

*Land Use & Climate Change Advisory Committee*

## Positive and Negative Impacts of a Local Government Addressing Climate Change on Affordable Housing, Employment, Transportation Costs and Economic Development

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Senate Bill 6580 requires consideration of positive and negative impacts to affordable housing, employment, transportation costs and economic development that result from addressing climate change at the local level (ESSB 6580, Section 4 (1)(iv)).

The Land Use and Climate Change Advisory Committee (LUCC) identified two key desired outcomes to best help local governments reduce greenhouse gas emissions and dependence on foreign oil:

- Encourage compact, climate friendly development in existing urban growth areas or urban centers; and
- Provide protection of resource lands and rural areas to discourage further sprawl from development in these areas.

There is a strong link between land use, transportation, and greenhouse gas emissions. According to *Growing Cooler: The Evidence on Urban Development and Climate Change*, compact development can lead to a twenty to forty percent (20-40%) reduction in vehicle miles traveled (VMT) and a seven to ten percent (7-10%) reduction in total carbon dioxide (CO<sub>2</sub>) emissions in the United States by 2050.<sup>1</sup>

While the impacts of climate change on affordable housing, employment, transportation costs, and economic development are to be considered, there is little information or scientific data related to the impacts of climate change policy available.

Developing a set of policies that consider the reductions in greenhouse gas emissions and vehicle miles traveled at the local level, along with the needs of infrastructure and development needs in complex. How a region or jurisdiction pursues implementation of climate change policy across these themes will define the mix of both positive and negative impacts.

Not surprisingly the effectiveness of climate change policy will ultimately depend on how local governments choose to apply the policies, rather than based on the policies themselves. In a special report titled “Local Government and Climate Change: Effective Local Responses to a Global Problem,” the Washington Research Council notes that, “...the disconnect between the

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<sup>1</sup> *Growing Cooler: The Evidence on Urban Development and Climate Change*, Reid Ewing, Keith Bartholomew, Steve Winkleman, Jerry Walters, and Don Chen. Urban Land Institute.

global scope of the issue and the local venue for action makes it difficult to balance costs and benefits.<sup>2</sup>

The tech team and volunteers from LUCC searched for information on the impacts that proposed climate change policy may have.

Climate change policy is not widely provided at a statewide level -- or considered widely in the development of traditional land use and transportation plans, resulting in little if any working knowledge about climate change policy. Information below highlights information gathered. Where possible, footnotes identifying the source are provided. A bibliography of the research material gathered in this effort is attached.

### **Definitions and Descriptions:**

For the purposes of this paper, the following definitions will be used:

#### Compact Development:

Compact development, while being encouraged in targeted areas, is not specifically defined by the LUCC. “The term ‘compact development’ does not imply high-rise or even uniformly high density, but rather higher average ‘blended’ densities.”<sup>3</sup> Compact development in this document is defined as:

- Higher blended densities with a mix of land uses;
- Strong jobs to housing balance
- Complete and connected street systems; and
- Urban spaces (both structures and spaces) designed at a human or pedestrian scale.

#### Urban Centers<sup>4</sup>:

The Puget Sound Regional Council (PSRC) has designated centers. Centers are set apart by compact, pedestrian-oriented development with a mix of uses. Centers provide proximity to a diverse array of services, shopping, recreation, and jobs, as well as a variety of attractive and well-designed residences.

They are also locations identified to take a greater proportion of future population and employment in order to curb sprawl – by encouraging development in strategic places inside the region's designated urban growth areas. Centers create environments of improved accessibility and mobility – especially for walking, biking, and transit – and, as a result, play a key transportation role as well. Centers also provide the backbone for the region's transportation

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<sup>2</sup> Local Government and Climate Change: Effective Local Responses to a Global Problem, Special Report, Washington Research Council, August 7, 2008.

<sup>3</sup> *Growing Cooler: The Evidence on Urban Development and Climate Change*, Reid Ewing, Keith Bartholomew, Steve Winkleman, Jerry Walters, and Don Chen. Urban Land Institute.

<sup>4</sup> Puget Sound Regional Council, Vision 2040, Development Patterns. Accessed on October 9, 2008 at <http://www.psrc.org/projects/vision/pubs/vision2040/index.htm>

network. By developing a highly efficient transportation system linking major centers, the region can take significant steps to reduce the rate of growth in vehicle miles traveled, while accommodating a growing population and an increase in jobs.

**Affordable Housing:**

Affordable housing is considered housing that has a sales or rental price that heads of households, within any income group throughout the region, can manage to pay.

Affordable housing should cost no more than 30 percent of an owner or tenant's gross annual household income.

**Economic Development:**

Economic Development creates wealth through the mobilization of human, financial, capital, physical and natural resources. Economic development creates new jobs and new wealth, rather than simply transferring them from one location to another. Today's economy is both global and regional. Our economy is global because not only do we trade internationally (particularly in Washington, which is among the top states for exports per person), but an increasing proportion of investment in our businesses comes from other countries. Our economy is also profoundly regional, because many leading and emerging industries have significant influence on the regional labor market, the financial market and the cultural environment in which they are located. Quality of life is increasingly a key factor to attracting and retaining the human capital that supports sustained economic development.

**Potential Costs of Recommendations:**

To best identify potential costs associated with the recommendations, Washington State Department of Community, Trade and Economic Development (CTED) asked for help from its local government fiscal notes program to identify potential costs associated with recommendations. CTED included fiscal considerations in the background papers for the policy recommendations being considered. This paper focuses on the consideration of positive and negative impacts of local governments addressing climate change, as directed in the bill.

**Positive and Negative Impacts:**

**Affordable Housing:**

There are several studies considering the issues that affect housing costs. There are studies that reach opposing conclusions to the causes of housing cost increases. As an example, the LUCC read both the report by University of Washington Economics Professor Theo Eicher<sup>5</sup> attributing a large portion of home prices to land use rules, as well as the American Planning Association Washington Chapter's response.<sup>6</sup> At the very least, factors influencing housing costs are complex and varied.

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<sup>5</sup> "Housing Prices and Land Use Regulations: A Study of 250 Major US Cities", Theo S. Eicher, Northwest Journal of Business and Economics, forthcoming. The most current draft of this paper can be accessed online at <http://depts.washington.edu/teclass/landuse/>.

<sup>6</sup> "Observations on the Costs of Land Use Regulations and Growth Management: Critical Perspective on a Controversial UW Study", American Planning Association Washington Chapter, August 2008. This paper can be accessed at <http://washington-apa.org/documents/WhitePaper20080826.pdf>

Of the studies reviewed, none related directly to climate change policy on affordable housing. There is not a clear, definitive response as to how, or to what extent, addressing climate change at the local level may affect housing costs.

In a report prepared for the Brookings Institution Center of Urban and Metropolitan Policy, a finding about housing affordability is:

“The common assumption is that by limiting the supply of developable land, all growth management policies reduce the supply of housing. Basic economic theory suggests that if housing supply is low relative to demand, then the price for it will be high, reducing its affordability. While this reasoning may seem logical, it is far too simplistic. Housing prices are generally determined by a host of interacting factors, such as the price of land, the supply and types of housing, the demand for housing, and the amount of residential choice and mobility in the area. Further complicating this market reality is that growth management policies vary widely by state and region and are unevenly enforced and implemented.”<sup>7</sup>

**Potential positive impacts** of a local government addressing climate change on affordable housing include:

- More opportunities for a variety of housing types, such as cottage, attached single family, and multi-family housing, in addition to the single family detached housing that is more common today in most Washington communities.
- Local governments may focus new growth within existing urban growth boundaries rather than seeking to expand those boundaries.
- Focusing growth in target areas can result in less demand to extend infrastructure systems, such as miles of pipe in a sanitary sewer or domestic water system. This can result in lower development costs, which could reduce housing prices.
- Centralized areas of development can result in a smaller area local governments need to serve with urban levels of service for emergency services, such as police and fire protection.
- Addressing climate change in GMA could result in more compact or transit-oriented development in urban growth areas or urban centers. Compact housing types, such as townhouses and multi-family dwellings, also require less energy to heat on a per capita basis, which in turn reduces greenhouse gas generation and further increases affordability<sup>8</sup> (presumably because more income could then go toward housing or other household costs).

<sup>7</sup> The Link Between Growth Management and Housing Affordability: The Academic Evidence, Arthur C. Nelson, Rolf Pendall, Casey J. Dawkins, and Gerrit J. Knaap, a discussion paper prepared for the Brookings Institution Center of Urban and Metropolitan Policy, February 2002, Executive Summary. <http://www.brookings.edu/es/urban/publications/growthmanagexsum.htm>

<sup>8</sup> Jonathan Norman, Heather L. MacLean, and Christopher A. Kennedy, *Comparing High and Low Residential Density: Life-Cycle Analysis of Energy Use and Greenhouse Gas Emissions* 132 *Journal of Urban Planning and Development* 10, pp. 18 – 19 (2006).

- Encouraging higher density, as supported by several SEPA tools, will tend toward provision of housing that is affordable. Compact development in urban centers is also economical in regard to location near public transit, and near employment and retail services. For example, under the infill exemption provisions in RCW 43.21C.229, the City of Seattle has adopted a categorically exempted level of 80 dwelling units in downtown zones within urban centers and station area overlay districts. Most proposed developments with 80 dwelling units or less will be exempt from SEPA review. However, there is no explicit focus on affordable housing for the SEPA streamlining tools.
- To the extent that multimodal concurrency systems remove barriers to compact development and reduce sprawl, they may increase the affordability of housing by 1) supporting the development of more affordable consumer housing choices (e.g. denser infill development may be less expensive per unit than single-family large lot development in suburban or exurban areas, and 2) reducing household travel costs.<sup>9</sup> The higher household travel costs associated with sprawl disproportionately affect lower income households because transportation expenditures claim a higher percentage of their overall budgets.<sup>10</sup>

**Potential negative impacts** of a local government addressing climate change on affordable housing include:

- Regulations that result due to this goal -- that may limit the amount of developable land available -- could result in increased land costs and therefore increased housing costs. Jurisdictions would need to continue and potentially strengthen measures to address housing needs for all segments of the population as well as to provide a variety of housing types within their communities.
- Often, new planning policies are requirements geared toward new development. “Changes to the existing built environment will be needed. But without specific policies aimed at redevelopment, existing residential land uses tend to get locked in. Older houses are replaced one at a time with new homes that themselves have a 50-to-100-year useful life. Low density, energy intensive land uses get perpetuated without concerted effort to change them.”<sup>11</sup>
- A community will not see substantive energy use reductions without retrofitting existing homes. In most rentals, tenants are responsible to cover the costs of heating, cooling, and lighting. Therefore, the property owner has little incentive to upgrade insulation, lighting, appliances and other fixtures.<sup>12</sup>

<sup>9</sup> Center for Transit Oriented Development and Center for Neighborhood Technology. The Affordability Index: A New Tool for Measuring the True Affordability of a Housing Choice. The Brookings Institution. January 2006.

<sup>10</sup> Bernstein, Scott, Carrie Makarewicz, and Kevin McCarty. Driven to Spend: Pumping Dollars out of Our Households and Communities. Surface Transportation Policy Project. June 2005.

<sup>11</sup> Local Government and Climate Change: Effective Local Responses to a Global Problem, Special Report, Washington Research Council, August 7, 2008.

<sup>12</sup> Ibid.

- Multimodal concurrency systems may be more predictable and consistent than traditional concurrency systems and provide less costly and easier to implement alternatives to roadway improvements in compact urban areas. On the other hand, to the extent multimodal concurrency systems are more complex, they may be more time consuming and involve more costly traffic studies for developers, which may tend to increase housing prices to some extent. Also, if local governments require multimodal improvements in areas where they had previously accepted failing levels of service, development costs may correspondingly increase.

#### Employment:

More recent data related to climate change policy and employment seems to recognize a “win-win” opportunity. In “Making Green Policies Pay Off, Responsible Climate-Change Package Can Benefit Environment, Workforce”<sup>13</sup> the conclusion is that a responsible approach to addressing carbon emissions can avoid the majority of harmful effects and can result in benefits for a large majority of the workforce.

However, there will likely be concentrated losses among workers and communities dependent on fossil fuels. According to a macroeconomic effects review, the Center on Budget and Policy Priorities<sup>14</sup> states, “Although the implementation of climate-change policy could cause some short-run macroeconomic effects in the areas of inflation and overall employment, especially if it were done clumsily, there should be no significant long-run impact in those areas.”

In an analysis of the Lieberman-Warner proposed federal legislation (a cap and trade system), the National Association of Manufacturers estimated that Washington State would lose between 23,668 to 35,602 jobs in 2020, primarily because of lower industrial output due to higher energy prices, the high cost of complying with required emissions cuts, and greater competition from overseas manufacturers with lower energy costs.<sup>15</sup>

This analysis is based on a proposed federal cap and trade system, which is different than addressing climate change issues at the local level. However, the information is valuable in informing the conversation around impacts to economic development.

Washington State is already taking proactive steps to address employment and climate change. Washington is the first state to make work-force training a key feature of its climate policy. Green businesses have been growing at a rate of five percent annually during the past three years.

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<sup>13</sup> Making Green Policies Pay Off: Responsible Climate-Change Package Can Benefit Environment, Workforce, an Economic Policy Institute Issue Brief, April 21, 2000.

<sup>14</sup> The Effects of Climate-Change Policies on the Federal Budget and the Budgets of Low-Income Households: An Economic Analysis, Chad Stone and Matt Fiedler, Center on Budget and Policy Priorities, May 9, 2008, page 7.

<sup>15</sup> Washington Economic Impact on the State from the Lieberman-Warner Proposed Legislation to Reduce Greenhouse Gas Emissions, National Association of Manufacturers.

CTED's 2005 report, "Renewable Energy, Energy Efficiency, and Smart Energy Industries in Washington State" found a 45 percent increase of jobs associated with energy efficiency and renewable energy industries between 1998 and 2004. The State Energy Policy Office documented 3,800 clean energy jobs in 1998 and 8,400 jobs in 2004.

In 2007, the governor set a goal of 25,000 clean energy jobs in our state by 2020. Washington State has a greater concentration of clean tech jobs (64 percent more) than the national average.<sup>16</sup>

More information will be added here regarding the State of Washington's work subsequent to E2SHB 2815, Section 9, when available.

**Potential positive impacts** of a local government addressing climate change on employment include:

- Washington State is already taking proactive steps to address employment and climate change. Washington is the first state to make work-force training a key feature of its climate policy.
- Growth in clean and renewable energy jobs could continue and possibly increase.
- Employment-generating uses can be an element or a focus of SEPA streamlining tools. For example, the City of Vancouver adopted a planned action for the Ester Short Subarea Redevelopment plan to develop a 30 block area with 1,010 residential units and 539,220 square feet of commercial space. City of Kent adopted the Kent Station Planned Action to redevelop an area with a variety of uses, including office and other retail uses, restaurants, multi-family housing, and parks. In both cases, when a project application is received, the review will focus on whether the project is consistent with the planned action ordinance and whether all impacts have been evaluated in the EIS.

**Potential negative impacts** of a local government addressing climate change on employment include:

- Some industries will likely experience a downturn in employment or expansion. Opportunities for those employees to retrain, or for that business to improve its business practices to have lower emissions may not be feasible. Some employees negatively affected by this may have to find new employment, which may not pay as well. However, this type of affect on employment is more likely to result from a cap and trade system, rather than from a local government addressing climate change through their land use and transportation planning efforts.

**Transportation Costs:**

"From a climate perspective, the best development is highly accessible to existing urban centers, served by transit, and dense, diverse, and well-designed...Inevitably, Greenfield development will continue in suburban settings. But this development need not take the form of suburban

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<sup>16</sup> Washington State's climate change website, Green Economy page, accessed on October 9, 2008 at <http://ecy.wa.gov/climatechange/GreenEconomy.htm>

sprawl. It can be dense, diverse, and well designed. Even in the absence of transit, it can be walkable, and can render many automobile trips much shorter than those in suburbia today.”<sup>17</sup>

Recent research demonstrates that compact/transit oriented developments can reduce per capita automobile trips, and by implication vehicle miles of travel (VMT) and greenhouse gas emissions related to travel.<sup>18,19</sup> The magnitude of the reduction is affected by development design and the accessibility, proximity and availability of mixed land uses and transit services. In addition, properly designed transit oriented developments can actually increase transit ridership over that expected (a transit “bump”) based just on increased population density.<sup>20</sup>

Communities typically analyze the transportation impact of proposed developments by calculating the auto trips likely to be generated by uses in the development based on traditional trip generation factors. The volume of these trips is then compared to the current or planned capacity of the adjacent roadway system to determine if the increased trips will cause an unacceptable reduction in the level of service the roadways can provide. Denser developments appear to cause a greater impact if the old trip factors are used, and if transit availability to satisfy demand for some trips and the trip-reducing attributes of a true transit oriented development are not taken into account. In this way, concurrency could act to discourage compact/transit oriented developments that in fact have the potential to reduce per capita VMT and greenhouse gas emissions.

If compact development is to be targeted into certain areas, the tools used to measure concurrency should be able to capture all modes of transportation available in the area (including transit, walking, biking), not merely be a tool to measure vehicle volume to road or intersection capacity. Concurrency policies and development regulations at the local level should recognize that concurrency can be achieved through a variety of measures, including for example, options such as car pooling, long-term transit passes, zip cars, and transit based improvements, not just traditional measures such as expanding lane capacity and intersection improvements. Recent research demonstrates that compact/transit oriented developments can reduce per capita automobile trips, and by implication vehicle miles of travel (VMT) and greenhouse gas emissions related to travel.<sup>21,22</sup> The magnitude of the reduction is affected by development

<sup>17</sup> Growing Cooler: The Evidence on Urban Development and Climate Change, page 130. Reid Ewing, Keith Bartholomew, Steve Winkleman, Jerry Walters, and Don Chen. Urban Land Institute.

<sup>18</sup> Lawrence Frank and Company, Inc., Mark Bradley, and Keith Lawton Associates. [“Travel Behavior, Emissions, & Land Use Correlation Analysis in the Central Puget Sound.”](#) WSDOT in cooperation with FHWA. July 20, 2005.

<sup>19</sup> Reid and Robert Cervero. “Travel and the Built Environment - A Synthesis,” [Transportation Research Record](#), 1780. 2001:111.

<sup>20</sup> Cervero, Robert. [“Transit-Oriented Development’s Ridership Bonus: A Product of Self-Selection and Public Policies.”](#) [Environment and Planning](#). 2007: 2068-2085.

<sup>21</sup> Lawrence Frank and Company, Inc., Mark Bradley, and Keith Lawton Associates. [“Travel Behavior, Emissions, & Land Use Correlation Analysis in the Central Puget Sound.”](#) WSDOT in cooperation with FHWA. July 20, 2005.

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Potential positive impacts of a local government addressing climate change on transportation costs include:

- Addressing climate change in GMA could result in more compact or transit-oriented development in urban growth areas or urban centers. National survey data demonstrates that the top expense for U.S. households is housing, followed by transportation.<sup>24</sup> Housing in mixed-use, transit supportive, walkable neighborhoods can lower household costs by allowing people to walk, bike, or ride transit to reach their homes, jobs, recreation, and other needs. Studies have suggested that transit-oriented developments have reduced car trips by 50 percent.<sup>25</sup>

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<sup>22</sup> Reid and Robert Cervero. “Travel and the Built Environment - A Synthesis,” Transportation Research Record, 1780. 2001:111.

<sup>23</sup> Cervero, Robert. “[Transit-Oriented Development’s Ridership Bonus: A Product of Self-Selection and Public Policies.](#)” Environment and Planning. 2007: 2068-2085.

<sup>24</sup> United States Department of Labor, Bureau of Labor Statistics. Consumer Expenditures in 2006. USDL-07-1644. October 2007.

<sup>25</sup> PB Placemaking, Urban Land Institute, Center for Transit-Oriented Development. Cited in Arrington, G.B., PB Placemaking. *The Results Are In: Residential TODs Produce 50% Fewer Car Trips*. Planetizen Interchange. October 27, 2007. Accessed from <http://www.planetizen.com/node/28086>

- Higher concentrations of residential and employment density are more likely to support a full range of mobility options, including sidewalks and bicycle lanes, trails, and public transit.
- Compact urban development/redevelopment can reduce VMT by co-locating residential, commercial and other employment uses. It also makes transit options economically viable.
- In theory, the application of multimodal concurrency systems reduces sprawl. Reducing sprawling development reduces the need for public infrastructure investments in roadways and correspondingly decreases roadway-related operations and maintenance costs.<sup>26</sup> The effectiveness of multimodal solutions in reducing transportation costs depends on the context. In compact urban areas, the cost of roadway expansions are likely to be substantially higher because of limited land availability. In those areas, multimodal solutions that shift travel from single occupant vehicles to transit, ridesharing, biking, or walking may be less costly and more effective than roadway expansions. However, adding transit, bicycle and pedestrian infrastructure requirements in other less urban areas may increase transportation costs.

**Potential negative impacts** of a local government addressing climate change on transportation costs include:

- Some efforts to reduce vehicle miles traveled in larger urbanized areas, which would result in a reduction of greenhouse gases, may include tolling and other transportation pricing strategies. Some of these strategies may make transportation more costly for people who do not have transportation options available to meet their needs other than their personal vehicles.
- Adding transit, bicycle and pedestrian infrastructure requirements (in a multimodal concurrency review system) in less urban areas may increase transportation costs.

**Economic Development:**

The process of economic development is not an isolated discipline. It is based on essential partnerships – which vary according to local and regional conditions. Among the members of such partnerships are the disciplines of marketing, training & education, financing, product development, community development, business recruiting and entrepreneurial development. The successful outcome of the process depends on sustained effort and commitment. Thus, the potential impacts of climate change policy will vary greatly depending on local effort and resources devoted to economic development.

Potential positive impacts of a local government addressing climate change on economic development include:

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<sup>26</sup> Puget Sound Regional Council. “[Vision 2020+20 Update – Information Paper on the Cost of Sprawl.](#)” December 19, 2005.

- Perhaps one of the best incentives for economic development is project readiness. A jurisdiction that has infrastructure and environmental review complete is ready to streamline permitting and attract new economic development.
- Transportation options for employees and clients will be greater if new businesses are located within urban centers or compact development areas. In addition, when located in mixed-use areas, many employees can complete their errands without need of a car during the day.
- Mixed -use urban redevelopment projects can support economic development through creating retail and office space. However, the range of economic development that will be suitable to mixed-use areas may be limited, due to need for compatibility with adjacent and nearby residential uses.
- Multimodal transportation concurrency may allow opportunities for economic development in dense areas with good transit, bicycle and pedestrian infrastructure that might otherwise be prevented by road capacity constraints. Multimodal transportation concurrency may particularly support industries that depend on high quality transit, bicycling, and walking travel such as tourism, senior services, and universities. Also, to the extent multimodal transportation concurrency delays or avoids costly road expansions, public resources may be invested more broadly and land not used for road expansions may remain tax-generating properties. However, if local governments forgo roadway improvements that would have been made in a traditional concurrency system in favor of a multimodal solution, and then fail to provide viable transit, ridesharing, bicycle, and pedestrian options the resulting congestion could stifle economic development.

**Potential negative impacts** of a local government addressing climate change on economic development include:

- Focusing new growth to occur inside existing urban growth areas or urban centers could result in higher land prices. Other amenities, such as access to employees, adequate infrastructure, public transportation, and urban design would need to be in place to off-set the higher land prices.
- If local governments forgo roadway improvements that would have been made in a traditional concurrency system in favor of a multimodal solution, and then fail to provide viable transit, ridesharing, bicycle, and pedestrian options the resulting congestion could stifle economic development.

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## Bibliography

### Considerations of Positive and Negative Impacts of a Local Government Addressing Climate Change on Affordable Housing, Employment, Transportation Costs, and Economic Development

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This is a preliminary bibliography. More entries will be made prior to the October 17, 2008 LUCC meeting.

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ADD CALIFORNIA AB 32, SB 375