**BCAP Recommendation #5:** An assessment should be made that analyzes the impact of noncompliance on these [rural] areas and the cost of state outreach specific to rural areas.

The State is progressing towards adoption of the 2009 IECC, with the Las Vegas metro area “ahead of the State” with the new code to be effective July 2011 in jurisdictions in the Las Vegas valley. BCAP recognized that local adoption and implementation of the 2009 IECC may be problematic in some rural areas of the State – as inferred by their recommendations 2 and 5. NSOE/REEEA is currently considering extra outreach to rural Nevada. Many local jurisdictions perceive this situation as an unfunded mandate.

An assessment of the impact of non-compliance in rural areas (Recommendation #5) may not be easily accomplished – due to difficulty in quantifying all of the potential costs of non-compliance. The consequences of failure to comply with the minimum State energy code could include inability of local jurisdictions to obtain bonding, creation of barriers for builders/developers to obtain project financing, creation of contractor liability, and perhaps creation of liability for local jurisdictions and elected officials.

An improvement to this action item would be to communicate to elected officials and local government managers and building officials the advantages of adopting and implementing the new minimum energy codes (2009 IECC) and disadvantages associated with failure to do so. The communications should also make them aware of their options and resources available to assist them.

### Training:

**BCAP Recommendation #10:** The state could help to subsidize:

- the use of handheld electronics to facilitate expediency of building inspections.
- duct blaster equipment and equipment training.
- blower door equipment and equipment training.



(Note: The NSOE would also need to know if there are specific needs for commercial equipment and training.)

**BCAP Recommendation #11A:** The state should provide both code officials and building professionals' adequate training, especially when the codes and standards change.

**BCAP Recommendation #11B:** The state should provide incentives or subsidies for training to promote participation (especially important given the busy schedules of contractors).

**BCAP Recommendation #11C:** The state should provide a calendar of events and market training events to affected parties.

**BCAP Recommendation #12:** As resources allow, the state could subsidize attendance to future EduCode conferences with the assurance that the energy code will be included in the curriculum.

**BCAP Recommendation #13:** The state should investigate opportunities for sharing and utilizing regional resources.

**BCAP Recommendation #14A:** Other professional organizations in the state such as local ICC chapters require credentialing of their membership. These organizations could be required to include energy efficiency as a required subject area.

**BCAP Recommendation #14B:** The state could oversee energy code training that is specific to each professional trade. (Note: The NSOE welcomes professional trade entities to work with the state and/or the collaborative team to support these efforts.)

**BCAP Recommendation #14C:** The state should provide training opportunities for professional trades to obtain and maintain credentials.

**BCAP Recommendation #15A:** Forge strategic alliances with community colleges especially any that have recently received grants for "green jobs" training to coordinate and encourage (and perhaps provide additional funding for) the inclusion of energy code training (and/or RESNET training<sup>6</sup>) for students who may become code officials or building professionals upon graduation. Structure the collaboration to assure that the community college continues to teach the energy code even when the funding is exhausted so that the next generation of construction trades professionals understand and embrace the importance of including energy efficiency in the design and construction of buildings in Nevada.

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<sup>6</sup> RESNET certified home energy raters are able to qualify homes for the Energy Star program.

**BCAP Recommendation #15B:** Work with AIA to gain their support to promote continuing education courses on energy codes in the short-term. In the longer term, build a relationship with AIA and the NAAB to get energy code education added as a core requirement to becoming a licensed Architect.

**BCAP Recommendation #15C:** Add the BCAP energy code calculator on the state’s website to help educate visitors: <http://bcap-ocean.org/resource/energy-code-calculator>.

Training for code officials and building industry personnel is needed to support both code adoption and code implementation. For the 2009 IECC workshops and public hearings to be meaningful, those who will be required to undertake design and construction in accordance with the code, and those responsible for enforcing the code need to have substantive comprehension of what this will entail. Using ARRA funding, NSOE/REEEA made it possible to provide training at no cost in Carson City, Las Vegas and Reno with participation available across rural Nevada by video conference. Continuing education units (CEUs) have been made available for building department officials by the International Code Council (ICC), for professional engineers by the Nevada State Board of Engineers and Land Surveyors, and by working through the UNR Extended Studies Program, by the American Institute of Architects (AIA).

Again, utilizing ARRA funding, NSOE/REEEA has arranged for technical support specific to Nevada to be available for building code officials and construction industry personnel through the K energy web site (<http://www.kenergy.us>).

A significant question facing the State is how to provide and fund training after the ARRA funds have been expended (by March 2012). Ideally, the State could subsidize training as suggested in Recommendations 10, 11A, and 11B, but this is unlikely in the current fiscal environment. Other more likely options, which are not mutually exclusive, would be:

❖ **Nevada Action Item 2: Energy Code Training.**

**In the area of energy code training, NSOE/REEEA should**

- 1. Investigate having Community Colleges offer courses for students interested in becoming building code officials or design or construction professionals, with appropriate tuition levels to cover costs of these classes;**
- 2. Utilize the College of Extended Studies at UNR and/or UNLV, and/or private entities, to provide classes qualifying for CEUs for professionals desiring to enhance their skills and obtain needed CEUs in their professions. Students typically pay fees to take these classes. This is “the traditional model” for providing this sort of training, and when provided through Extended Studies, the university system distance learning infrastructure is often used to provide training in rural areas of the State;**

3. Continue to coordinate with the Southern Nevada chapter of the International Codes Council (SNICC) for energy code classes to be offered at the Educode Conference held annually in Las Vegas, which provides ICC CEUs to building code officials. While ARRA funds were utilized to provide scholarships to Nevada building code officials in 2011, the traditional model is for the building code officials to either pay for their own registration and travel expenses or to be reimbursed by their local jurisdictions;
4. NSOE could continue to sponsor free training across Nevada, which would require identification of a funding source after the ARRA funding ends;
5. Utilize the network of energy code ambassadors (building code official volunteers specifically trained to provide energy code training and advice) to provide peer training and construction industry training (which would also required a funding source after the ARRA funding ends); and
6. Utilize the support volunteered by NV Energy to sponsor energy code training throughout its service territory.

Code Enforcement:

**BCAP Recommendation #7A:** The state should oversee enforcement of the energy code in jurisdictions that do not have sufficient infrastructure. (Note: This may require changes to the Nevada Revised Statutes. According to NRS 701.220, subsection 4 (c) the governing body of a local government “Shall enforce the standards adopted.”)

**BCAP Recommendation #7B:** The state could provide assistance for plan review in complex buildings or other specific building types.

**BCAP Recommendation #7C:** The state could consider legislation which would form capacity to perform plan review and inspection for areas that lack infrastructure. Or the state could provide a mechanism at the state level to hire 3rd party inspectors to perform plan review and inspection for these underserved areas.

**BCAP Recommendation #7D:** Continue to provide assistance to local building departments in utilizing DOE PNNL technical resources to the fullest extent.

**BCAP Recommendation #7E:** Enforcement standards and criteria should be set at the state level including but not limited to the following:

- Requirements governing 3rd party energy code inspectors and plan reviewers.

- Require issuance of a “stop order” for remediation after an inspection and or plan review reveals an energy code violation.
- Require a formal change order and re-review of all energy code violations.
- Require certified training in energy code plan review and inspection for all code officials in charge with energy inspections.
- The state should provide compliance materials, such as checklists, for use at the local building department level.

**BCAP Recommendation #8:** The state should help to subsidize 3rd party inspections for the energy code.

**BCAP Recommendation #9:** The state should provide materials, resources and services to support energy code compliance.

These BCAP recommendations all deal with the enforcement role of governmental jurisdictions and the potential role of the State, particularly in the rural areas that may have significant resource/infrastructure limitations, often coincident with fairly low levels of construction activity.

While Nevada has a history of building code enforcement being handled at the local level, there is an exception in the area of life-safety, with the role of the State Fire Marshal. From NRS 477.030:

9. The State Fire Marshal shall:

(a) Except as otherwise provided in subsection 12 and NRS 393.110, assist in checking plans and specifications for construction;

...

12. Except as otherwise provided in this subsection, any regulations of the State Fire Marshal concerning matters relating to building codes, including, without limitation, matters relating to the construction, maintenance or safety of buildings, structures and property in this State:

(a) Do not apply in a county whose population is 400,000 or more which has adopted a code at least as stringent as the *International Fire Code* and the *International Building Code*, published by the International Code Council. To maintain the exemption from the applicability of the regulations of the State Fire Marshal pursuant to this subsection, the code of the county must be at least as stringent as the most recently published edition of the *International Fire Code* and the *International Building Code* within 1 year after publication of such an edition.

(b) Apply in a county described in paragraph (a) with respect to state-owned or state-occupied buildings or public schools in the county and in those local jurisdictions in the county in which the State Fire Marshal is requested to exercise that authority by the chief executive officer of that jurisdiction. As used in this paragraph, “public school” has the meaning ascribed to it in NRS 385.007.

The following are some of the choices available to the State and local jurisdictions:

1. Continue in the pattern of local jurisdictions being responsible for plan review and inspections in regard to all aspects of building codes with the exception of the life-safety responsibilities of the

State Fire Marshal in counties with populations under 400,000 (or some other population figure – to be determined).

2. Have some State agency become responsible for enforcement of some or all aspects of building codes in counties with populations under 400,000, or some other measure that arranges for code enforcement for those jurisdictions that do not have the necessary infrastructure to effectively provide code enforcement. This would be similar to the model used in New Mexico, and would require a change in NRS.
3. Have a bifurcated system, with some State agency becoming responsible for some or all aspects of plan review for building codes, but with the local jurisdictions responsible for inspections.

Variations of these primary alternatives could include:

4. Rural jurisdictions could collaborate with each other and have shared services for plan review and/or building inspections (i.e. regional approach).
5. Rural jurisdictions could collaborate with the urban counties (populations over 400,000) for shared services for plan review and/or building inspections.
6. The State or the rural jurisdictions could outsource plan review and/or building inspections to certified independent third-party entities (with the State determining what is required to be certified and bonding requirements).
7. The shared services might be limited to plan review and inspections for complex buildings (to be defined).

If “nothing is done”, then when Nevada adopts the 2009 IECC the status quo will continue (option 1 above), with all local jurisdictions each being responsible for enforcement of all the building codes with the exception of those that are the responsibility of the State Fire Marshal in rural counties. The issue here is the apparent lack of capacity/infrastructure and financial resources needed to create the capacity/infrastructure to enforce the 2009 IECC.

In analyzing the alternatives for code enforcement, important considerations include:

- The expectation of consumers that new buildings they buy and/or occupy are being constructed in accordance with the latest adopted building codes. How can local jurisdictions and/or the State fully meet these expectations?
- The history of autonomy/self-rule of local jurisdictions regarding enforcement of building codes. Which, if any, of the code enforcement responsibilities should be shifted to a non-traditional approach?
- Concerns about efficiency of providing services. How can important public services be consistently delivered at or above certain minimum level of proficiency at the lowest cost?

- Who pays? In the case of the 2009 IECC, initial studies indicate that plan review and inspection may require up to an extra 1-1.5 hours per single-family residence.

❖ **Nevada Action Item 3: Potential for Rural Jurisdiction Collaboration.**

**NSOE/REEEA needs to encourage the rural counties and cities to come together – perhaps inviting or organizing the meeting through the Nevada Association of County Officials (NACO) and the Nevada League of Cities - and make decisions about how they wish to proceed with code enforcement (plan review and inspection). Code enforcement is the responsibility of local jurisdictions.**

**The collaborative team or NSOE/REEEA could provide examples of systems and methods including regional code enforcement models (i.e. traveling Energy Code Ambassadors).**

This is the most urgent of the action items, since the state adoption process of the 2009 IECC energy code is well under way, and when the code is adopted and becomes effective, it will set a minimum level for all jurisdictions in Nevada. Until other funding options are developed, the rural jurisdictions should assume that the costs of code enforcement will be covered through building permit fees, regardless of who does the plan review and inspection. After a statewide collaborative is formed, it might work with rural jurisdictions to explore the potential for state assistance if there is not an appropriate level of compliance with the new energy code.

### Energy Code 90% Compliance (aka Measurement and Verification):

**BCAP Recommendation #16A:** The state should review DOE's guidance on measuring energy code compliance and research the current pilot projects underway in neighboring states.

**BCAP Recommendation #16B:** The M&V strategy should allow for long term reevaluation of targeted cities to track compliance over time.

**BCAP Recommendation #16C:** The M&V plan should account for further work needed to resolve deficiencies that are discovered and reevaluation for these problem areas over time.

**BCAP Recommendation #16D:** The state's assessment of the current infrastructure should include determination of needs and put a plan in place for reassessment at appropriate intervals throughout the year.

Measurement and Verification (M&V) funded using ARRA monies in 2011-2012: The NSOE/REEEA intends to use a portion of the ARRA funds to begin sampling in 2011-2012, both in the Las Vegas Metro area where the 2009 IECC will become effective in July 2011, and in the Reno-Sparks/Carson City area, where the 2006 IECC will still be in effect until July 2012 if the current State code adoption process continues as currently anticipated. None of these samples will be used in the federal compliance

measurement, but only for initial feedback to the State and local jurisdictions involved, providing an indication of process effectiveness. This will allow the State and these local jurisdictions to understand issues that will need to be addressed to reach the 90% compliance mark before 2017. The NSOE/REEEA will fund a sample of 10 units in each of four categories (new residential, residential remodel, new commercial and commercial remodel), with 70% of the units in the Las Vegas metro area and 30% in the Reno-Sparks/Carson City area. Each area will determine whether they desire to conduct their own M&V efforts or use an independent third-party certified by NSOE/REEEA. In future years, when the M&V will count towards the compliance effort, those jurisdictions doing their own M&V will be subject to a State-sponsored independent third-party audit/validation process.

M&V in 2012-2013 through 2016-2017 (five years): The NSOE/REEEA plans that the M&V sampling process will continue at a rate of 10 units per year in each of the four categories, with the sample drawn according to the PNNL State Sample Generator<sup>7</sup>. This number will allow for some of the initial samples from rural areas to be used for process feedback before taking samples that will be utilized for the 90% compliance attainment.

❖ **Nevada Action Item 4: Selecting an Option for Measurement and Verification – Reno-Sparks and Rural Jurisdictions.**

**NSOE/REEEA will need to work with the Reno-Sparks/Carson City metro area jurisdictions and the rural jurisdictions to determine how they will proceed either doing their own sampling or using a certified third-party entity to conduct the M&V process. In either case, a primary issue will be how to fund the M&V efforts for all of these years when ARRA funds are no longer available. As part of this consideration, there will need to be a determination of what type of expertise/certification will be needed by an evaluator.**

### Funding 2009 IECC Code Enforcement and Measurement & Verification efforts:

**BCAP Recommendation #17A:** As part of educating policy-makers in the state, a Systems Benefit Charge should be advocated for, in order to establish a funding mechanism for the expansion of state services, a support system for builders, additional training for code officials, and the other recommendations herein, which should become part of a larger statewide efforts to reduce energy use in Nevada.

**BCAP Recommendation #17B:** The state should investigate opportunities to credit utilities for their support of energy codes.

**BCAP Recommendation #17C:** All communities that received EECBG funding could be contacted for potential collaboration on outreach efforts in their own communities. These communities have recently received funding for similar efforts and may be more primed for additional

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<sup>7</sup> <http://energycode.pnl.gov/SampleGen/index.jsp?state=Nevada>

energy-related work, especially if they were recognized for their efforts to improve their local communities and economies.

Future functions that may require one or more funding sources after the ARRA funds are no longer available include: a) a Nevada Energy Code Collaborative, b) future energy code training if sponsored by NSOE, c) support for higher levels of code enforcement, and d) support for some future code compliance evaluation and feedback process.

Presented below are five funding options for covering the costs of enforcing the 2009 IECC energy code (plan review and inspection) and conducting the required M&V effort to assure attainment of 90% compliance by 2017, along with the arguments for and against each method. These methods are not mutually exclusive and could be used in combinations.

1. The traditional method - include the costs in the building permit fees.

Arguments for this method: The cost is paid by an owner/builder or passed through the developer to the person acquiring and/or occupying the building, who will be the primary beneficiary of the higher energy efficiency achieved. This is an existing process, so no special legislation or regulations are needed.

Arguments against this method: Developers are concerned about increased costs related to construction, particularly those imposed by building departments. These incremental costs are considered a detriment to the industry because they must be paid "at the front end" of the development process, thereby increasing both the carrying costs for the developer and the risk associated with the projects.

An additional consideration: In rural Nevada, some of the alternative ways of handling plan review and inspection might result in improved efficiencies that could result in a net reduction of building permit fees, even with the increased costs of plan review and inspection associated with the 2009 IECC. The costs of the M&V efforts would have to be allocated to all building permits, since M&V will be done on only a small sample of the building construction projects but will tend to benefit all residential and commercial construction.

2. Energy fee surcharge to all rate payers (aka Systems Benefit Charge), which would involve a utility fee approved by the Public Utilities Commission (PUC) that would be paid by all rate payers, used to fund all or some portion of the code enforcement and/or M&V efforts in that utility service area.

Arguments for this method: When the new energy codes are implemented, all the rate payers served by the utility benefit, since the energy efficiency improvements result in less required utility company investment in new production facilities, less investment in transmission infrastructure, and less expense in mitigating environmental impacts. Further the energy



efficiency improvements help the utility achieve RPS goals with a lower amount of renewable energy sources, which typically are more expensive sources of energy than fossil fuel sources. Each of these benefits results in lower rates for all ratepayers.

Arguments against this method: The owners/occupants of new or remodeled buildings are the prime beneficiaries of the new energy codes. It is more equitable that they ultimately bear the incremental costs than spreading them out to all ratepayers. As above, utilizing this would require agreement by the PUC which could be problematic and/or time consuming. There could be legal actions opposing this approach.

3. Utility company contributions, with associated RPS credits. This approach would encourage utility companies to make contributions to cover all or some portion of the costs of code enforcement and/or M&V efforts in their service area. In return, the utilities would be allowed to count some portion of the resultant energy savings as a portion of the energy-efficiency portion of the renewable energy portfolio standards.

Arguments for this method: When new energy codes are implemented with a high rate of compliance, it helps move the State of Nevada and the nation towards a better energy future including a lower carbon footprint, less dependence upon foreign supplies of fossil fuels and a stronger and more diverse state economy. Therefore, it would be good public policy to allow the utility companies to make these contributions and obtain some credit for the energy efficiency achieved towards their RPS goals.

Arguments against this method: Typically energy efficiency achieved through new building codes doesn't count towards the RPS standard. If allowed, this would dilute the other efforts that are counted towards meeting the RPS goals.

4. Utilize federal funding, such as Energy Efficiency Community Block Grants (EECBG) to help cover all or some portion of the costs of code enforcement and/or M&V efforts.

Arguments for this method: In particular, this might be a good method of funding the M&V efforts, which are actually rather limited (proposed sample size of 240 total construction project across all of Nevada over a period of six years). This could be the best way to fund such a limited effort and would be a reasonable allocation of future funds based on the initial acceptance of \$34.7 million in ARRA funds in 2009.

Arguments against this method: First, there is a question of whether any of these funds will be available in the future given the current political move towards reduction of the federal budget deficit. Next, if EECBG funds do become available, there might be other desirable uses of perceived higher priority uses for these funds.

- ❖ **Nevada Action Item 5: Options for Funding Incremental Costs of Code Enforcement and Measurement and Verification Efforts after ARRA.**  
NSOE/REEEA should continue to investigate and involve key stakeholders (perhaps through the collaborative suggested in Action item 1) in reviewing options for funding both the higher costs of plan review and inspections associated with the 2009 IECC and the costs of M&V in years after the ARRA funds are not longer available.

### Other Resources that Might Be Available:

Other resources might also be employed to help support future energy code adoption and implementation. BCAP recommendations in this regard are as follows:

**BCAP Recommendation #18:** NV Energy and SCGH, as well as other stakeholder organizations, could promote energy codes to their audience to help transform the market to place higher demand for homes that meet the mandatory energy code.

**BCAP Recommendation #19:** The state should seek partnerships with manufacturers and big box retailers to promote energy efficient products and services.

**BCAP Recommendation #20:** The state should utilize the untapped resource of product manufacturers to grow the circle of energy code supporters at the state level. RECA (Responsible Energy Codes Alliance) is a perfect example of how industry can be organized to be involved in energy codes.

Note: NSOE/REEEA would like to involve the collaborative group in this process.

APPENDIX 1

Governor's Letter of Transmittal  
and  
Assurance Certificate



# Office of the Governor

JIM GIBBONS  
GOVERNOR

March 23, 2009

The Honorable Steven Chu, Secretary  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585

**RE: Governor's Assurance Certification in accordance with the Section 410 of Recovery Act**

Dear Secretary Chu:

As a condition of receiving \$34,714,000 funding for the State Energy Program ("SEP") under Section 410 of the American Recovery and Renewal Act of 2009 (H.R. 1) (ARRA), please find the enclosed signed Governor's Assurance Certification DE-FOA-0000052.

I want to assure you that the State of Nevada will meet the requirements of Section 410 of the ARRA. To amplify the attached general assurance certification, I offer the following:

*For the first assurance*, Nevada has been proactive and already has several provisions in the law promulgating a regulatory framework to promote energy efficiency for electric and gas utilities while maintaining on going financial incentives for many years. The policies behind these laws are as follows:

1) for electric utilities

**NRS 704.741 Plan to increase supply or decrease demands: Triennial submission required; contents prescribed by regulation; requirements.**

1. A utility which supplies electricity in this State shall, on or before July 1 of every third year, in the manner specified by the Commission, submit a plan to increase its supply of electricity or decrease the demands made on its system by its customers to the Commission.
2. The Commission shall, by regulation, prescribe the contents of such a plan including, but not limited to, the methods or forms as which are used by the utility to:
  - (a) Forecast the future demands; and
  - (b) Determine the best combination of sources of supply to meet the demands or the best method to reduce them.

101 N. CARSON STREET • CARSON CITY, NEVADA 89701 • TELEPHONE: (775) 684-5670 • FAX: (775) 684-5683  
555 E. WASHINGTON AVENUE, SUITE 5100 • LAS VEGAS, NEVADA 89101 • TELEPHONE: (702) 486-2500 • FAX: (702) 486-2505

(2570) (Rev. 3/07)

(05/509)

3. The Commission shall require the utility to include in its plan an energy efficiency program for residential customers which reduces the consumption of electricity or any fossil fuel. The energy efficiency program must include, without limitation, the use of new solar thermal energy sources.

(Added to NRS by 1983, 886; A 1987, 961; [2007, 2986](#))

**NRS 704.751 Order accepting plan or specifying inadequacies; order accepting amendment to plan or specifying inadequacies; recovery of costs from customers.**

1. After a utility has filed the plan required pursuant to [NRS 704.741](#), the Commission shall issue an order accepting the plan as filed or specifying any portions of the plan it deems to be inadequate:

(a) Within 135 days for any portion of the plan relating to the energy supply plan for the utility for the 3 years covered by the plan; and

(b) Within 180 days for all portions of the plan not described in paragraph (a).

2. If a utility files an amendment to a plan, the Commission shall issue an order accepting the amendment as filed or specifying any portions of the amendment it deems to be inadequate within 135 days of the filing of the amendment.

3. All prudent and reasonable expenditures made to develop the utility's plan, including environmental, engineering and other studies, must be recovered from the rates charged to the utility's customers.

(Added to NRS by 1983, 887; A 1989, 1014; [2007, 1774](#))

The Public Utility Commission of Nevada (PUCN) adopted demand side regulation on May 25, 2004 to implement the law in three steps: planning, verification, and accounting/cost recovery (energy efficiency equity adder methodology).

## II) for gas utilities

**NRS 704.992 Establishment of methods and programs to encourage natural gas utilities to support energy conservation.**

1. The Commission shall adopt regulations to establish methods and programs for a public utility which purchases natural gas for resale that remove financial disincentives which discourage the public utility from supporting energy conservation, including, without limitation:

(a) Procedures for a public utility which purchases natural gas for resale to have a mechanism established during a general rate application filed pursuant to [NRS 704.110](#) to ensure that the costs of the public utility for providing service are recovered without regard to the difference in the quantity of natural gas actually sold by the public utility by taking into account the adjusted and annualized quantity of natural gas sold during a test year and the growth in the number of customers of the public utility;

(b) Procedures for a public utility which purchases natural gas for resale to apply to the Commission for approval of an activity relating to increasing energy efficiency or energy conservation; and

(c) Procedures for a public utility which purchases natural gas for resale to apply to the Commission for the recovery of costs associated with an activity approved by the Commission pursuant to paragraph (b).

2. The regulations adopted pursuant to subsection 1 must ensure that the methods and programs consider the recovery of costs, stabilization of revenue and any reduction of risk for the public utility which purchases natural gas for resale.

(Added to NRS by [2007, 2977](#))

The PUCN has already adopted regulations for the implementation of energy efficiency equity adder methodology (September 3, 2008) and energy efficiency decoupling methodology (January 22, 2009).

*For the second assurance*, Nevada law (NRS 701.220) enacted in 2005 has mandated that the Director of Nevada State Office of Energy (NSOE) in the Office of the Governor adopt the most recent version of International Energy Conservation Code (IECC). The policy behind this act is as follows:

**NRS 701.220 Adoption of regulations for energy conservation in buildings; exemptions; applicability and enforcement; procedures for adoption.**

1. The Director shall adopt regulations for the conservation of energy in buildings, including manufactured homes. Such regulations must include the adoption of the most recent version of the *International Energy Conservation Code*, issued by the International Code Council, and any amendments to the *Code* that will not materially lessen the effective energy savings requirements of the *Code* and are deemed necessary to support effective compliance and enforcement of the *Code*, and must establish the minimum standards for:

- (a) The construction of floors, walls, ceilings and roofs;
- (b) The equipment and systems for heating, ventilation and air-conditioning;
- (c) Electrical equipment and systems;
- (d) Insulation; and
- (e) Other factors which affect the use of energy in a building.

☛ The regulations must provide for the adoption of the most recent version of the *International Energy Conservation Code*, and any amendments thereto, every third year.

2. The Director may exempt a building from a standard if he determines that application of the standard to the building would not accomplish the purpose of the regulations.

3. The regulations must authorize allowances in design and construction for sources of renewable energy used to supply all or a part of the energy required in a building.

4. The standards adopted by the Director are the minimum standards for the conservation of energy and energy efficiency which apply only to areas in which the governing body of the local government has not adopted standards for the conservation of energy and energy efficiency in buildings. Such governing bodies shall assist the Director in the enforcement of the regulations adopted pursuant to this section.

5. The Director shall solicit comments regarding the adoption of regulations pursuant to this section from:

- (a) Persons in the business of constructing and selling homes;
- (b) Contractors;
- (c) Public utilities;
- (d) Local building officials; and
- (e) The general public.

☛ before adopting any regulations. The Director must conduct at least three hearings in different locations in the State, after giving 30 days' notice of each hearing, before he may adopt any regulations pursuant to this section.

(Added to NRS by 1985, 1794; A [2001, 1251, 3266](#); [2003, 32](#); [2005, 22nd Special Session, 79](#))

I have directed NSOE to introduce a bill and work with the 2009 Nevada Legislators and local governments for the modification of NRS 701.220 subsection 4, so that the governing body of a local government that enforces a building code shall adopt and enforce the standards adopted by NSOE as the minimum standards. This bill was prefilled as SB 73 on December 15, 2008 (<http://www.leg.state.nv.us/75th2009/Bills/SB/SB73.pdf>) and the Legislature is currently considering this measure.

I am also directing the Director of NSOE to adopt the 2009 IECC and work with local governments to develop a plan that achieves 90 percent compliance with the codes within eight years. The 2009 IECC references ANSI/ASHRAE/IESNA Standard 90.1-2007 as an option for compliance with the commercial portion of the code. This plan will include active training and enforcement programs and will measure the rate of compliance each year.

For the third assurance, we are prioritizing our energy investments to take advantage of existing programs and expand programs where appropriate. Nevada is committed to maintaining our proactive



The Honorable Steven Chu, Secretary  
March 23, 2009  
Page 4 of 5

legislative and executive level policies and business friendly environment toward advancement of energy efficiency and renewable energy developments. Nevada is the only state which encourages the development of LEED commercial green buildings through property tax abatements. I have issued executive orders to streamline the permitting process for renewable energy development and created the renewable energy transmission access advisory committee (RETAAC). RETAAC identified Nevada's renewable energy zones, assessed current and needed transmission lines, analyzed the land and military restrictions and the cost of needed transmission lines. We have established a 501(c)(3) organization to build these feeder lines so that our renewable energy zones can be connected to the interstate transmission lines. Furthermore, the state Legislature and I are currently considering several measures for the further development of our renewable energy resources in the state.

NSOE has been administering the SEP programs and will also administer the ARRA SEP funds. We look forward to the immediate distribution and effective use of the Federal ARRA SEP funds to permit Nevada to continue its effort in energy efficiency and renewable energy. If you or your staff requires more information, please contact Dr. Hatice Gecol, my Energy and Science Advisor and Director of NSOE at 775-684-5675 or [hgecol@gov.nv.gov](mailto:hgecol@gov.nv.gov)

Respectfully Submitted,



JIM GIBBONS  
Governor

Enclosure

cc: Majority Leader Senator Harry Reid  
Senator John Ensign, (R-NV)  
Congresswoman Shelley Berkley, (D-NV)  
Congressman Dean Heller, (R-NV)  
Congresswoman Dina Titus, (D-NV)  
Michael Schneider, Chairman, Senate Committee on Energy, Infrastructure and Transportation  
Marcus Conklin, Chairman, Assembly Committee on Commerce and Labor  
Gil Sperling, Director, Office of Weatherization and Intergovernmental Programs,  
U. S. Department of Energy  
David Terry, Executive Director, National Association of State Energy Officials  
Dr. Hatice Gecol, Director, Office of the Governor, Nevada State Office of Energy  
Jo Ann Kelly, Chairman, Public Utilities Commission of Nevada

**NEVADA GOVERNOR'S ASSURANCE CERTIFICATION**

By signing below, Nevada Governor is providing his written certification that he will comply with and obtain the following assurances in accordance with Section 410 of the Recovery Act.

(1) The applicable State regulatory authority will seek to implement, in appropriate proceedings for each electric and gas utility, under its rate-making authority a general policy that ensures that utility financial incentives are aligned with helping their customers use energy more efficiently and that provide timely cost recovery and a timely earnings opportunity for utilities associated with cost-effective measurable and verifiable efficiency savings, in a way that sustains or enhances utility customers' incentives to use energy more efficiently.

(2) The State, or the applicable units of local government that have authority to adopt building codes, will implement the following:

(A) A residential building energy code (or codes) that meets or exceeds the most recent International Energy Conservation Code, or achieves equivalent or greater energy savings.

(B) A commercial building energy code (or codes) throughout the State that meets or exceeds the ANSI/ASHRAE/IESNA Standard 90.1-2007, or achieves equivalent or greater energy savings.

(C) A plan to achieve 90 percent compliance with the above energy codes within eight years. This plan will include active training and enforcement programs and annual measurement of the rate of compliance.

(3) The State will to the extent practicable prioritize the grants toward funding energy efficiency and renewable energy programs, including

A) the expansion of existing energy efficiency programs approved by the State or the appropriate regulatory authority, including energy efficiency retrofits of buildings and industrial facilities, that are funded by the State or through rates under the oversight of the applicable regulatory authority, to the extent applicable;

(B) the expansion of existing programs, approved by the State or the appropriate regulatory authority, to support renewable energy projects and deployment activities, including programs operated by entities which have the authority and capability to manage and distribute grants, loans, performance incentives, and other forms of financial assistance; and

(C) cooperation and joint activities between States to advance more efficient and effective use of this funding to support the priorities described in this section.

  
Nevada State Governor's Signature

March 23, 2009

\_\_\_\_\_  
Date



APPENDIX 2

NRS 701.220

**NRS 701.220 Adoption of regulations for energy conservation in buildings; exemptions; applicability and enforcement; procedures for adoption.**

1. The Commissioner shall adopt regulations for the conservation of energy in buildings, including manufactured homes. Such regulations must include the adoption of the most recent version of the *International Energy Conservation Code*, issued by the International Code Council, and any amendments to the *Code* that will not materially lessen the effective energy savings requirements of the *Code* and are deemed necessary to support effective compliance and enforcement of the *Code*, and must establish the minimum standards for:

- (a) The construction of floors, walls, ceilings and roofs;
- (b) The equipment and systems for heating, ventilation and air-conditioning;
- (c) Electrical equipment and systems;
- (d) Insulation; and
- (e) Other factors which affect the use of energy in a building.

↪ The regulations must provide for the adoption of the most recent version of the *International Energy Conservation Code*, and any amendments thereto, every third year.

2. The Commissioner may exempt a building from a standard if the Commissioner determines that application of the standard to the building would not accomplish the purpose of the regulations.

3. The regulations must authorize allowances in design and construction for sources of renewable energy used to supply all or a part of the energy required in a building.

4. The standards adopted by the Commissioner are the minimum standards for the conservation of energy and energy efficiency in buildings in this State. The governing body of a local government that is authorized by law to adopt and enforce a building code:

- (a) Except as otherwise provided in paragraph (b), shall incorporate the standards adopted by the Commissioner in its building code;
- (b) May adopt higher or more stringent standards and must report any such higher or more stringent standards, along with supporting documents, to the Commissioner; and
- (c) Shall enforce the standards adopted.

5. The Commissioner shall solicit comments regarding the adoption of regulations pursuant to this section from:

- (a) Persons in the business of constructing and selling homes;
- (b) Contractors;
- (c) Public utilities;
- (d) Local building officials; and
- (e) The general public,

↪ before adopting any regulations. The Commissioner must conduct at least three hearings in different locations in the State, after giving 30 days' notice of each hearing, before the Commissioner may adopt any regulations pursuant to this section.

(Added to NRS by 1985, 1794; A 2001, 1251, 3266; 2003, 32; 2005, 22nd Special Session, 76; 2009, 986, 1375)

## APPENDIX 3

### Energy Codes Savings Converted to Equivalent Cost of Producing Energy

**Equivalent Cost of Producing energy: Estimated for Las Vegas "Typical" Residential Single Family Home - 50 Year Life  
Based upon BCAP Simulation for 2009 IECC versus 2006 IECC**

Simulation	Heating	Cooling	Lighting	Electricity	Total	No. Years	Calculated
Las Vegas Residential	Annual	Annual	Annual	Annual	Annual	Est.	Lifetime
	\$ Savings	\$ Savings	\$ Savings	\$ Savings	\$ Savings	Life	Savings
	\$ 78.00	\$ 100.00	\$ 74.00	\$ 174.00	\$252.00	50	\$ 12,600.00
	31.0%			69.0%	100.0%		
Nat. Gas Cost Used for Calc.	\$1.20						
	per therm						
Electricity Cost Used for Calc.		\$0.12	\$0.12				
		per kwh	per kwh				
Calculated Savings	65	833.33	616.67	1450			
	therms/year	kwh/year	kwh/year	kwh/year			
	=			=			
Energy Savings Converted	1904.96			49.48			
(1 therm = 29.307111111 kwh)	kwh/yr			therms/yr			
							<b>Cumulative Energy Savings</b>
Total Estimated Annual Energy Savings Converted to Therms					114.476		5723.80 therms
Total Estimated Annual Energy Savings Converted to Kwh					3354.962		167,748.11 kwh
Incremental Cost					\$ 777		
<b>Efficiency investment: equivalent cost of producing this energy</b>							<b>\$ 0.1357 per therm</b>
							<b>\$ 0.0046 per kwh</b>
Source of savings estimates: <a href="http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level">http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level</a>							
<b>NOTES:</b>							
1. Conditioned floor area 2,400 s.f., 8.5 ft. high ceilings, ceiling area (bordering unconditioned attic) 1,200 s.f., gross exterior wall area 2,380 s.f., window area 357 s.f., (15% of wall area) equally oriented in all directions, natural gas furnace (\$1.20/therm) and central a/c (\$0.12/kWh) assumed.							
2. High-efficacy lighting increased from 10% to 50%, reducing energy use by 26%, or \$74 per year. Improved duct sealing was assumed to save 10% of heating and cooling costs.							
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**Equivalent Cost of Producing energy: Estimated for Las Vegas "Typical" Residential Single Family Home - 20 Year Life  
Based upon BCAP Simulation for 2009 IECC versus 2006 IECC**

Simulation	Heating	Cooling	Lighting	Electricity	Total	No. Years	Calculated
Las Vegas Residential	Annual	Annual	Annual	Annual	Annual	Est.	Lifetime
	\$ Savings	\$ Savings	\$ Savings	\$ Savings	\$ Savings	Life	Savings
	\$ 78.00	\$ 100.00	\$ 74.00	\$ 174.00	\$252.00	20	\$ 5,040.00
	31.0%			69.0%	100.0%		
Nat. Gas Cost Used for Calc.	\$1.20						
	per therm						
Electricity Cost Used for Calc.		\$0.12	\$0.12				
		per kwh	per kwh				
Calculated Savings	65	833.33	616.67	1450			
	therms/year	kwh/year	kwh/year	kwh/year			
	=			=			
Energy Savings Converted	1904.96			49.48			
(1 therm = 29.307111111 kwh)	kwh/yr			therms/yr			
							<b>Cumulative Energy Savings</b>
Total Estimated Annual Energy Savings Converted to Therms					114.476		2289.52 therms
Total Estimated Annual Energy Savings Converted to Kwh					3354.962		67,099.24 kwh
Incremental Cost					\$ 777		
<b>Efficiency investment: equivalent cost of producing this energy</b>							<b>\$ 0.3394 per therm</b>
							<b>\$ 0.0116 per kwh</b>
Source of savings estimates: <a href="http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level">http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level</a>							
<b>NOTES:</b>							
1. Conditioned floor area 2,400 s.f., 8.5 ft. high ceilings, ceiling area (bordering unconditioned attic) 1,200 s.f., gross exterior wall area 2,380 s.f., window area 357 s.f., (15% of wall area) equally oriented in all directions, natural gas furnace (\$1.20/therm) and central a/c (\$0.12/kWh) assumed.							
2. High-efficacy lighting increased from 10% to 50%, reducing energy use by 26%, or \$74 per year. Improved duct sealing was assumed to save 10% of heating and cooling costs.							
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**Equivalent Cost of Producing energy: Estimated for Reno "Typical" Residential Single Family Home - 50 Year Life  
Based upon BCAP Simulation for 2009 IECC versus 2006 IECC**

Simulation	Heating Annual	Cooling Annual	Lighting Annual	Electricity Annual	Total Annual	No. Years Est. Life	Calculated Lifetime Savings
Reno Residential	\$ 113.00 55.1%	\$ 18.00	\$ 74.00	\$ 92.00 44.9%	\$205.00 100.0%	50	\$ 10,250.00
Nat. Gas Cost Used for Calc.	\$1.20 per therm						
Electricity Cost Used for Calc.		\$0.12 per kwh	\$0.12 per kwh				
Calculated Savings	94.17 therms/year =	150 kwh/year	616.67 kwh/year	766.67 kwh/year =			
Energy Savings Converted 1 therm = 29.307111111 kwh	2759.75 kwh/yr			26.16 therms/yr			
						<b>Cumulative Energy Savings</b>	
Total Estimated Annual Energy Savings Converted to Therms					120.3264		6,016.32 therms
Total Estimated Annual Energy Savings Converted to Kwh					3526.42		176,320.98 kwh
Incremental Cost					\$ 777		
<b>Efficiency investment: equivalent cost of producing this energy</b>							\$ 0.1291 per therm
							\$ 0.0044 per kwh
Source of savings estimates: <a href="http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level">http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level</a>							
<b>NOTES:</b>							
1. Conditioned floor area 2,400 s.f., 8.5 ft. high ceilings, ceiling area (bordering unconditioned attic) 1,200 s.f., gross exterior wall area 2,380 s.f., window area 357 s.f., (15% of wall area) equally oriented in all directions, natural gas furnace (\$1.20/therm) and central a/c (\$0.12/kWh) assumed.							
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**Equivalent Cost of Producing energy: Estimated for Reno "Typical" Residential Single Family Home - 20 Year Life  
Based upon BCAP Simulation for 2009 IECC versus 2006 IECC**

Simulation	Heating	Cooling	Lighting	Electricity	Total	No. Years	Calculated	
Reno Residential	Annual	Annual	Annual	Annual	Annual	Est.	Lifetime	
	\$ Savings	\$ Savings	\$ Savings	\$ Savings	\$ Savings	Life	Savings	
	\$ 113.00	\$ 18.00	\$ 74.00	\$ 92.00	\$205.00	20	\$ 4,100.00	
	55.1%			44.9%	100.0%			
Nat. Gas Cost Used for Calc.	\$1.20							
	per therm							
Electricity Cost Used for Calc.		\$0.12	\$0.12					
		per kwh	per kwh					
Calculated Savings	94.17	150	616.67	766.67				
	therms/year	kwh/year	kwh/year	kwh/year				
	=			=				
Energy Savings Converted	2759.75			26.16				
1 therm = 29.307111111 kwh	kwh/yr			therms/yr				
							<b>Cumulative Energy Savings</b>	
Total Estimated Annual Energy Savings Converted to Therms					120.3264		2,406.53	therms
Total Estimated Annual Energy Savings Converted to Kwh					3526.42		70,528.39	kwh
Incremental Cost					\$ 777			
<b>Efficiency investment: equivalent cost of producing this energy</b>							<b>\$ 0.3229</b>	<b>per therm</b>
							<b>\$ 0.0110</b>	<b>per kwh</b>
Source of savings estimates: <a href="http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level">http://bcap-ocean.org/resource/impacts-2009-iecc-residential-buildings-state-level</a>								
<b>NOTES:</b>								
1. Conditioned floor area 2,400 s.f., 8.5 ft. high ceilings, ceiling area (bordering unconditioned attic) 1,200 s.f., gross exterior wall area 2,380 s.f., window area 357 s.f., (15% of wall area) equally oriented in all directions, natural gas furnace (\$1.20/therm) and central a/c (\$0.12/kWh) assumed.								
2. High-efficacy lighting increased from 10% to 50%, reducing energy use by 26%, or \$74 per year. Improved duct sealing was assumed to save 10% of heating and cooling costs.								
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## APPENDIX 4

### National and Regional Entities / Potential Resource Partners



## **National Entities – Potential Resource Partners:**

**Air Conditioning Contractors of America (ACCA):** ACCA is a non-profit association serving more than 60,000 professionals and 4,000 businesses in the HVACR community. ACCA works to promote professional contracting, energy efficiency, and healthy, comfortable indoor living for all Americans. <http://www.acca.org/>

**American Council for an Energy-Efficient Economy** – Nonprofit that does technical and policy analysis, work with companies and organizations, advises policymakers and managers, and promotes energy-efficiency education. Publications are available for purchase. <http://aceee.org/>

**American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)** – ASHRAE “advances heat, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world through research, standards writing, publishing and continuing education.” <http://www.ashrae.org>

**Building Codes Assistance Project (BCAP)** – “Delivers state-based code advocacy on behalf of the U.S. DOE’s Building Energy Code Program (BECP); serves as clearinghouse on energy code information; develops resources to support code compliance; and provides energy code trainings and workshops.”

**BCAP’s OCEAN (Online Code Environment & Advocacy Network)** – “An interactive, web-based resource designed to share lessons learned, best practices, educational resources and key facts as they relate to building energy code adoption and implementation.” <http://bcap-ocean.org/>

**Chartered Institution of Building Services Engineers (CIBSE): Sustainability tool** – Offers assistance on the following issues: Energy and CO2 emissions, Water use, Adapting buildings for climate change, Flood risk, Sustainable drainage systems, Transport, Ecology and biodiversity, Pollution, Health and wellbeing, Waste, Lifecycle impacts of materials and equipment, Local environment & community. <http://sustain.cibse.org/>

**Code College Network:** Training videos on energy code related material <http://www.codecollegenetwork.com>

**Energy Star** – a government-backed program helping businesses and individuals protect the environment through superior energy efficiency. <http://www.energystar.gov/>

**International Code Council (ICC)** is a membership association dedicated to building safety and fire prevention. ICC develops the codes and standards used to construct residential and commercial buildings, including homes and schools. [www.iccsafe.org](http://www.iccsafe.org)

**Code Adoption Resources** – Including Code Adoption Toolkit downloads. “Briefing papers on technical issues, samples of ordinances, endorsements and support materials from national organizations.” <http://www.iccsafe.org/gr/Pages/resources.aspx>

**International Code Council (ICC) Green Resources Center** – Includes sections of resources for Green Building Design Tools and Resources and Green Building Program/Initiative Development Tools and Information. <http://www.iccsafe.org/Communities/Green/Pages/ResourceCenter.aspx>

#### **International Code Council (ICC) Communities of Interest**

<http://www.iccsafe.org/Communities/Pages/default.aspx>

**National Association of State Energy Officials (NASEO)** – is the only national non-profit organization whose membership includes the governor-designated energy officials from each state and territory. The organization was created to improve the effectiveness and quality of state energy programs and policies, provide policy input and analysis, share successes among the states, and to be a repository of information on issues of particular concern to the states and their citizens. [www.naseo.org](http://www.naseo.org)

**Local Governments for Sustainability (ICLEI): ICLEI** is a collaboration of local governments who have made a commitment to sustainable development. ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level. Clark County, Washoe County, Henderson, Las Vegas, and North Las Vegas governments are all members of ICLEI.

#### **National Association of Home Builders Research Center: Resource for General Green Technologies**

– Created the ToolBase Services with funding from Housing and Urban Development Authority. Here, green technologies and practices are detailed to include summaries, manufacturers, resources specific to the method, where the technologies or practice lies in terms of code acceptance, as well as alternative methods.

<http://www.toolbase.org/ToolbaseResources/level3.aspx?BucketID=2&CategoryID=17>

**Natural Resources Defense Council (NRDC):** NRDC is the nation's most effective environmental action group, combining the grassroots power of 1.3 million members and online activists with the courtroom clout and expertise of more than 350 lawyers, scientists and other professionals

<http://www.nrdc.org/about/>

**Residential Energy Service Network (RESNET):** The National Association of State Energy Officials (NASEO) and Energy Rated Homes of America (ERHA) founded RESNET. RESNET’s original mission is to develop a national market for home energy rating systems and energy efficient mortgages. RESNET's standards are officially recognized by the federal government for verification of building energy performance for such programs as federal tax incentives, the Environmental Protection Agency's ENERGY STAR program and the U.S. Department of Energy's Building America Program. RESNET standards are also recognized by the U.S. mortgage industry for capitalizing a building's energy performance in the mortgage loan, and certification of "White Tags" for private financial investors.

The RESNET website is a one-stop solution where homeowners can learn about the energy audit and rating processes, and search the RESNET directory to find certified energy auditors and raters and qualified contractors and builders. To be included in the directory, these independent, unbiased professionals must complete the required energy training to meet the high standards of excellence that RESNET demands. All RESNET-certified and RESNET-qualified professionals agree to abide by the RESNET Code of Conduct. RESNET is a member of the **United Nations Sustainable Buildings and Climate Initiative**. <http://www.resnet.us/about>

**Responsible Energy Codes Alliance (RECA):** RECA is a broad coalition of energy efficiency professionals, regional organizations, product and equipment manufacturers, trade associations, and environmental organizations that promote the adoption and implementation of the national model codes—the International Energy Conservation Code (*IECC*) and ASHRAE Standard 90.1—nationwide. <http://reca-codes.org/>

**Sierra Club:** Since 1892, the Sierra Club has been working to protect communities, wild places, and the planet itself. We are the largest and most influential grassroots environmental organization in the United States. <http://www.sierraclub.org/welcome/>

**Smart Growth Network** – The Smart Growth Network seeks “to improve development practices in neighborhoods, communities, and regions across the U.S. It is a forum for: raising public awareness of how growth can improve quality of life; promoting smart growth best practices; developing and sharing information, innovative policies, tools, and ideas; and cultivating strategies to address barriers to and advance opportunities for smart growth.” <http://www.smartgrowth.org/>

**U.S. Conference of Mayors** – The U.S. Conference of Mayors (USCM) is the official nonpartisan organization of cities with populations of 30,000 or more. There are 1,204 such cities in the country today. Each city is represented in the Conference by its chief elected official, the mayor. Mayor’s Climate Protection Center – Created the Mayor’s Climate Protection Agreement where participating cities commit to take three actions striving to meet Kyoto Protocol targets in their own communities; urge their state and federal governments to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol -- 7% reduction from 1990 levels by 2012; and urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, establishing a national emission trading system. <http://www.usmayors.org/climateprotection/about.htm>

**U.S. DOE Energy Efficiency and Renewable Energy (EERE) Building Technologies Program** – “Partners with the private sector, state and local governments, national laboratories, and universities to improve efficiency of building and the equipment, components, and systems within them. The program supports research and development activities and provides tools, guidelines, training, and access to technical and financial resources.” <http://www1.eere.energy.gov/buildings/index.html>

**Technical Assistance to States** – “Specialized technical assistance to the states in the form of economic analysis, code comparisons, webcast training, and compliance material development

requested by states to help them adopt, upgrade, implement, and enforce their building energy codes.” [http://www.energycodes.gov/implement/state\\_tech\\_assist.stm](http://www.energycodes.gov/implement/state_tech_assist.stm)

## **U.S. Green Building Council (USGBC) State and Local Laws Referencing, Incorporating, and Incentivizing Leadership in Energy and Environmental Design (LEED)**

**U.S. Green Building Council** incentives strategies.

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=2078>

**USGBC Council Public Policy Search** – One can “search for existing public policies based on numerous criteria. Such as level of government, date of passage, location, type of building, and LEED rating system” <http://www.usgbc.org/PublicPolicy/SearchPublicPolicies.aspx?PageID=1776>

**LEED Public Policies** – sub-categorized links below

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852>

**Federal Initiatives** <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#federal>

**State Initiatives** <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#state>

**Municipal/City/County Initiatives**

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#local>

**School Initiatives: Higher Education**

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#highered>

**School Initiatives: K-12** <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852#K-12>

## **Regional Entity:**

The **Southwest Energy Efficiency Project (SWEET)** is a public interest organization promoting greater energy efficiency in the southwest. SWEET is involved in promoting energy code adoption at the state and local level in the southwest. SWEET provides research, educational reports, and training to the adopting authority, participates in code change committees, testifies at code hearings, and teams up with local experts where possible. <http://www.swenergy.org/>