

6/24/2010

JULY 13, 2010 COUNCIL

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TO: TOWN COUNCIL

FROM: TOWN MANAGER RE: CONSENT ITEM
RESOLUTION OPPOSING AB 32 SUSPENSION INITIATIVE**ISSUE**

Mayor Liss asks that the Council support a resolution opposing the California Job's Initiative that will be voted on in the November 2010 ballot.

RECOMMENDATION

Approve resolution.

CEQA

There are no CEQA issues in supporting or opposing ballot measures.

MONEY

Cost to the Town is unknown whether the ballot measure passes or fails. At this point cost projections seem to depend on which side of the argument a person chooses to stand.

DISCUSSION

The California Jobs Initiative, scheduled for the November Election, would suspend AB 32, the Global Warming Solutions Act of 2006 until California's unemployment rate drops to 5.5% or below for four consecutive quarters.

AB 32 requires that greenhouse emission levels in the state be cut to 1990 levels by 2020, in a gradual process that is slated to begin in 2012. Reducing greenhouse emission levels to 1990 levels will involve cutting the emissions by about 15% from 2010 levels. Power plants, refineries, and other industries will need to install equipment or purchase emissions allowances.

AB 32 includes section 38599 a provision allowing the Governor of California to suspend the requirements of the Act if there are "extraordinary circumstances" in place, such as "significant economic harm." However, Governor Schwarzenegger has said he will not suspend AB 32. Hence the supporters of the California Jobs Initiative decided to circulate a petition to qualify an initiative for the ballot that is not dependent on the approval of the governor or legislature but rather would automatically implement suspension criteria.

In February 2010 Mayor Liss submitted the following letter to the League of California Cities in support of AB 32. At the time the League was considering whether to support a request for a temporary suspension of the measure. Attached is additional information on AB 32 and the

initiative measure pro and con.

February 10, 2010

League of California Cities
ATTN: Chris McKenzie, Executive Director
1400 K Street
Sacramento, CA 95814

RE: SUPPORT FOR CONTINUATION OF AB 32 REGULATIONS

It has come to the attention of the Town, by Judy Corbett of the Local Government Commission, that the League may consider supporting an initiative to suspend AB 32 regulations for a period of time ostensibly to assist business expansion and development.

The Council of the Town of Loomis asks that the League not support such an initiative because the regulations in AB 32 are needed to achieve sustainable and profitable development in the future. Approximately 50% of all the new businesses interested in locating in the metropolitan Sacramento area are green businesses and clean technology companies. Those businesses are attracted by the commitment of the State to sustainable policies and programs such as AB 32. To suspend AB 32 would undercut that growth for our economy at a time when we most need the jobs that will be created. In addition, the Town of Loomis has relied upon the commitments in AB 32, and related SB 375, to pursue more comprehensive planning approaches with neighboring communities.

Please submit our comments to the appropriate officials in the League and thank them for consideration of our request.

Sincerely,

Gary Liss, Mayor

Cc: Town Council

TOWN OF LOOMIS**RESOLUTION 10 – _____****A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF LOOMIS
OPPOSING THE CALIFORNIA JOBS INITIATIVE THAT WOULD SUSPEND, UNDER
CERTAIN CONDITIONS, THE PROVISIONS OF AB 32, THE GLOBAL WARMING
SOLUTIONS ACT OF 2006**

WHEREAS, the California Legislature passed AB 32 in 2006 to achieve technologically feasible and cost effective reductions in greenhouse gas emissions from sources of such gases: and

WHEREAS, an initiative that is to be voted on in the November 2010 Election would suspend the implementation of AB 32's air pollution and health regulations and enforcement thereof unless California's unemployment rate drops to a fixed level that has rarely ever been achieved: and

WHEREAS, air pollution is a major threat to public health in California, causing increasing rates of asthma and lung disease, especially among children, and this Initiative will encourage air pollution to continue at current levels; and

WHEREAS, the Initiative could set back California's emerging new energy businesses that have experienced growth because of California's clean energy and clean air laws; and

WHEREAS, since 2005, California green jobs have grown faster than the statewide average and the clean technology sector received \$2.1 billion in investment capital in 2009 alone to grow businesses and jobs; and

WHEREAS, the Initiative could halt the growth in clean energy businesses and continue California's dependence on narrow forms of energy; and

WHEREAS, the trend in the new economy will be to increase the methods by which energy is produced to lesson dependence on few sources and that such a trend should be encouraged.

NOW, THEREFORE, IT IS RESOLVED that the Town Council of the Town of Loomis does hereby oppose the California Jobs Initiative scheduled to be voted on in the November 2010 election.

PASSED AND ADOPTED at a regular meeting of the Town Council of the Town of Loomis on the 13th day of July, 2010, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

Mayor

ATTEST:

APPROVED AS TO FORM:

Town Clerk

Town Attorney

Assembly Bill 32: Global Warming Solutions Act

[En español](#)

In 2006, the Legislature passed and Governor Schwarzenegger signed [AB 32](#), the Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas emissions reduction goal into law. It directed the California Air Resources Board ([ARB](#) or [Board](#)) to begin developing discrete [early actions](#) to reduce greenhouse gases while also preparing a [scoping plan](#) to identify how best to reach the 2020 limit. The [reduction measures](#) to meet the 2020 target are to be adopted by the start of 2011.



Assembly Bill 32 Includes a Number of Specific Requirements:

ARB shall prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from sources or categories of sources of greenhouse gases by 2020 (Health and Safety Code (HSC) §38561). The [scoping plan](#), approved by the ARB Board [December 12, 2008](#), provides the outline for actions to reduce greenhouse gases in California. The [approved scoping plan](#) indicates how these emission reductions will be achieved from significant greenhouse gas sources via [regulations](#), market mechanisms and [other actions](#).

Identify the statewide level of greenhouse gas emissions in 1990 to serve as the emissions limit to be achieved by 2020 (HSC §38550). In [December 2007](#), the Board approved the [2020 emission limit](#) of 427 million metric tons of carbon dioxide equivalent (MMTCO₂E) of greenhouse gases.

Adopt a regulation requiring the mandatory reporting of greenhouse gas emissions (HSC §38530). In [December 2007](#), the Board adopted a regulation requiring the largest industrial sources to [report](#) and [verify](#) their greenhouse gas emissions. The [reporting regulation](#) serves as a solid foundation to determine greenhouse gas emissions and track future changes in emission levels.

Identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010 (HSC §38560.5). The [Board identified](#) nine discrete [early action](#) measures including regulations affecting [landfills](#), [motor vehicle fuels](#), [refrigerants in cars](#), [tire pressure](#), port operations and other sources in 2007 that included [ship electrification at ports](#) and reduction of high GWP gases in [consumer products](#). [Regulatory development](#) for the remaining measures is ongoing.

Ensure early voluntary reductions receive appropriate credit in the implementation of AB 32 (HSC §38562(b)(3)). In February 2008, the Board approved a [policy statement](#) encouraging [voluntary early actions](#) and establishing a procedure for project proponents to submit quantification methods to be evaluated by ARB. ARB, along with California's [local air districts](#) and the [California Climate Action Registry](#), is working to implement this program.

Convene an Environmental Justice Advisory Committee (EJAC) to advise the Board in developing the Scoping Plan and any other pertinent matter in implementing AB 32 (HSC §38591). The [EJAC](#) has met [12 times](#) since early 2007, providing comments on the proposed early action measures and the development of the scoping plan, and submitted its [comments](#)

Quick Links

[Setting the Record Straight on AB 32](#)

[What They're Saying ... About AB 32. Clean Energy & Green Jobs](#)

[Fact Sheet](#)

[Contact List](#)

[AB 32 Bill Text](#)

[AB 32 Implementation](#)

and recommendations on the scoping plan in October 2008. ARB will continue to work with the EJAC as AB 32 is implemented.

Appoint an Economic and Technology Advancement Advisory Committee (ETAAC) to provide recommendations for technologies, research and greenhouse gas emission reduction measures (HSC §38591). After a year-long public process, The ETAAC submitted a report of their recommendations to the Board in February 2008. The ETAAC also reviewed and provided comments on the scoping plan.

AB 32 Timeline

By Jan 1, 2009 - ARB adopts plan indicating how emission reductions will be achieved from significant sources of GHGs via regulations, market mechanisms and other actions.

During 2009 - ARB staff drafts rule language to implement its plan and holds a series of public workshop on each measure (including market mechanisms).

By Jan 1, 2010 - Early action measures take effect.

During 2010 - ARB conducts series of rulemakings, after workshops and public hearings, to adopt GHG regulations including rules governing market mechanisms.

By Jan 1, 2011 - ARB completes major rulemakings for reducing GHGs including market mechanisms. ARB may revise the rules and adopt new ones after 1/1/2011 in furtherance of the 2020 cap.

By Jan 1, 2012 - GHG rules and market mechanisms adopted by ARB take effect and are legally enforceable.

December 31, 2020 - Deadline for achieving 2020 GHG emissions cap.

[AB 32 Contact List](#)





California Environmental Protection Agency

AB 32 – Fact Sheet California Global Warming Solutions Act of 2006

Establishes first-in-the-world comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases (GHG).

Makes the Air Resources Board (ARB) responsible for monitoring and reducing GHG emissions. Continues the existing Climate Action Team to coordinate statewide efforts.

Authorizes the Governor to invoke a safety valve in the event of extraordinary circumstances, catastrophic events or the threat of significant economic harm, for up to 12 months at a time.

Requires ARB to:

- Adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.
- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2009.
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHGs, including provisions for using both market mechanisms and alternative compliance mechanisms.
- Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise ARB.
- Ensure public notice and opportunity for comment for all ARB actions.
- Prior to imposing any mandates or authorizing market mechanisms, requires ARB to do evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and to ensure that the rules do not disproportionately impact low-income communities.

AB 32 – Timeline California Global Warming Solutions Act of 2006

By July 1, 2007	The State Air Resources Board (ARB) forms Environmental Justice and Economic & Technology Advancement advisory committees.
By July 1, 2007	ARB adopts list of discrete early action measures that can be adopted and implemented before January 1, 2010.
By Jan 1, 2008	ARB adopts regulations for mandatory greenhouse gas (GHG) emissions reporting. ARB defines 1990 emissions baseline for California (including emissions from imported power) and adopts that as the 2020 statewide cap.
By Jan 1, 2009	ARB adopts plan indicating how it will emission reductions will be achieved from significant sources of GHGs via regulations, market mechanisms and other actions
During 2009	ARB staff drafts rule language to implement its plan and holds a series of public workshop on each measure (including market mechanisms).
By Jan 1, 2010	Early action measures take effect.
During 2010	ARB conducts series of rulemakings, after workshops and public hearings, to adopt GHG regulations including rules governing market mechanisms.
By Jan 1, 2011	ARB completes major rulemakings for reducing GHGs including market mechanisms. ARB may revise the rules and adopt new ones after 1/1/2011 in furtherance of the 2020 cap.
By Jan 1, 2012	GHG rules and market mechanisms adopted by ARB take effect and are legally enforceable.
Dec 31, 2020	Deadline for achieving 2020 GHG emissions cap.

For more information on the California Global Warming Solutions Act of 2006, please visit:
<http://www.arb.ca.gov/cc/cc.htm>.



California Jobs Initiative

FACT SHEET: WHY DO WE WANT TO SUSPEND AB 32?

Assembly Bill 32, "The Global Warming Solutions Act of 2006," was intended to protect California from human caused global warming. Whether global warming is in fact caused by humans or by natural processes, AB 32 is ineffective and counterproductive, massively costly to businesses and families, and will increase our state deficit and/or cut services including those related to public health and environmental protection.

Economists estimate if nothing is done AB 32 will:

- Cost California up to 1.1 million jobs
- Cost the average family \$3,857 a year in greatly increased expenses for housing, transportation, food and energy
- Cost \$49,691 per small business
- Result in a total loss of output of \$182.649 billion
- Devastate budgets of California social services agencies through massive losses in tax revenue

Ineffective and Counterproductive

California produces only 1.4% of the world's greenhouse gas emissions, so our efforts to address climate change (if even real) cannot be successful alone. AB 32's go-it-alone approach will impose massive costs on businesses that can be easily avoided by relocation across state or national boundaries.

Increases our State Deficit and/or Cuts Services

The drastic drop in California's economic output that will result from AB 32 will also result in a drastic drop in revenues for state agencies, including those responsible for providing social services and protecting the environment. Agencies which face cuts of up to 80% under AB 32 include the Department of Public Health, Department of Developmental Services, Children's Medical Services and Rural Health and Department of Housing and Urban Development.

Increases Government Control of Individual Decisions

In attempting to protect the environment, the government has given itself an increased role in personal decisions such as where individuals choose to live and what they choose to drive. AB 32 regulations will attempt to force Californians from their trucks, minivans, SUV's, muscle cars and classic cars in favor of vehicles that are smaller, more expensive to purchase and less safe.

How you can Help

The petition to suspend AB 32 is online on our website, www.SuspendAB32.org Please visit the website, download a petition and mail it to us. The website has a wealth of resources and other steps you can take to stop the most draconian regulatory regime in our state's history.

Economic Impacts of AB 32

Summary of Recent Analyses

The Economic Impact of AB 32 on California Small Businesses

By The Brattle Group, produced for the Union of Concerned Scientists

December 2009

www.ucsusa.org/small-business

Summary: AB 32's economic impact on small businesses will be small and manageable.



To examine how California's AB 32 global warming policies will impact small business bottom lines, UCS commissioned a first-of-its kind economic analysis specifically focused on the state's small businesses. The analysis ground-tests its results through a case study on Border Grill restaurant in Los Angeles. UCS economists and policy experts worked with The Brattle Group, a highly-regarded independent economic consulting firm, to produce the analysis. The peer-reviewed report uses empirical data on the cost characteristics of small businesses to estimate the economic impacts of AB 32 on small businesses in general. It also relies on actual financial records and historic energy bills from the Border Grill restaurant to forecast impacts on the restaurant's annual profits over the next ten years.

The average small business in California spends only 1.4 percent of its revenues on energy-related costs, like electricity, natural gas, and transportation fuel. Since most small businesses will not be directly regulated by California's global warming policies, these policies will only impact them *indirectly* to the extent that they cause energy prices to change. The analysis concludes that California's global warming policies will only increase the percent of revenue the small business spends on energy by a mere 0.3 percentage points—increasing the share of revenues dedicated to energy costs from 1.4 percent to 1.7 percent in 2020. And this is actually a very conservative estimate because the report does not factor in the full range of cost savings that could come from investments in energy efficiency.

The Border Grill case study assumed that incremental changes in the restaurant's energy costs due to global warming policies would be passed on to customers via a price increase. By 2020, the cost of a typical dinner would rise about 0.1 percent—or less than three cents for every \$20. This 0.1 percent increase pales in comparison to the effect of inflation over 10 years: a typical increase of 2 percent per year would add \$4.38 to a \$20 bill.

Many Shades of Green: Diversity and Distribution of California's Green Jobs

By Next 10 and Collaborative Economics

December 2009

www.next10.org/next10/publications/green_jobs.html

Summary: Green jobs are growing faster than the overall economy.

Next 10 and Collaborative Economics provide the most comprehensive green jobs accounting to date, systematically tracking the most recent available data on green companies, job type, location and growth across every sector and region of California.



California green businesses have increased 45 percent in number and 36 percent in employment from 1995 to 2008 while total jobs in California expanded only 13 percent. As the economy slowed between 2007 and 2008, total employment fell 1 percent, but green jobs continued to grow five percent. The Sacramento Area led the pack with job growth of 87 percent from 1995 to 2008, followed by the San Diego Region (57 percent), the Bay Area (51 percent), and Orange County and Inland Empire (50 percent). Even in rural areas with a smaller economic base, green jobs are growing faster than the overall economy.

- Manufacturing represents 21 percent of all green jobs, and grew 19 percent, while manufacturing represents only 11 percent of all jobs in California (January 2008.)
- Half of all manufacturing jobs are split between energy efficiency and energy generation.
- Services accounted for 45 percent of all California green jobs, the largest portion in Environmental Consulting.
- With nearly 43,000 jobs in 2008, Air & Environment is the largest of California's green segments. While this segment's jobs remained steady, hovering around 35,000 from 1995-2005, since 2005 the number of green jobs in this segment has increased 24 percent.
- From 1995-2008, Energy Generation employment expanded 61 percent by nearly 10,000 jobs. Solar makes up the largest portion, and strongest growth (63 percent).
- Employment in Energy Efficiency increased 63 percent from 1995-2008.
- Employment in Green Transportation has increased 152 percent since 1995. Green Transportation Jobs are primarily in Motor Vehicles & Equipment and Alternative Fuels, with the latter growing faster at 201 percent, and representing 48 percent of all jobs in this segment.
- Green Logistics is an emerging field, only in the Bay Area at present, with employment growing by 1144 percent since 1995.

Energy Prices & California's Economic Security

By Professor David Roland-Holst, UC Berkeley, produced for Next 10
October 2009

www.next10.org/next10/publications/energy_prices.html

Summary: If the state's climate program on hold, the state risks a loss of over \$80 billion in Gross State Product and more than a half million jobs by 2020. Implementing 33 percent renewable energy, combined with 1 percent annual improvement in energy efficiency, on the other hand, increases GSP by \$20 billion and generates 112,000 jobs.



University of California researchers examine the economic impacts of putting the state's climate program on hold. If California remains primarily dependent upon fossil fuels, private electricity costs could escalate as much as 33 percent. Using updated price forecasts from the U.S. Department of Energy's Annual Energy Outlook (AEO), the study estimates that without diversifying California's energy portfolio toward more renewable fuels and energy efficiency, the state risks a loss of over \$80 billion in Gross State Product (GSP) and more than a half million jobs by 2020. Implementing 33 percent renewable energy, combined with 1 percent annual improvement in energy efficiency, on the other hand, shields the economy from higher energy prices and yields a growth dividend, increasing GSP by \$20 billion and generating 112,000 jobs.

- Without changing the state energy mix, under official fossil fuel energy price trends as projected in the U.S. Department of Energy's AEO, private electricity costs in California would be up to \$100 per person higher in 2020 (already \$100 above today's prices), making electricity up to 33 percent more expensive.
- If fossil fuels follow the AEO trend, and the state does not implement its climate policies, California's economy will shrink by \$84 billion, over a half million jobs in 2020.
- Diversifying California's energy portfolio to include 33 percent renewable energy and 1 percent annual improvement in energy efficiency significantly shields California's economy from higher energy prices, resulting in lower consumer costs, increasing GSP by \$20 billion and boosting jobs by 112,000 by 2020.

Climate Policy and Economic Growth in California: A Comparative Analysis of Different Economic Impact Projections

By Dr. Chris Busch, Center for Resource Solutions
December, 2009

www.resource-solutions.org/pub_pdfs/Climate%20Policy%20and%20Economic%20Growth%20in%20California.pdf

Summary: The mainstream of results of several macroeconomic analyses show that climate solutions are affordable and economic growth will be robust at the same time that pollution reductions of the magnitude called for by AB 32 are achieved.

The California Air Resources Board (CARB) has developed the most sophisticated state-level economic modeling program in the nation as part of its mandate to implement AB 32. In addition to CARB's analysis, there have been two other principal efforts to quantify the macroeconomic impacts of AB 32 implementation, one by researchers at the University of California (Roland-Holst 2008) and a cooperative effort between Charles River Associates and the Electric Power Research Institute (EPRI/CRA 2007). Broadly speaking, each of these three principal modeling exercises follows a standard approach: comparing a business-as-usual (BAU) scenario assuming that AB 32 is not implemented with a scenario in which AB 32 is implemented. Each of these three principal analytical efforts employs a Computable General Equilibrium type of economic model.

This report also considers a more recent entry in the modeling debate, a study conducted by Varshney and Tootelian (2009) of the California State University, Sacramento. Unlike the other studies, Varshney and Tootelian do not develop a BAU scenario. Their approach is to impose CARB's estimates of the costs of AB 32 implementation (ignoring the benefits) on 2008 data to evaluate economic impacts. They also use a less sophisticated approach called an input-output model.

The results of CARB's macroeconomic modeling efforts to date fall within the mainstream of results of macroeconomic analyses, which yield a broad consensus that climate solutions are affordable and economic growth will be robust at the same time that pollution reductions of the magnitude called for by AB 32 are achieved. It is notable that all macroeconomic modeling shows continued strong economic growth even as most of the benefits of climate solutions are typically left out of the models.

The Varshney and Tootelian (VT) study is the outlier among the studies. Their finding of much higher costs relative to the other analyses follows from the fact that their analysis includes only costs and no benefits.

Daydreams of Disaster

Report to the California Attorney General

By Dr. Frank Ackerman, Stockholm Environment Institute and Tufts University
December 2009

www.sei-us.org/climate-and-energy/Ackerman%20Review%20Dec%202009.pdf

Summary: Sanjay Varshney and Dennis Tootelian's report on the economic impacts of AB 32 is unsound and unreliable.

Sanjay Varshney and Dennis Tootelian have authored two recent reports on the economic impact of implementing California's greenhouse gas law, AB 32, and on the cost of state regulation on California small businesses. Their studies predict that AB 32 will result in losses as large as 10 percent of California output (gross state product), and that the losses from state regulation overall are responsible for a loss of one-third of California's output.



Both studies are unsound and unreliable economic analysis. The losses they project would be serious economic impacts – if they were real. They are, however, entirely unreal; they should be viewed merely as daydreams of disaster.

The report on the economic impacts of AB 32 is deeply flawed in numerous ways:

- The authors count only the costs of AB 32's energy efficiency, conservation, and clean energy measures, not the savings. In the strange world of their scenarios, money spent on fuel-efficient cars, better insulation, and energy-saving new appliances will not conserve a single gallon of gasoline, save a single kilowatt-hour of electricity, or create a single job. This one-sided calculation hopelessly skews the results.
- The authors assert without any proof that the carefully researched estimates of AB 32's costs prepared by the California Air Resources Board must be far too low. Their own estimates of AB 32's costs are highly exaggerated, based on unsubstantiated guesses and back-of-the-envelope calculations. Among their mistakes:
 - They assume no savings in energy use from expenditures to build a zero net energy home, even though by definition a household's energy bills would go to zero;
 - They incorrectly assign the savings resulting from new, more fuel efficient cars as a cost imposed on older cars;
 - Their estimate of increases in food costs is rife with speculation and overlooks the extensive literature on the energy and transportation requirements for food;
 - Their estimate of increases in the costs to small businesses is based on double counting of small business receipts and arbitrary assumptions about the costs and cost increases businesses face.
 - Overall, their estimate of losses from AB 32 is more than an order of magnitude greater than comparable estimates from serious, well-documented studies of the economic impact of climate policies.

California Climate Risk and Response

By David Roland-Holst and Fredrich Kahrl, UC Berkeley, produced for Next 10

November 2008

www.next10.org/research/research_ccrr.html

Summary: If the state were to take no action to reduce or minimize expected impacts from future climate change, the costs across sectors would include tens of billions per year in direct costs, even higher indirect costs, and expose trillions of dollars of assets to collateral risk by the end of the century.

This report provides for the first time a comprehensive examination of the economic impacts of climate change and adaptation in California, compiling the most recent available science on climate damage, assess its economic implications, and examine alternative strategies for adaptation.



If the state were to take no action to reduce or minimize expected impacts from future climate change, the costs could be severe. The state has \$4 trillion in real estate assets, of which \$2.5 trillion are at risk from extreme weather events, sea level rise, and wildfires, with a projected annual price tag of \$300 million to \$3.9 billion over this century, depending on how warm the world gets. If no action is taken in the face of rising temperatures, six additional sectors, including water, energy, transportation, tourism and recreation, agriculture, and public health, would together incur tens of billions per year in direct costs, even higher indirect costs, and expose trillions of dollars of assets to collateral risk.

Climate response – mitigation to prevent the worst impacts and adaptation to climate change that is unavoidable -- on the other hand, can be executed for a fraction of these net costs by strategic deployment of existing resources for infrastructure renewal/replacement and significant private investments that would enhance both employment and productivity.