Testimony of Frank Thompson

On Behalf of the
National Association of Home Builders

Before the

House Committee on Energy and Commerce

Hearing on
"Strategic Petroleum Reserve Discussion Draft and Title IV Energy Efficiency"

April 30, 2015

SUMMARY OF TESTIMONY
Frank Thompson, National Association of Home Builders

NAHB strongly supports the *Strategic Petroleum Reserve Discussion Draft – Title IV Energy Efficiency*, and appreciates the opportunity to provide testimony in support of Sections 4131 Greater Energy Efficiency in Building Codes and 4124 Residential Non-Weatherized Gas Furnaces and Mobile Home Furnaces.

NAHB represents more than 140,000 members involved in the home building, remodeling, multifamily construction, property management, subcontracting and light commercial construction industries. NAHB's goal has been to ensure that housing is a national priority and that all Americans have access to safe, decent and affordable housing, whether they choose to buy or rent a home.

SEC. 4131. GREATER ENERGY EFFICIENCY IN BUILDING CODES

The Role of DOE in the Development of Model Building Energy Codes

Model building energy codes are used across the country to establish minimum standards for building energy efficiency. The codes are developed by private entities, updated every 3 years, and adopted by state and local governments. Once adopted, the code becomes a baseline requirement for all buildings.

While it does not write or publish the codes, the Department of Energy (DOE) participates in their development by providing technical assistance—needed building science research, energy modeling and analysis that only DOE can provide. But NAHB has concerns that "technical assistance" has been broadly interpreted to allow representatives from DOE to advocate for or against certain technologies, picking winners and losers and seeking aggressive and costly requirements.

By requiring DOE to publish any proposed energy savings targets, code changes calculations, and methodology in the Federal Register, this section will increase transparency and guarantee that the public is heard. It would also prohibit DOE from advocating on behalf of certain products and technologies. This will help ensure a fair process that doesn't advantage some businesses over others.

Cost-Effectiveness

DOE also fails to consider the true economic costs when seeking further energy use reductions. Meeting an energy code is a requirement for every single home, including low-income housing and homes for first-time home buyers. Increasing housing costs for all home buyers will have the unintended consequence of reducing housing affordability.

This section would require any code or proposal supported by the Department of Energy (DOE) to have a simple payback of 10 years or less. This will ensure that we continue to increase the efficiency of homes, but that we do so at a rate that families can afford.

Section 4124 – RESIDENTIAL NON-WEATHERIZED GAS FURNACES AND MOBILE HOME FURNACES

This section which would require DOE to convene an advisory group to further analyze the recently proposed rule on gas furnaces, which eliminates non-condensing gas furnaces from the market. Replacing a non-condensing furnace with a condensing furnace will often require remodeling to re-route the exhaust system and this could potentially cost homeowners hundreds, if not thousands of dollars. This type of retrofit may also be impossible in row homes and multifamily structures. Further, the cost-benefit analysis DOE used to justify the rule was averaged on a nationwide basis and neglects the low energy savings that would be achieved in the south.

Introduction

Chairman Whitfield, Ranking Member Rush and members of the Committee, I am pleased to appear before you today on behalf of the 140,000 members of the National Association of Home Builders (NAHB) and to testify in support of the Strategic Petroleum Reserve Discussion Draft, specifically Title IV Energy Efficiency. My name is Frank Thompson and I am a home builder from Pennsylvania. I am a member of NAHB's Board of Directors and the immediate past Chair of the Construction Codes and Standards Committee.

Thank you for welcoming NAHB to this important policy discussion. As a longtime leader in the drive to make new and existing homes more energy efficient while prioritizing housing affordability, NAHB is uniquely positioned to analyze the impact of the legislation on the home building, remodeling and rental housing industries.

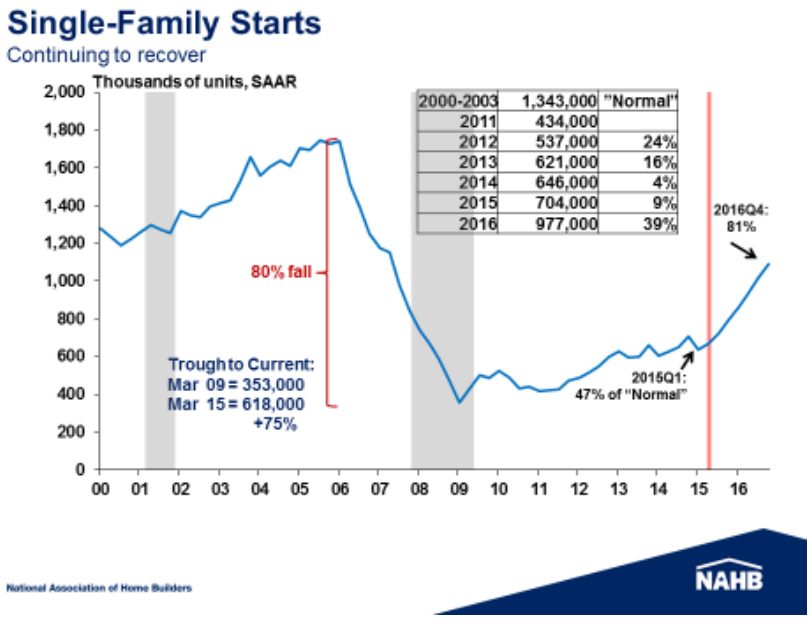
The *Strategic Petroleum Reserve Discussion Draft,* which includes the "Energy Savings and Building Efficiency Act of 2015 (H.R. 1273)," as introduced by Representatives Blackburn and Schrader, encourages meaningful energy savings for residential construction that are achievable and cost-effective. As a single family home builder in western Pennsylvania, I deal with energy codes, the baseline energy efficiency requirements for buildings, every day and I understand how different energy efficient features impact the performance of a home. I also participate in the development of energy codes because they so intimately affect the way I build. The earlier versions of these codes focused on consumers - helping them reduce their utility bills with affordable improvements to their home. Over the last few years, however, I have seen some negative trends. This proposed legislation will improve the manner by which model building energy codes are developed, by establishing guidelines for DOE

that increase transparency and ensure an open and fair process. This legislation will also require any code supported by DOE to be cost-effective. NAHB strongly supports this discussion draft and urges the Committee to swiftly pass this as legislation.

Housing Industry Background

NAHB's members build approximately 80 percent of all new housing in America each year. Collectively, we employ millions of people and generate 17% of our nation's gross domestic product.

The housing industry is just starting to come out of the worst economic downturn since the Great Depression. In order to meet the housing needs of a growing population and replacement requirements of older housing stock, the industry should be building 1.4 million new single-family homes each year. But in 2014, home builders constructed only 648,000 single family homes. That said, the industry is improving and builder confidence is on the rise.



Energy in the Residential Sector

One of the bright spots in the housing sector is the growing demand for energy-efficient homes. New homes are considerably more efficient than older homes, and consumers want energy-efficient windows, doors and mechanical equipment.

According to the Energy Information Administration, homes built after 1999 consume only 2% more energy on average than homes built prior to 2000, even though these homes are, on average, 30% larger. In fact, heating and cooling no longer account for the majority of energy use in a home.[1]

These gains are due to energy efficiency improvements in new construction. Homes built from 2000-2009 account for only 3.2% of the total energy consumption in the country, while older homes account for 19%. Because new homes are already so efficient, any significant reduction in overall energy use can only be achieved by addressing the existing building stock and occupant behavior.

The existing building stock comprises over 95 million rental and owner-occupied homes that were built before 1991, when modern energy codes were first established. And 80% of the buildings that exist today will still be in use in 2050.

But building retrofits can be very expensive. NAHB believes that incentive programs are an important tool to reduce the barriers of high initial costs and encourage more home owners to invest in energy

[1] U.S. Energy Information Administration, Residential Energy Consumption Survey

efficiency. Tax incentives see the fastest results and are the most effective at advancing energy efficiency improvements. Sections 25C for qualified improvements in existing homes (building components), 45L for new homes and 179D for commercial buildings have permeated the market and assisted many families and building owners investing in efficiency. NAHB estimates that for every $100,000 spent on remodeling, 1.11 full-time equivalent jobs are created. The remodeling activity generated by the 25C tax credit in 2009 was associated with over 278,000 full-time jobs. Unfortunately because these tax incentives keep expiring and being retroactively renewed, the positive impact of these incentives have decreased since 2011.

Occupant behavior is also a growing factor in energy consumption. Electricity use (not including space heating and cooling) accounts for over 70% of energy use, irrespective of when a home was built. The energy-use impact of items purchased by occupants after a home is built can be twice as large as the impact of items typically installed by a builder like windows and insulation. Leaving the television on, doing laundry, running the dishwasher, and even working from home can all drastically increase energy use in a home. Congress should examine education programs and other policies aimed at encouraging consumers to use energy more wisely. One example is the budget-neutral Tenant Star program, which Congress just sent to the President's desk and recognizes tenants who decrease their energy use.

NAHB Green

NAHB is leading the way to improve energy efficiency in the residential sector for new and existing homes. NAHB launched the development of a green building standard for residential buildings now known as the ICC 700 National Green Building Standard (NGBS). The NGBS is an affordable yet rigorous standard that applies to all types of residential buildings, from single-family homes to multifamily

buildings of all sizes, retrofits and land development. It focuses on energy efficiency, water conservation, resource conservation, indoor environmental quality, site design and home owner education and is the basis of a national certification program administered by the Home Innovation Research Labs. This rigorous certification requires buildings to improve in every category to achieve a higher certification level. The NGBS is also the first and only residential green building standard approved by the American National Standards Institute (ANSI), which guarantees that the NGBS was developed using a true consensus process.

NAHB is also working to educate builders on new green design and construction practices through webinars, in-person courses offered during the International Builders' Show and at our state and local home builder associations and two professional designations. Earning the Certified Green Professional (CGP) and the Master Certified Green Professional (Master CGP) credentials requires continuing education green building science and methods and a commitment to incorporate green building principles into homes.

Strategic Petroleum Reserve Discussion Draft and specifically Title IV Energy Efficiency

Chapter 3 - Building Energy Codes

Model building energy codes such as the International Energy Conservation Code (IECC) are used across the country to establish minimum standards for building energy efficiency. The codes are developed by private entities, updated every three years, and are adopted by state and local governments. Once adopted by a state or locality, the code becomes a baseline requirement for all buildings in that jurisdiction.

This discussion draft would reform the development of model building energy codes by improving transparency, setting the guidelines by which DOE operates in this context and ensuring that the code is cost-effective and affordable.

Department of Energy Technical Assistance - Improving Transparency and Ensuring Product-Neutrality

While it does not write or publish the codes, the Department of Energy (DOE) participates in the development of model building energy codes by providing technical assistance—needed building science research, energy modeling and analysis that only DOE can provide. But NAHB has concerns that "technical assistance" has been broadly interpreted to allow representatives from DOE to advocate for or against certain technologies, picking winners and losers and seeking aggressive and costly requirements.

Some businesses have realized that by inserting specific products into the code, they can require the use of their products and increase their sales and profits. Instead of allowing the builder to have flexibility in making decisions in the interest of the buyer, the energy codes dictate specific construction methods and which products to use. In addition, DOE has attempted to hire individuals or a firm to provide advocacy assistance. While this has since halted, it is an example of inappropriate advocacy on the part of DOE.

For example, in the 2012 IECC, DOE proposed to prescriptively require foam sheathing, a specific type of insulation. This proposal eliminated the ability to consider and use more cost-effective construction materials and methods. Conversely, DOE did not support an NAHB proposal that would have increased

flexibility by allowing builders to trade off efficiency measures—wall insulation, for example—provided they install more efficient mechanical equipment to achieve equivalent overall energy efficiency..

This draft would require DOE to publish any proposed energy savings targets or code changes and all calculations and methodology in the Federal Register. This will go a long way towards increasing transparency and ensuring that the public is heard. It would also prohibit DOE from advocating on behalf of certain products and technologies. This will help ensure a fair process that doesn't advantage some businesses over others.

Ensuring Cost-effectiveness

Another unfortunate trend in energy codes is the failure to consider the true economic costs when seeking further energy use reductions. We know how valuable the energy savings are to the consumer, but even with these savings, there is a significant, upfront investment.

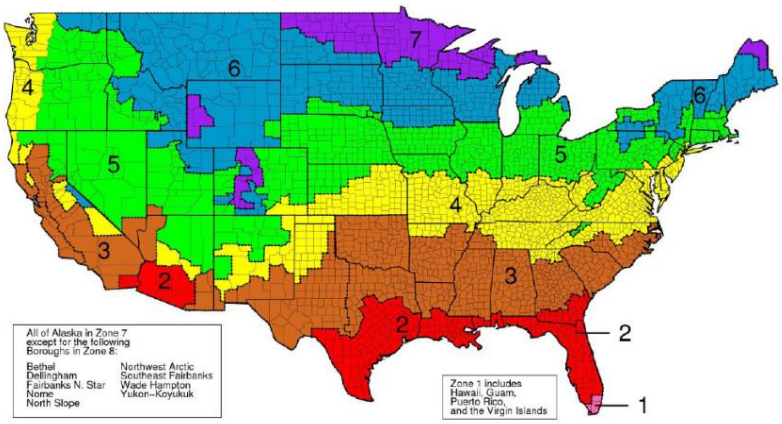
Meeting an energy code is a requirement for every single home, including low-income housing and homes for first-time home buyers. Increasing housing costs for all home buyers will has the unintended consequence of reducing housing affordability. For every $1,000 increase in the price of a home, 246,000 households will be priced out of mortgage eligibility for a 30-year, fixed-rate mortgage with a 5% interest rate.

According to an NAHB market report, *What Home Buyers Really Want*, buyers are willing to pay for lower utility costs, but need a 14 percent return, which corresponds to a 7-year payback. Budget-conscience first time home buyers require a 5-year payback period (attached). The 2012 version of the

IECC had such significant cost increases that it would take the average family 13.3 years just to break even. Some climate zones saw payback periods in excess of 16 or 17 years (see graphic below). The average home owner does not stay in their home for this long and will never realize a return on their investment. DOE typically analyzes cost-effectiveness over the life of the building, which they define as 30 years. Some energy efficiency advocates argue that the code should reflect a 30-year payback period, but this is simply not realistic.

Table 8: 2012 IECC Cost Effectiveness Relative to 2009 IECC

Climate Zone	Annual Energy Savings	Incremental Construction Cost	Simple Payback (yrs)
1	$206	$3,224	15.7
2	$294	$3,330	11.3
3	$470	$7,203	15.3
4	$410	$7,091	17.3
5	$505	$4,653	9.2
6	$397	$6,399	16.1
7	$609	$6,465	10.6
8	$725	$6,465	8.9
National Weighted Average	**$427**	**$5,668**	**13.3**



2012 IECC Cost Effectiveness Analysis -

http://www.homeinnovation.com/~/media/Files/Reports/Percent%20Energy%20Savings%202012%20IECC%20Cost%20Effectiveness%20Analysis.PDF

The commercial building sector requires an even shorter return on investment in order to bring the cost in line with commercial leasing structures (10 years or less). Many lenders require strict return on investment analyses. A Turner Construction Report, "2012 Green Building Market Barometer," indicated that 65% of commercial developers expect a payback period of 5 years or less (attached).

A DOE report prepared by the Pacific Northwest National Laboratory, *Assessing U.S. ESCO Industry Performance and Market Trends: Results from the NAESCO Database Project*, found that, in the context of Energy Service Companies (ESCOs), while institutional buildings can withstand a 7-year payback period for energy efficiency improvements, private, commercial buildings can only withstand a 3-year payback (attached). DOE's own report acknowledges that a return on investment is critical for any investments in energy efficiency.

With an aging infrastructure and building stock, more American families are going to be relegated to living and working in less-efficient homes and buildings.[2] As the housing market recovers, home buyers are facing dramatically different mortgage qualification requirements and financing issues than before the downturn. The reality is that the oldest, least-efficient homes are the most affordable to families with low to moderate incomes. Unfortunately, these families also bear the largest burden in energy costs as a percentage of income.[3] Home energy use comprises about 17% of total housing costs, and about 9% of the total income for families that earn less than the national median household income. This draft would require any code, or proposal supported by DOE to have a simple payback period of 10

[2] The average age of an owner-occupied home in the U.S. is now 35 years and climbing. See the following NAHB analysis for more detail ("An Aging Housing Stock," Eye on Housing blog, http://eyeonhousing.org/2014/01/20/the-aging-housing-stock/)
[3] CES, 2010

years or less. This will ensure that we continue to make energy efficiency improvements in buildings, but we do so at a rate that the market can bare.

Section 4124 – Residential Non-Weatherized Gas Furnaces and Mobile Home Furnaces

While the primary focus of this testimony is to support the language included on energy codes, NAHB would also like to weigh in on section 4124 of this discussion draft that addresses the recently proposed DOE rule for residential non-weatherized gas furnaces and mobile home furnaces. This legislation would require DOE to convene a representative advisory group of interested stakeholders to help analyze the impacts of the proposed rule and determine whether it is technically feasible and economically justified, and if not, participate in a negotiated rulemaking.

This is needed because the rule, as proposed, is not cost-effective in the southern U.S. Homes in the warmer southern climate use much less heat throughout the year. Unfortunately, DOE used a nationwide cost-benefit analysis to determine whether this rule is economically justified, and this neglects significantly lower energy savings that would be realized in the south.

Additionally, this rule would eliminate the availability of non-condensing furnaces, which can complicate the replacement of these furnaces in existing homes across the country. Replacing a non-condensing furnace with a condensing furnace will often require remodeling to re-route the exhaust system, and this could potentially cost homeowners hundreds, if not thousands, of additional dollars. This type of retrofit may also be impossible or even illegal in some existing town homes and multifamily structures. Replacing a furnace after a break would also take significantly more time and money. For these reasons, NAHB believes that S. 1029 will help DOE better understand market realities and hopefully result in a

more effective and economically justified rule. NAHB urges the committee to consider this legislation and support its inclusion in the final energy package.

Conclusion

NAHB wants to work as a partner with all levels of government to encourage energy efficiency, however, we must also make sure that any mandates are cost-effective and do not jeopardize housing affordability. NAHB looks forward to working with the Committee to improve and ultimately advance this important legislation. Thank you again, for this opportunity.