



“THE ROLE OF GREEN TECHNOLOGIES IN SPURRING ECONOMIC GROWTH”

TESTIMONY OF KEVIN TINDALL

BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES
HOUSE SMALL BUSINESS COMMITTEE

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Room 1539, Longworth House Office Building

The Honorable Nydia Velázquez (NY-12), Chairwoman
The Honorable Steve Chabot (OH-1) Ranking Minority Member

Celebrate The Past, Join Our Future.

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Madame Chair and distinguished members of the Committee, thank you for the opportunity to testify on behalf of the Plumbing-Heating-Cooling Contractors – National Association (PHCC) regarding the efforts of the plumbing industry to use and promote new green technologies. My name is Kevin Tindall and I appear before you today as a small business owner and a representative of the over 4000 member companies of PHCC. PHCC is the oldest trade association in the construction industry and as I mentioned represents over 4000 Plumbing-Heating-Cooling Contractors from around the country, the majority of whom are small business owners, that employ thousands of individuals in the plumbing industry each year. Members of the Association, all of whom are privately owned contractors, cover the spectrum from changing washers in single family homes to installing the sophisticated systems in the tallest skyscrapers and state-of-the-art medical facilities. Therefore, I would like to commend you for your efforts to bring focus to the very important issue of new green technologies and the impact it has on small businesses. New, green technologies are having a tremendous positive economic impact on our industry and are spurring economic growth for plumbing contractors around the country. Recently we have seen an increased demand for new technologies in our industry and this has proven to be a positive economic stimulation for our members.

In the past 20 years the plumbing industry emerged as a major player in the energy and water conservation movements. Plumbing contractors have taken the lead in advocating for – and – installing new water and energy efficient systems. In addition, plumbing contractors are leading the effort to help promote water conservation and energy efficiency through installation and use of green technologies.

Madame Chair in your home city of New York, during the 1980's, city leaders launched a major initiative to conserve water by utilizing new technologies. The city's plumbing industry played a major role in that effort. Because of these conservation efforts, average daily consumption of water in the city was reduced from nearly 1.5 billion gallons per day in the late 1980's to less than 1.1 billion gallons per day in 2006. This was due in large part to new innovative technologies.

A major contributing factor for the decrease in water consumption was a decision by the NYC Department of Environmental Protection to adopt a universal metering program for water customers. Under the program, water customers were required to pay water fees based on usage rather than a flat fee in order to discourage wasteful consumption. The Association of Contracting Plumbers of the City of New York and its Foundation strongly supported the change and plumbing contractors played an important role installing meters in tens of thousands of homes throughout the city.¹

¹ *Association of Contracting Plumbers of the City of New York, 125th Anniversary Commemorative Edition*

Introduction

This year PHCC celebrated the 125th Anniversary of our Association. For the past 125 years the plumbing industry has played a crucial role in the development and growth of our country, ensuring that we built, taller office towers, bigger apartment buildings and grander shopping districts, while our public health remained second to none. We are in short dedicated to the safety of the American public and the millions who live, work and visit our country every day. To that end the green movement has and will continue to be an integral part of protecting not only consumers around the country, but also our nation's most precious resource, water. We appreciate the opportunity to be here today to discuss the role of green technologies and the positive economic impact the green movement is having on small businesses, particularly in the plumbing industry. It is not an exaggeration to say that the development of modern civilization was made possible by the advent of safe plumbing. Over many centuries, mankind has learned that providing clean water and removing waste water safely is essential to promoting public health, preventing disease and stimulating economic growth. Therefore, it is only fitting that the plumbing industry is a leader in the efforts to develop and maintain new green technologies which promote water conservation and energy efficiency, while helping to protect our environment.

Most PHCC members are small family owned firms and many have been in business for decades. In fact 50% of our members have been established for more than 30 years and an amazing 40% have been installing safe, sanitary plumbing systems for more than 40 years. PHCC and its members are truly leading the way in the growing demand for water and energy efficient technologies. Small businesses in the plumbing industry are at the forefront in the efforts to develop and utilize new and innovative technologies which help conserve water. Consumer demand has increased exponentially over the past 3-5 years for new more efficient appliances and products. The dwindling supply of water in the United States and constant debate surrounding climate change has created a new market force for water efficient plumbing fixtures and appliances, while helping to stimulate growth within our industry. The impact of our industry on the economy is substantial and accounts for a large percentage of our nation's GDP, through installation, service and repair, in both residential and commercial markets – and, by encouraging consumers to make use of new emerging technologies, sustainability and growth of small businesses becomes more secure, while our contribution to the economy becomes even greater.

Green Technologies – Economic Impacts

The plumbing industry works to promote water conservation and energy efficiency through the use of new technologies meant to conserve water and promote energy efficiency. Recently, PHCC has joined with the U.S. Environmental Protection Agency's (EPA) WaterSense program, a public/private partnership, to help foster a national ethic of water efficiency, so that water is valued as a limited resource that should be used wisely. EPA's WaterSense program is an innovative partnership program that helps America's small businesses, consumers and governments to make smart water choices that save money and maintain high environmental standards without compromising performance. The WaterSense program helps to reduce water use across the country by creating an easy-to-identify label for water-efficient products that is backed by a strict criteria and independent certification. According to EPA's Assistant Administrator for Water, Ben Grumbles, in less than two years, WaterSense has become a national symbol for water efficiency among plumbing contractors, plumbing manufacturers, consumers, and utilities. Awareness of the WaterSense label is growing every day and PHCC is helping to advance consumer awareness of these products.

EPA's WaterSense program reduces water use across the country by creating an easy-to-identify label for water-efficient products that is backed by strict criteria and independent certification. WaterSense labels products that use 20 percent less water and perform as well as—or better than—conventional models. In order to earn the WaterSense label, products must be independently tested and certified to meet EPA's criteria for efficiency and performance.²

Currently, over 170 models of high-efficiency toilets from 21 different brands have earned the label, and over 100 models of faucets and faucet accessories. PHCC is working with stakeholders in all aspects of the plumbing industry to educate consumers on the benefits of changing to water-efficient products such as these.

In addition, some new emerging technologies which are not code compliant are available in the market place. These include, gray water systems, rainwater collection systems, high efficiency irrigation systems, recirculating shower systems, regulations controlling hot water delivery, recirculation of hot water, insulation of hot water piping, demand-type tankless water heaters, water softeners, and drinking water treatment systems, all are being implemented through EPA Water Sense, Efficient Single-Family New Home Specification. This new specification is presently in the draft stages. PHCC, together with the EPA, the Alliance for Water Efficiency, the International Association of Plumbing and Mechanical Officials (IAPMO), and the International Code Committee (ICC) are working to develop a consensus standard.

Furthermore, as part of effort to educate consumers, on June 1st 2008, PHCC launched the ***Summer 2008 Water Conservation Initiative***. This initiative challenges consumers to make at least one change in the way they use water this summer, installing new technologies. For example, by repairing leaking fixtures or pipes, modifying a wasteful behavior or installing water-efficient products, tremendous amounts of water and energy can be conserved. In addition, PHCC member contractors are offering free water audits for consumers in an effort to make the public aware of the new technologies that can be used to save hundreds of gallons of water on a daily basis. We are hopeful this will provide a much needed stimulation for our industry. To date our findings indicate that this effort is incredibly helpful in stimulating growth for our member businesses, particularly during these tough economic times, many plumbing contractors are able to find new business opportunities via promotion of new technologies. We are hopeful this is a small way to help stimulate the plumbing industry sector of the economy. Also, this effort will potentially provide economic stimulus by helping consumers save money during the summer by installing relatively inexpensive, new technologies in their homes and businesses.

PHCC's members are able to help consumers determine the water savings available through installation of high efficiency water closets, 1.6 and 1.28 gallons per minute flush, low-flow shower heads at 2 ½ gallons per minute, and low-flow water aerators on lavatory faucets that flow at .5 gallons per minute. Installation of these new green products would have the potential of saving up to 2 gallons per flush on all the water closets, one gallon per minute flow rate on lavatory faucets, and 1 ½ gallons per minute on shower heads. Adding up the total usage in the average home, there could be significant water savings achieved just by PHCC's ***Summer 2008 Water Conservation Initiative***. In addition to the water savings, we have the energy savings based on not having to heat as much water, and the electric power required to pump clean, and

² EPA's Assistant Administrator for Water's testimony to the U.S. House of Representative's Transportation & Infrastructure Committee

treat water supplies, which in some cases can add up to as much as 20% of the total electric power produced.

According to one PHCC member who specializes in water audits of commercial structures, a recent water audit of Purdue University in Indiana, their calculations indicated the annual savings to be roughly 11 million gallons of water or about 1/3 of their total metered usage. This massive savings comes from only changing a few hundred toilets.

According to EPA, toilets account for about 30 percent of the water used in the home, and Americans waste 900 billion gallons per year by flushing old, inefficient toilets. By replacing an older toilet with a WaterSense labeled model, a family of four could reduce total indoor water use by about 16 percent and, depending on local water and sewer costs, save more than \$90 annually. If every home replaced just one old toilet with a WaterSense labeled High Efficiency Toilet, the water savings would be enough to supply nearly 10 million U.S. households with water for a year.

In addition, water conservation translates into energy conservation and savings. If just one in every 10 homes in the United States were to install WaterSense labeled faucets or aerators in their bathrooms, in aggregate, they could save 6 billion gallons of water, and more than \$50 million in the energy costs to supply, heat, and treat that water.²

Also according to EPA, if the average home were retrofitted with water-efficient fixtures, there would be a savings of 30,000 gallons of water per year. If just one out of every 10 homes in the U.S. upgraded to water efficient fixtures (including ENERGY STAR labeled clothes washers), it could save more than 300 billion gallons and nearly \$2 billion annually.² This could amount to huge positive economic impacts for small plumbing contractors and small businesses throughout various sectors.

Due to increased demand and focus on water efficiency, the emerging water and energy conservation market has the potential to revitalize not only the plumbing industry, but also traditional construction and small businesses across the country at a time when most small business owners are suffering because of tough economic times.

Since 1950, the United States population has increased nearly 90 percent. In that same period, public demand for water increased by 209 percent. Americans now use an average of 100 gallons of water per person each day. This increased demand has put additional stress on water supplies and distribution systems, threatening both human health and environment.

Energy and Water – Vital Components of our Economy

In the United States, over 50,000 water utilities withdraw approximately 40 billion gallons per day of water from the nation's resources, to supply water for domestic consumption, industry, and other uses. When severe water shortages occur, the economic effect can be substantial. According to a 2000 report from the National Oceanic and Atmospheric Administration, eight water shortages from drought or heat waves each resulted in \$1 billion or more in monetary losses over the past 20 years.³

³ U.S. Government Accounting Office, 2003 Report: *Freshwater Supply States' Views of How Federal Agencies Could Help Them Meet the Challenges of Expected Water Shortages*. GAO-03-514

An adequate supply of treated water is critical to many industries, including agriculture and food processing, beverages, power generation, paper production, manufacturing, and mineral extraction, new and innovative technologies are vital components of sustaining this balance. Water shortages can negatively affect companies and entire industries and reduce job creation and retention for small businesses as well as the economy as a whole. Current industry trajectories, population growth, and dwindling water supplies all point to increased water shortages. Increased water demand will come with additional costs to all businesses, industries, and municipalities which rely on the same water resources. The Association of California Water Agencies (ACWA) reported in April 2008 that California is now losing income and jobs due to the state's water supply crisis.⁴ Therefore, the development and utilization of any new technology to conserve water will potentially be critical to the survival of small businesses and our economy as a whole.

Water is a vital component of our economy's energy sector. Water is used for resource extraction, refining and processing and transportation with new green technologies. Furthermore, water is essential for electricity generation. The use of water in the extraction and processing of petroleum-based transportation fuels is relatively small compared to the electric-generating industry. According to the Department of Energy's National Energy Technology Laboratory, the thermoelectric power sector accounts for 39 percent of total freshwater withdrawal in the United States, and 3.3 percent of total freshwater consumption. This consumption for electricity production accounts for over 20 percent of nonagricultural water consumption. Water is also used directly in hydroelectric generation, which constituted approximately 14 percent of energy produced in the United States in 2006 according to the Energy Information Administration (EIA).

Not only do we need vast quantities of water for energy production, but we also need energy to transport and treat water. DOE estimates that nationwide, about 4 percent of U.S. power generation is used for water supply and treatment. Across the country, the amount of energy used to provide water to meet agriculture needs represents the most significant regional difference. However, the supply and transport of water can be quite energy-intensive. For example, pumping water to consumers that live far away from the source can be energy intensive. California's State Water Project pumps water 444 miles of aqueducts from three recreational lakes in Plumas County in Northern California to Riverside County in Southern California and is the state's largest energy consumer using between 2 to 3 percent of California's energy (5,000 GWh per year).⁵

Job Creation and Small Businesses Role in Economic Stimulation

Through partnerships with various stakeholders in the plumbing industry such as, PHCC of California, the United Association of Plumbers and Pipefitters (UA) and EPA's WaterSense program, we are using new green technologies to further advance the plumbing industry both economically and technologically. The PHCC of California is currently offering a certification for GreenPlumbers. The program is an innovative, national training and accreditation program that assists plumbers in understanding their role in the environment and public health. The organization's goal is to train and deploy a green army of thousands of plumbers to promote the benefits of water conservation and the reduction of GHG emissions. The focus is on changing consumer and plumbing behavior through the use of energy efficiency and water saving

⁴ "California Water Supply Crisis Affecting Economy," *Water and Wastewater News*. April 21, 2008

⁵ "Water Energy Use in California," California Energy Commission.

technologies. As a grassroots effort, the plan is a voluntary one that can be implemented quickly without legislation or regulation. How can we expect the homeowners and business people of America to be serious and knowledgeable about water and energy conservation unless the plumbers that bring the water and energy to their houses are not equally serious? The GreenPlumbers goal is nothing less than complete culture change for the plumbing industry.

GreenPlumbers training consists of a five-course, 32 hour, accreditation in environmental and technical issues including Climate Care (8 hrs), Caring For Our Water (8 hrs), Solar Hot Water (4 hrs), Water Efficient Technology (8 hrs), and an Inspection Report Service(4 hrs).

GreenPlumbers USA is a good example of job creation and economic stimulation. In just six months, the GreenPlumbers Training program, has issued more than 1,200 accreditations in water and energy conservation to plumbers in twenty-two states.

Plumbing contractors enhance their company's value and image when their employees are knowledgeable about new energy-efficient products and concerned about the sustainability of their community.

Additionally, some PHCC contractors are part of labor/management education programs with our union counterpart, the United Association of Plumbers and Pipefitters (UA). The UA's education programs have high graduation rates and provide complete skill sets that allow plumbers and service techs to fluidly adapt to new technologies. As part of the plumbing industry the UA is a driving force in green skills. The UA has a mobile green training trailer that includes waterless, and grey water plumbing systems and the latest HVAC skills. In addition, they have a green awareness program that trains the trainer in the latest skills, and have worked to develop curriculum and tests that are accredited by 3rd party organizations. Workers are able to adapt to the technologies of the future because they have complete skill sets. The UA also offers continuing education classes and are always working in a tripartite way to ensure the construction industry has enough skilled workers to meet industry needs.

Recommendations/Outlook

As the Committee reviews options for how the federal government can help further advance the role of green technologies, it is important to consider the efforts and impacts on small businesses in the plumbing industry and how they are helping drive momentum in ways that are already positively impacting the economy.

PHCC and its members have demonstrated our commitment to promoting the use of new innovative, green technologies in a number of ways, including the promotion and advancement of proven water conservation methods. Because PHCC's plumbing contractor members play an integral role in the lives of Americans every day, they are in an ideal position to promote and assist in efforts to conserve water. Through their daily contact with customers, licensed and qualified plumbing contractors can help individuals and businesses by maintaining existing systems or replacing outdated, low-efficiency plumbing fixtures. Plumbing contractors serve as the direct link to homeowners and building owners and can assist consumers in making informed decisions regarding the purchase of water-conserving products and services.

In addition, PHCC is also actively involved with several groups committed to water conservation research and methods. The PHCC Green Task Force has been working with the Alliance for Water Efficiency at Purdue University, and the Plumbing Manufacturers Institute, to study various systems' effect of the emerging technologies.

As many of you may be aware, there were significant problems when the requirement to evolve from 3 ½ gallon per flush water closets to 1.6 gallons per flush was originally instituted. The consumer had an unsatisfactory result when trying to flush the new water closets, and the manufacturers did not have ample time to properly assess their operation with current plumbing systems. We believe that in moving forward that it is imperative that there be a thorough review of any new products to be certain that these new technologies will be customer friendly, sanitary, and operate within the existing piping configurations that are in most of the homes and buildings today. We believe that a one-size-fits-all approach to replacement of existing fixtures may not have the desired water savings effect if the existing piping systems will not adequately clear the lines to the street. Where ample field testing demonstrates the reliability of the new technologies, the PHCC supports the installation and use of water conserving methods and products.

Because PHCC members are involved in the actual installation and maintenance of water devices and systems, they offer a direct experience perspective that is very helpful during discussions. It is our hope that as Congress and Federal Government Agencies move forward in their evaluation and implementation of new green technologies that the expertise of PHCC and its members will be considered.

PHCC believes strongly that in order to achieve the ultimate goal of water conservation, new technologies aimed at specifically conserving water, such as water-efficient plumbing, wastewater management systems, wastewater recycling systems (greywater), and desalination technologies, must undergo a thorough process, including research, evaluation and testing. Introduction of new technologies into the marketplace must be based on sound science and a transparent process.

Beginning in the 1980's, California was the first state to enact legislation designed to mandate changes in flush volumes of water appliances – specifically toilets. California's actions resulted in the Energy Policy Act of 1992 (EPAAct) which required, among other things, for toilets installed in the United States to utilize 1.6 gpf (gallons per flush) rather than the 3.5 gpf that prevailed before the passage of EPAAct. The technological infrastructure was not in place at the time this change took effect, forcing plumbing contractors to deal with the public backlash from consumers. In 2007, the state of California lowered this standard below 1.6 and set a timetable for high efficiency toilets to take over the state market. Plumbing contractors are concerned that the current infrastructure and technology may not support the proper function of high efficiency toilets, once the equipment is installed. This would again create dissatisfaction for consumers, forcing plumbing contractors to again bear the brunt of consumer frustration. It is anticipated that the California standard for high efficiency toilets could be proposed as a national standard in the future.

PHCC supports public policy designed to promote the efficient use of water in agriculture, municipalities, homes, businesses, factories, offices and institutions. Furthermore, PHCC supports public policy that mandates the installation and use of water-conserving plumbing systems that are proven effective through sound science and an approval process that includes all parties in open discussion and decision-making.

It is our suggestion that additional testing and analysis be performed to evaluate the compatibility of the existing water and sewer infrastructure. At this time there are concerns that America's existing infrastructure cannot handle the water efficient products being considered. Testing and analysis should be performed for both residential and commercial systems before mandates for

high efficiency toilets or other ultra-low water consumption products are adopted. The impact of these low water consumption products on the entire plumbing system must be considered. In the future it is likely that the plumbing system will incorporate greywater, rain collection systems and other water-conserving technology that will be impacted by low water consumption products.

To facilitate the necessary implementation of these water conservation measures, PHCC supports the use of tax and other incentives, such as customer rebates for all new residential, commercial, industrial and institutional construction and renovation using water conservation and water-efficient products and systems installed by a qualified plumber. PHCC also supports efforts to fund and conduct comprehensive studies of all forms of water-conserving measures and research projects.

Furthermore, PHCC will continue to support voluntary programs, such as the Environmental Protection Agency's (EPA) WaterSense program, in efforts to promote water-conserving products and services.

PHCC urges Congress to provide adequate funding for water-related legislative initiatives, including, but not limited to, annual EPA appropriations measures, the Safe Drinking Water Act and the Clean Water Act. Monies should also be dedicated toward research into recycled water technology and toward improvements in water and sewer infrastructure.

Conclusion

PHCC members have shown that water conservation and use of new emerging technologies are both proactive and profitable for our industry. The plumbing industry's commitment to protecting our nation's vital resources, specifically water, remains a top priority.

PHCC will continue to promote new, emerging, green technologies that are flexible, market driven and encourage continued growth in the overall water conservation that preserves, protects, and promotes the health, safety and comfort of our nation. Plumbing contractors are enjoying tremendous successes with the evolution of the green movement, in which we have been engaged in for years. The commitment of the plumbing industry to water and energy conservation is demonstrated throughout our 125 year history and our recent national water conservation campaign.

Thank you again for your time and consideration in this matter of mutual interest.