



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

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MINUTES ECONOMIC & REGULATORY ASSESSMENT COMMITTEE

Date: October 23, 2009
Location: Seattle Area Pipe Trades, Renton

Economic & Regulatory Assessment Committee Members Present: Dale Wentworth, Chair;
Tom Kinsman, Vice Chair; Peter DeVries

Other Council Members Present: Ray Allshouse, Kristyn Clayton, John Cochran, Don Jordan,
Representative Bruce Dammeier

Economic & Regulatory Assessment Committee Members Absent: Jon Napier

Visitors Present: Chuck Murray, David Baylon, Paul O'Connor, Greg Staats, Tom Nichols, Kate
Tate, Paul Burckhard, Juliet Scarpa, Stan Price, Tom Young, Brian Minnich, Eric Lohnes, Dan
Salinas, Jeff Harris, Patrick Hayes, Garrett Huffman, Chris Winslow, Rich Arneson, Kim Drury, Joe
Herr

Staff Present: Tim Nogler, Krista Braaksma

CALL TO ORDER

Dale Wentworth, Chair of the Economic and Regulatory Assessment Committee, called the meeting to order at 10:05 a.m. Dale welcomed everyone. Introductions were made.

REVIEW AND APPROVE AGENDA

Tim Nogler added a letter from the Joint Administrative Rules Review Committee (JARRC) as the first discussion item under No. 5, 2009 Proposed Rules. He also noted that the bullet item,

Public Testimony on Costs of Proposed Code Changes, was intended to review cost information previously submitted through the public hearing process that ended on October 5, 2009. It was not intended to gather additional testimony.

Chairman Wentworth encouraged additional, in depth testimony from individuals who have previously submitted testimony. Kristyn Clayton asked if there will be a forum to present new data. Tim said new data will be included in the discussion of the cumulative total cost impact. He also clarified that preliminary discussion of the JARRC letter at this meeting doesn't qualify as a formal hearing required by JARRC. The agenda was approved as amended.

2009 PROPOSED RULES

Letter from Joint Administrative Rules Review Committee

Tim said the Council was notified of the JARRC hearing on October 1. Kristyn Clayton and Tim provided testimony on the Council's code change proposal process, explaining that the code change submittal form includes an economic impact and assessment worksheet that estimates construction and enforcement costs.

Tim said the JARRC wants a more detailed and rigorous analysis of the cumulative impact of all code changes. When the Council reviewed the Small Business Economic Impact Statement (SBEIS), it focused on items that had a disproportionate impact on small business. The JAARC has concerns not only with the scope of the impact, but with the data itself.

The Regulatory Fairness Act requests an estimate of jobs created and lost as a result of code changes. The Council's economic impact statement listed that number as unknown. Tim said he told the JARRC that in the past building codes have not been considered by the Council as creating jobs. Rather, the focus of the impact statement has been on the elimination of jobs, with possible rule amendment to accommodate small businesses.

The JARRC also requested data on life cycle costs. Even though the Council is not one of the agencies adopting rules that the Administrative Procedures Act (APA) can require file a life cycle cost analysis, the JARRC can request it.

Tim said the JARRC asks for the following:

- An amendment to the SBEIS, adding a detailed, rigorous analysis of the cumulative cost impact;
- A reasonable estimate of the number of jobs lost or created;
- Life cycle cost analysis.

The Council is required by the APA to respond to the JARRC about the adequacy of the Council's current SBEIS and what a revised statement should include.

Kristyn said a concern by window manufacturers about a disproportionate economic impact on them was addressed by a separate meeting of the Energy Code TAG. It was suggested that a survey might gather data from vendors and suppliers that would be the factual basis for creating the economic impact statement.

Kristyn said she sees this meeting as evolving to set up a schedule for future action items, including public testimony requested by the JARRC letter. Instead of refiling, Kristyn asked for confirmation that notification of public hearing(s) is what JAARC is asking for. Tim answered that is a legal question that will be posed to legal counsel. Sandra Adix wasn't able to attend today's meeting. But she will be in attendance on October 29. He said the proposed rule was filed on August 19 with a SBEIS.

Kim Drury, Northwest Energy Coalition

I don't know if any of you have had an opportunity to actually talk to the Chair of the JARRC yet. I have. I did speak with him about this, and I read the statutes. And I would just like to point out a couple things here, as you go through your conversation today.

The JARRC has only met twice in seven years. And they're generally regarded as having extremely narrow authority, extremely narrow parameters. So when you say that you're required to go through a hearing etc., I would just double check that, because I don't think the Chair interprets that he has that authority. And in my conversation with the Chair, he was very clear he did not intend to be a roadblock. He is looking for information about jobs, in particular. He wasn't aware there had been a thorough analysis on the residential cost benefit analysis.

So he was very clear in talking about this action was not intended to be a roadblock. You have the letter. The language says what it does. But he is also quick to emphasize, as is the staff, you might also check with the JARRC staff, extremely narrow authority and extremely narrow set of sanctions that JARRC has available.

So my conversation, which I would encourage you to have as well with Representative Hasegawa, was, by all means, the State Building Code Council should proceed along with their process, their rulemaking. The letter says you are "requested." It doesn't say, you know, you are "required." That's very particular language.

I just wanted to bring that to your attention.

Tim said that future Council action, based on the JARRC request, will be discussed further on October 29. He said the scope of JARRC's authority is specified in the APA.

Representative Dammeier asked if the Council has ever proposed significant enough code changes to warrant the APA requiring a life cycle cost analysis. He said he reads the JARRC letter as concerned with the cumulative magnitude of code changes that may overwhelm small businesses. Dale answered that he's not aware of previous code changes of this magnitude. Tim said residential and nonresidential changes in the original WSEC in the early 1990s were of a significant magnitude to require significant economic analysis.

Representative Dammeier, based on conversations he had with Representative Hasegawa, cautioned the Council against taking lightly formal action by a unanimous JARRC. Kristyn assured Representative Dammeier that the Council isn't taking JAARC action lightly.

Brian Minnich, Building Industry Association of Washington

I just want to respond to a couple of issues that have been raised already.

First of all, while JARRC may not meet very often and while they may not take actions very often in regards to agency rules, they have done it in the past. The fact is years ago, 15-16 years ago, they took action on Department of Health rules related to septic systems, where there was a big question about the adequacy of their SBEIS. And they asked the Department of Health to go back to the drawing board to do some more analysis. I know of that one in particular because I was there when they did it. We brought the request to JARRC. So I do know that they have taken action in the past, at least specifically on that issue. So it's not an isolated matter.

The other thing, and I think Tim has started to address it, in regards to a public hearing, is the JARRC letter didn't say "public hearing," but you are under constraints because of the APA. And you have to be careful about getting testimony at meetings. I'm sure the Assistant AG will advise you to that. So it sort of opens up Pandora's Box anyway, regardless of whether JARRC says that's the case.

The other question, and I again assume that the AAG is going to be giving you advice on that, is what do they mean by the analysis being completed prior to the adoption of the proposed rule? Is it November 12, when you're scheduled to vote? I mean, I always... in our minds, that's what we think it means. Because the SBEIS is something that should be done, quite honestly, before the Council takes a vote and makes a decision, because that information is not only intended for public consumption, but is intended for your consumption as well, as you make that decision in regards to the rule itself. I mean, you have to...it's part of the issue that you have to consider.

So, those are two points. And I don't know, Tim, whether the AG's advised on that or not. Certainly a question that we have is, "What does that mean in terms of when does that have to be filed with JARRC and with the Code Reviser?"

Kristyn provided some history, for the benefit of new Council members. Based on 12-13 years as an Energy Code TAG member and five years as a Council member, she said energy code change proposals have historically come from the Energy Code TAG to the Council as a package. Issues are debated, and controversies are resolved at the TAG level, before the package goes to the Council. That process has worked well in the past.

This year is unprecedented, with higher standards for technology in energy-efficient buildings, during a horrible economic environment, overseen by the Climate Action Team as the global umbrella. Kristyn reminded members that the Council recommends to the Legislature. Recommended codes sit through the 2010 legislative session and may become effective on July 1, 2010. Whereas legislative agreement has always been largely ceremonial, it may not always be.

Tim said the Council process is a rulemaking process. In addition to the Administrative Procedures Act, the Open Public Meetings Act, and the Regulatory Fairness Act, there is an additional step, which may be unique to the Council. Before becoming effective, Council rules must sit through a legislative session, giving the Legislature the opportunity to respond with legislative action.

In response to Brian, Tim said the ERAC today is addressing the technological side, what the SBEIS is and how a detailed, rigorous analysis can be amended into it. The Council is in the process of analyzing how to file an amended SBEIS under the APA. The full Council will discuss this issue at its work session on October 29.

Proposed rules filed on August 19 are open for 180 days. The Council has a statutory requirement for December 1 adoption of codes each year. If that deadline is missed one year, it moves to the following December 1.

Kristyn asked for confirmation that the intent is to have a procedural discussion before the full Council on October 29. Tim agreed. Kristyn then asked, since there will be no public testimony at that meeting, is a Council decision to move forward viable then. **Tim** said that decision is up to the Council.

Don Jordan asked, since the JARRC letter addresses components of the entire energy code, is there time to get all of the necessary information. Kristyn said much of the data is presently available. Subtracting out 22 of the 97 amendments that are strictly administrative, there are only 75 amendments that have a cost impact. Of the 75, the SBEIS that was submitted addressed five basic components of approximately 20 amendments. Based on a prior Council vote, the development of energy code change proposals was based on a very dramatic redefinition of “residential.” Kristyn said the 75 amendments really should be considered as a whole, because of that philosophical change. To isolate the amendments would be very difficult.

Kristyn asked Jeff Harris to address the Committee, presenting new commercial data.

Jeff Harris, Northwest Energy Efficiency Alliance (see S:\TAGs 2007-09\Economic Comm\NReswA2010Codefinal/022)

In the interest of saving trees, I didn’t make copies of detailed information for everyone here. But I’ll send them electronically to Krista. There’s further information available that we will submit, in spreadsheet form, which goes into more detail, measure by measure by measure.

I’m the Director of Emerging Technologies with the Alliance. That’s my current job. But I’ve been working on energy codes as part of my responsibilities for over two decades now. I’ve been working with Kristyn on the Energy Code TAG for a lot of years.

In fact, I was part of the TAG that put together the 1993 nonresidential code, which was a major shift, probably close to the same order of magnitude in terms of its overall change in code,

compared to what we're talking about today. Now the amount of actual energy savings that were achieved by that was less than what we're talking about today. But it was a radical shift in code construction. In fact, it was a two-year process that took a lot of effort on the part of a lot of people. So, while the amount of energy savings reach that we're making today I think is unprecedented, the amount of difficulty is not. That change in 1993 was a major shift in energy codes.

What I've handed out today is a summary of the longer document, of which I only have a few copies. But it represents a cost effectiveness analysis, which is for the nonresidential portions of the code. For the residential portion of the code changes, a cost effectiveness analysis was already submitted during the public hearing process by Chuck Murray, with the Department of Commerce. I'm sure he'd be happy to refresh folks on that if necessary. At the same time, during the public hearing process, there were documents submitted in support of this analysis which basically pulled from those sources to create a cost effectiveness analysis that would be suitable for response to the JARRC's request.

So this is using a standard analysis technique that both the Northwest Power and Conservation Council uses, and all of the utilities in the region use for their energy efficiency programs. So it's a standard tool of analysis that was used.

If you'll bear with me for just a few minutes, I'll take just a few minutes to set up the context of how this analysis was conducted. It's based off of a set of building prototypes that are modeled using energy simulation tools. Those models, however, are grounded in a survey that my organization conducts every five years on new construction practices in the four-state area. And in Washington State, we had 146 buildings. So those buildings are used to describe current construction practices. We then model the proposed code changes against current construction practices and then estimate costs for each of those measures, again compared to the current construction practices. The incremental costs for those changes are estimated using several techniques. But the main source of that data was the Northwest Power Council's Draft 6 Power Plan, which was just released in September and was submitted to the Council as part of the testimony in the public hearing process.

As each building is modeled, there's a set of energy savings associated with each individual measure. And as I've said, we'll submit the spreadsheets, which have the measure-by-measure detail. But what you have in front of you, of course, is a high-level summary of that. We also have measure-by-measure costs, proposed code changes representing an energy efficiency measure, and we have the cost for that.

I guess the bottom line result is that this code does in fact achieve roughly an 18 percent energy savings over the current nonresidential portions of the current Washington State Energy Code (WSEC). So the Governor requested a 30 percent improvement. We got to about 18 percent, which took some heroic efforts, as those of us on the TAG would recall. It was quite a bit of effort to get to that level. And there was a lot of give and take in that process.

These savings come, in almost equal amounts, from different components of the building, some from lighting, some from the better windows and higher insulation levels, some from more efficient equipment. So, I guess, on the one hand, we did a pretty good job of trying to make sure we increased the efficiency levels across all of the various affected portions of new construction markets in nonresidential buildings.

The cost analysis indicates that the incremental cost for achieving this 18 percent is roughly \$1.10 a square foot. Now that's across all buildings. Any one building, of course, would differ from that, maybe up or down, depending on how it's affected by these proposed changes. And I have a graph that I'll refer to in a minute that kind of gives you an idea of how that varies.

If you take that \$1.10 incremental upfront cost and you take the 18 percent savings at current prices for electricity and natural gas, it will give you something like a nine-year payback. In other words, these incremental costs will pay back within about nine years for the future occupants and owners and operators of those buildings. Now that's at current energy costs, assuming no increase in those costs, which frankly the Power Council and other people feel is an unrealistic scenario. Under almost all scenarios, people believe costs long-term are going to increase over time.

So, just to give you a little bit of the detail, I would refer you to the figures on the back. The top figure is a summary of the percent savings by building type. And I want you to focus on the red bars. As you can see, those are the percent savings off of the energy uses regulated by the code. Savings percentages range from about over 30 percent for retail building types down to a low of about seven percent for hospitals. And that's partly because in hospitals there's a lot of energy use that's not covered by the code. So there's only so much we can do through a code mechanism to improve efficiency there.

Figure 2, the second graph below that has all the blue bar charts, shows the dollar cost per square foot estimated. This is the incremental first cost by building type, which ranges from about a low for hospitals of under \$0.50/square foot to a high for grocery stores of over \$2.00/square foot. So there's a variation here, depending on the building type. The analysis has much more detail. And some of it is included in the more detailed summary that I gave you. And there's more in the spreadsheets that will be submitted electronically to the Council staff.

Kristyn asked Jeff if his cost analysis data addresses all nonresidential proposals. Jeff answered that it addresses those proposals with the most significant cost impact. Residential portions of the energy code, one- and two-family dwellings, were not included. The analysis completed by the Department of Commerce was assumed to be acceptable for residential portions.

Representative Dammeier said he sees challenges to the Council as having to accept energy code changes entirely or not at all, without the ability to make adjustments or to pick and choose those with the most positive impact. He asked if Jeff's organization can recommend proposals that achieve the most energy efficiency. Jeff answered that the short answer is yes. The cost analysis can be sorted for the most cost-effective measures. And he said he would be happy to provide that data. The long answer, however, is that the current WSEC is the product of significant collaboration at the Energy Code TAG level. TAG members represent a variety of interests. Tradeoffs, which affect each other, were made during development of the code. If one piece is removed from the whole, other pieces may also have to be removed. Kristyn added that technical aspects were as important as negotiation. For example, the redefinition of "residential" had a tremendous impact this year. She said 7-10 proposals, for example, may impact a dozen of more proposals that can't stand alone.

Tom Kinsman took exception with the Energy Code TAG “cooking something up that’s so complex that nobody can pick and choose out of it.” He said concerns that arose during public testimony in Renton, such as lighting and masonry, represent valid impacts on Washington citizens.

In response to Tom, Jeff said the Energy Code TAG produced the package of energy code change proposals to meet the goal requested by Governor Gregoire to achieve a 30 percent energy savings. He said if the Council wants to now set a different target, the TAG has to go back to work to achieve that different target. Kristyn said that is an important point: the TAG began its work based on aggressive Senate and House schedules to achieve energy savings, in addition to Climate Action Team recommendations.

Tom agreed that the initial task was problematic for code users. He recommended spreading the energy savings out over a longer period, to help code users and because of the state of today’s economy.

Representative Dammeier said energy savings is not an issue between the legislative and executive branches of government. The legislation which passed the Legislature and became law was signed by the Governor. New direction given the Energy Code TAG from that legislation was six months ago. Kristyn rebutted that at the time of the deadline for code change proposals, work was based on the Governor’s 30 percent increased stringency.

Patrick Hayes, energy consultant, representing Building Industry Association of Washington

I was on the Energy Code TAG the whole way through. For the record, Bruce, your concerns were brought up by TAG members, about whether we still had to meet the 30 percent goal. And those of us that brought those things up, you know, we, in the voting process, lost. So that was questioned throughout the process.

What I really came to speak about is this letter. And it has two parts in it. Part #1 - on this cost analysis stuff, the Committee discussed during the meeting that the Council should solicit industry and supplier sources for cost estimates, **not** government agencies. What they’re looking for is people that build buildings. And so we have two reports from government agencies. We have a lot of single-family analysis from people that build buildings, and they’ve submitted real numbers from real suppliers, real subcontractors against real building plans. What we don’t have is a cost analysis on high-rise, multifamily with the new code.

That’s the bulk of my clients. I have literally smoke coming off my e-mail, you know, with questions about, “Is this going to work?” There’s hundreds of those buildings on hold right now, where we started the permitting process. The economy has collapsed, and so they’re sitting there. Some of them are permitted. Some of them are waiting for permit. And, you know, the question I have to answer back is, “Well, if this goes through and if we don’t apply for a permit before July 1, 2010, that design is moot.”

Nobody’s done any cost analysis on those types of buildings. In the business, we call it “preconstruction services.” And there are thousands of general contractors out there, with a lot of time on their hands, that could do real preconstruction services on the nonresidential

portion, not an average of this, average of that, on a real project, you know, pick one of the thousand that are on hold or pick five. Funding needs to go to those people to establish real costs.

The second part of #1 says, "It is requested that the Council complete this analysis prior to adoption of proposed rules." I think that's a pretty significant statement, as the order of events, not "we can do it later." I think it says "prior to adoption of the proposed rules." So I'd be happy to ask a lot of my construction clients who build these sort of buildings, and they could give you guys a written proposal for preconstruction services. I have probably 50-100 high-rise building plans sitting in my office that, you know, we could use for an analysis and get some real numbers, not ouija board numbers. I mean that's how you build the building. You get real numbers. No bank's going to lend you money for a project off of the Department of Commerce's cost analysis.

Kristyn said it would be helpful if Patrick could identify the funding source. Patrick said he would like to know who is funding Ecotope "on all this." Kristyn said that question was addressed and answered at the Energy Code TAG. Patrick said he'd like to see the service contract.

Kristyn asked Chuck Murray to address residential single-family proposals.

Chuck Murray, Department of Commerce (see 2009 testimony on Council website)

I'll begin by responding to Patrick's comments about where the cost data comes from. I've listed my sources here, in Table A-1, located about half way through the document. The primary source of detailed data for this comes from the Northwest Power Planning Council's 6th Power Plan. The 6th Power Plan is created by the Northwest Power and Conservation Council. They, with their utility partners, do detailed data collection and analysis, in order to plan to acquire the resources they need, either the power generation resources or whether it be trying to implement conservation services that make it so they don't have to build a power plant. These are all weighed against each other on cost-effectiveness scales, so that the region's power planning authorities, Bonneville and the individual utilities, can decide what's the cheapest place to put their resources. And, by far, conservation comes out being less expensive than any generating resource we could purchase.

Now the reason I want to detail the fact that I've quoted these folks is that utilities run rebate programs, all over the state for all sorts of activities. As part of that activity, they collect receipts from people as to what stuff costs. And they pay rebates based largely on those receipts. For example, the stack of receipts they have for insulation jobs in the region - they had a stack of 4500 receipts that they entered into their data set and based their insulation cost off of that. That's probably the richest data set. The other data sets are smaller. But, to a large extent, the stuff we see here in residential construction is based off of that sort of data collection.

Tom asked for examples of other data stock used. Chuck answered that other examples are windows, refrigerators, heat pumps of different varieties. Tom asked what the next number is

down from insulation. Chuck guessed that it's probably equipment or equipment installation. He doesn't know the number of data sets off the top of his head. New technology, for example ductless heat pumps this year, don't have huge data sets. But they have conducted detailed contractor interviews in order to understand the costs and utility incentives.

Continuation of Chuck's testimony: So when you consider the idea that you want, well, you know, here we are, we're a Council, we don't have a huge budget, Commerce doesn't have a huge budget to do this, what do you do? You try and find somebody else that's already done the work. And I think that certainly the Power Council has done the work in gathering the detailed "boots on the ground" information as to what this stuff costs.

Now I didn't use that for everything, particularly gas heating systems. The Power Council is not worried about gas stuff. So we had to go to an alternate source. The Department of Energy has a very detailed analysis on the cost of furnaces, for example. Those were studies conducted with industry. They're not conducted...you know, they don't make the numbers up either. They go through a public process that's very rigorous. And they come up with a cost figure that they use to determine equipment efficiency. And so those are the source I've quoted here for 90AFUE furnaces.

Duct sealing and interior duct placement are largely from the Power Plan. But they're also from studies conducted on what's called the Building America Program, which is a program run by the U.S. Department of Energy. They run programs where they go out and they work with large numbers of builders to implement new technologies in buildings, mostly new design practices actually. And they gather data from the contractors on those costs. And it's part of their reporting. And we've leaned on that as well.

Kristyn asked if that's a national database. Chuck said he wouldn't call it a database. Rather it's a series of studies that have been conducted. They aren't really compiled and analyzed as a big database is. They are groups of case studies, in areas such as Vancouver and Dupont, conducted by Washington State University's Energy Program, as well as a California-based consulting group that has a contract with the Department of Energy to do the Building America lead.

Chuck continued his testimony: The electric and gas water heaters – we've selected costs from ACEEE's Consumer Guide to Home Energy Savings. For the last 20 or more years, they've developed a guide for consumers on energy-efficient improvements they can do in their house. They keep a database of cost, based on retail studies that they conduct. And they publish this little guide every year. They publish a new edition to make sure that their costs are up-to-date and the advice they're providing consumers is up-to-date.

Tankless water heaters – we looked several places for that, once again, ACEEE, B.C. Hydro and such.

I also have to say that in addition to all these studies I have, I do a certain amount of web searching, to make sure we're in range, to make sure that what I see in these studies makes sense, if I can go out shopping on the internet and find it or go to a local store and find it. That helps establish the price.

Now that's just the base cost. Our analysis also includes a 37 percent markup for overhead, profit, taxes, whatever. I know there's been some debate whether that was correct or not. So I went to the National Construction Estimator, which is a guidebook. And they're saying that, for light-weight construction, 30 percent's about right. So that's an additional document we could hand in.

So that's the basis of our costs. You know, if you're looking for a large data set that get's you the answer you want, I think it'd be tough to beat. Working on the Council, you could spend a lot of years putting something together and it would basically be the same thing. So, you know, that's the confidence I have.

Now, on to the analysis, the analysis was conducted by Ecotope. Ecotope actually has many, many years doing analysis of energy use in residential construction. They guide Bonneville Power Administration and the area's utilities in this respect. So they can estimate their load needs. They are unique in that they not only run models, they also develop them. So they're very knowledgeable about whether or not their models are functioning correctly and accurately. They've done an extensive amount of work to make sure that their models represent energy use in housing in the Pacific Northwest. They've been benchmarked against billing analysis data throughout the Northwest. And that adds credibility to their modeling work.

You'll see, on the fourth page, a description of the primary code changes that are included in this analysis. Now while there are a whole bunch of code changes submitted, this is kind of the bulk of what impacts the single-family housing for new construction. So there's a list there of what's been analyzed.

Key inputs in the economic analysis are on page 12. And I have to say that we took a more conservative look at this than we might have, given the current economic conditions. We used to say down payment was five or 10 percent. This year, we used 20, which puts the consumer at a larger negative cash flow than we would of a few years ago. And that's because we understand banks today are asking for 20 percent.

We did use a mortgage rate of six percent, which is high, compared to today's rates, which would make the payback slower. I'd have to say the mortgage rate is one of the biggest things that's going to impact the life cycle cost analysis you see here. Interest tax deduction of 18 percent, that's assumed for a couple making \$50,000, trying to buy a new home. They're going to receive a tax deduction on their interest payments. And that is a savings to them over the time period.

For electric and gas rates I've used here, I started with a beginning rate, which is equivalent to the population-weighted averages here. If we used Puget Sound Energy for space heating, it would have been around \$0.10/kilowatt hour. Obviously some of our utilities in Eastern Washington have lower rates than this.

Now when we project that forward, you'll see on page 15 the projected fuel price estimate. We use an escalation rate that the Energy Information Administration has used. We adopt it and apply it to the rates in the State of Washington. And you'll see over time that, in particular, gas rates fall in the short term. Electric rates go up a bit and then pause. Then both rates increase over time, beginning in about 2014. The U.S. Energy Information Administration is the source most people use to derive estimates for fuel costs over time. They're the nation's cost estimators for what energy's going to cost in the future.

On page 13, you'll see the example cash flow that we developed for a 2200 square foot home in Climate Zone 1. You'll see, at closing, the consumer's out about \$500. That's their down payment, based on our analysis. As the term of the mortgage moves forward, you'll see an increased savings over time, which puts the consumer ahead of the game fairly quickly. Now the 2200 square foot home example, with gas heat, is probably the one that you're going to see the best cash flow analysis on. But it also represents the largest population of homes in the State of Washington. I think it's fair to say this represents about 75 percent of the housing stock constructed in the State of Washington.

I do have to say, in response to some comments I heard earlier, these are representative. They're not about every house that you might conceive of or build, certainly. And then, if you want to get into all the little details in the future analysis or the other analysis that's been conducted, they're further back in the appendices. I do want to show that at the bottom of each of these appendices, I've indicated about what percentage of the population each of these represents. I think that's an important note to make. For example, the first analysis we do here on electric resistance heated homes, less than 1500 square feet represents about three percent of the population.

Tom Nichols, Smokey Point Wood Windows, asked Chuck how he factors in the life cycle of windows. Chuck said everything is done based on the term of the mortgage, so 30 years is assumed. Tom objected to that analysis, saying no insulated glass will last 25 or 30 years. He said a 10-year life span is exceptional. Tom said the cost of replacing insulated glass could easily exceed the price of the window, maybe as much as double the price. Not only is Chuck's data unrealistic, in Tom's opinion, but better data will be difficult to obtain, since a permit isn't required for people to replace glass in windows.

Ray Allshouse said if data is accepted because of the credibility of utility companies, their objections to proposals, such as Tacoma Power's testimony in Renton, should be duly noted.

Don Jordan said one thing he didn't like about the process during this code cycle was that code change proponents proposing amendments didn't provide economic analyses upfront that included direct cost data. He said doing so is too late for this code cycle, but he would like to see such direct cost data next cycle.

Greg Staats, after participating during two code cycles attending Energy Code TAG meetings, noted that economic impact statements attached to code change proposals are many times incorrectly or inadequately completed, anecdotal in nature, and not dealt with by the TAG. That process frustrates window manufacturers, because they feel proponents have the responsibility to do complete, realistic cost assessments.

Dale expressed concern about how the Council compares "good" to "bad" data to determine the actual, direct cost of proposals. He said data from utilities is based on actual costs from receipts when projects are done. Peter DeVries said it's imperative that the Council weigh all the pros and cons of proposals, sort through them, and make the best decisions possible for the citizens of Washington. He said the Council will have to make extremely important decisions at

its next meeting. Opposing viewpoints are always welcome. When they're received, those opposing viewpoints must be carefully weighed.

Representative Dammeier asked if there was any effort to validate costs by asking builders for price quotes. Chuck said that wasn't formally done for this project. He said he considers the work done by WSU for Building America somewhat equivalent. Don pointed out that his company has been polled. He said ceiling costs are very close to an industry average. Air-sealing with the blower door test is \$50 less than what he would charge. The HVAC duct sealing is exactly what his company would charge.

Kim Drury, speaking to criticism about the level of analysis, pointed out that the Council doesn't have many resources to do analysis. Staffing and revenue are based on permit fees that haven't changed for 27 years. The current Council staff is smaller than in prior years. She suggested recognizing the good work done with limited resources, rather than finding fault. Kim expressed concern that if too much emphasis is placed on costs, benefits may be overlooked. She said the four-state region is saving \$1.6 billion per year in energy efficiency. Twenty percent of those savings comes from energy codes in Washington and Oregon. Governor Gregoire requested a goal of 30 percent. Kim's organization, as well as the Climate Action Team (CAT), strongly advocated that goal. The CAT was a huge committee that worked for two and one-half years. It consisted of utilities, policy people and many industry leaders. The 30 percent goal was the CAT's strongest recommendation. Instead of meeting that goal, savings from proposed energy code changes range from 15-20 percent. Kim reminded everyone that legislation passed this year additionally calls for 70 percent energy savings by the year 2030.

Benefits, as mentioned earlier by Chuck, include not having to buy new resources or build new power plants. Energy conservation measures save everyone money, not just people buying a new house or building a new commercial building. Kim asked the Council, as it deliberates costs and benefits, to not lose track of why these energy code changes were proposed, to improve energy efficiency and strengthen Washington's economy. Washington's rates are currently among the nation's lowest because of energy efficiency. That's beneficial to everyone. It also makes the state more energy independent and less susceptible to spikes in energy costs.

Stan Price introduced Juliet Scarpa, a workforce development specialist, and deferred testimony to her initially.

Juliet Scarpa, Seattle Jobs Initiative

Juliet thanked Stan and the Council. She said she's from Seattle Jobs Initiative (SJI), an organization that connects low-income individuals to living wage careers. Through research and program, they aim to support the growth and development of sectors that are both linked

to economic development and that provide greater opportunities for families to secure good jobs.

Local growth of a new green economy has led them to examine opportunities that are expected to be created from increased investment and interest in particular industries. In line with many of the state and regional policy and economic development efforts, SJI has been focusing significant attention on the energy efficiency sector and its potential for the creation of good-paying jobs.

Broadly speaking, the research indicates that this sector presents great opportunity for workforce and economic development for Washington State. Measures that encourage energy efficiency can result in overall positive growth in this and related green sectors, with good direct and indirect employment opportunities.

The Pacific Northwest's energy efficiency industry companies report strong and continued business growth with energy efficiency products and services projected to bring in more than \$2 billion in annual sales through 2020 for the region. Energy efficiency is already a significant contributor of good-paying jobs in Washington State, with over half of all green jobs being in energy efficiency.

Most reports indicate, based on previous energy code modifications in other states as well as proposed energy modifications and things like the American Clean Energy and Security Act of 2009, that the kind of technology adoption that's required for building standard conformity is unusually employment intensive and promotes job creation among relatively high-waged, diverse groups of semi-skilled and unskilled workers. For this reason, building standards represent not just economic growth, but more inclusive growth. Moreover, business innovation in this sector stands to flourish, as building professionals explore new ways of meeting increasingly stringent codes and constructing energy-efficient but also marketable buildings.

SJI's direct efforts to link individuals to opportunities in this green sector have focused specifically on the residential market. As coordinating body of the Residential Energy Efficiency Subcommittee of the Northwest Energy Efficiency Opportunities Project or NEEOP, we have been able to work closely with local and regional residential energy efficiency employers to understand their present and future workforce needs around weatherization. NEEOP contractors report the need to fill a variety of occupations to meet potential work demands and continue to look for qualified candidates to do the work. SJI has already filled requests for 50 new employees to be trained and placed in weatherization jobs within the next six months. Longer term estimates, specifically in regards to new business and associated entry-level workforce needs, are reported by some contractors to grow an additional 40 percent.

Policies like those being considered today in this conversation are key drivers to support this growth for local business. One example of another driver is, through the Recovery Act, SJI is receiving federal funds to subsidize the innovation and training necessary to lower costs of

achieving and realizing efficiencies. This includes investments in new technology, training in the trades, and training for low-income and dislocated workers to be prepared to do the work for increased energy-efficiency standards.

SJI research generally shows that growth in energy efficiency translates into positive job creation. There is strong evidence that support these measures as both essential for the long-term economic development of this state and region, as well as to remain a competitive leader and providing good-paying jobs for Washington families.

Kristyn asked for a written copy of Juliet's comments. Juliet said she's glad to make it available. She added that she can reference other states with other reports.

Representative Dammeier asked how weatherization and the retrofitting of existing housing stock relates to new construction. He asked if there will be new jobs associated with building codes that apply to new construction. Juliet said SJI workforce development is directed toward providing opportunities for people now with a career pathway and for training so that as jobs open in new building construction, both in commercial and residential, that they'll have the opportunity to move up the career ladder. Contractors have indicated that they really would like a pipeline of workforce, especially five or 10 years from now, based on the economic situation. Don noted his company has increased substantially this past year, adding new employees, because of duct sealing technology and blower door testing. Kristyn added that community colleges and trade colleges are training new people and retraining workers to do testing and instructing for new technologies. Jeff Harris said he's found that contractors like to do it on a retrofit basis.

Stan Price, Executive Director, Northwest Energy Efficiency Council (NEEC)

NEEC is a nonprofit, industry association that represents more than 100 companies that provide energy-efficiency products and services to residential, commercial and industrial customers in the State of Washington and across the Northwest.

Stan offered historical perspective, based on his tenure with the Council, including serving as Council Chair and Chair of the Energy Code TAG. He said the controversy currently before the Council is actually not the most significant controversy that the Council has faced over the last decade and one-half. A few years ago, a foundational change to move the base codes from the Uniform code series to the International code series was the most monumental change that ever faced the Council. There was a lot of controversy, pros and cons back and forth. It was very difficult to vet that process.

Stan's parting comments when he left as Council Chair was to applaud the maturity and the growth of the professionalism of the Council over his 10+ years on that body. Due in part to Tim Nogler's management, Stan found that the process followed by the Council had high

integrity and value in bringing forth very good decisions for the citizens of the State of Washington.

Stan encouraged the Council to continue to have faith in its process. Proposed code changes this year were remanded to TAGs, which did the best work possible as volunteer bodies to provide a consensus, or near consensus, set of recommendations to the Council. Those recommendations have been offered for public comment. Both positive and negative testimony has been received about those proposed code changes.

Stan encouraged the Council to continue on with its healthy and natural process, making its decisions in November. He said the process is based on legislative intent, at the time the Council was created, to remove very difficult, complex, technical and economic issues out of the legislative arena to a group of skilled individuals who would do their best jobs in weighing the pro and con evidence and making solid decisions.

Stan noted that from 1994-2005, there were lots of energy code changes that increased stringency of the code pretty significantly. During that same time, the construction market was among its most robust. Then from 2006-2009, without any changes to the WSEC, there was a devastating economic collapse in the construction market. Stan suggested that the health and vitality of the construction market is independent of WSEC action. The construction market will rebound in relationship to macroeconomic forces not related to the WSEC.

Stan agreed with Juliet that the energy efficiency industry is a robust economic contributor to Washington's economy. Members of his organization represent probably 5-7,000 jobs in Washington and currently over \$1 billion of economic activity. That industry growth directly correlates to Washington's commitment to energy efficiency over the last 25 years. A continued commitment to energy efficiency in housing and commercial buildings will continue to drive the economy.

Brian Minnich and Eric Lohnes, Building Industry Association of Washington (BIAW)

Speaking to the economic analysis and how the Council can comply with the JARRC letter, Brian said it's very important that the Council look at whether small businesses will be disproportionately impacted when compared to larger businesses.

BIAW is most concerned about entry-level housing, such as built by Adair Homes. Brian called attention to the manufactured housing segment of the housing industry. He said it has an unfair competitive advantage over the rest of the industry, based on the fact that none of the proposed code changes this year impact manufactured housing. Neither fire sprinkler nor energy code change proposals affect manufactured housing, which is regulated by HUD. Manufactured housing has its own unique code, unique requirements and is inspected in the factory. Manufactured housing companies are above the 50-employee threshold for a small business. So Brian asked the Council to carefully consider that competition.

Brian said he continues to hear from builders around the state that it's difficult to borrow money for construction loans. Money is currently very tight. And appraisals are an additional problem. Appraisals associated with financing new homes may come back lower than actual construction costs for those homes. Brian emphasized that's not the builder's profit, but the actual cost.

Brian submitted economic analysis information provided by Diane Glenn (copy attached). He said her data is based on her conversations with builders, subcontractors and suppliers throughout the state. Brian noted that Diane's data provides a range. He said it's difficult to get construction cost data, because all builders are not at the same level. For example, some builders simply comply with the WSEC, while others are Energy Star, and others may build in areas where green-built homes are in demand. Other cost impacts to consider include: redesigning building plans, permitting, enforcement.

Eric Lohnes, BIAW

To the previous comment that the construction market is independent of the WSEC, Eric said the nexus is cost. Increasing the price of a residential building by \$1,000 in various metropolitan areas of Washington will price about 3,200 people out of the housing market. The National Association of Homebuilders estimates that for each unit constructed, 3.05 FTE jobs are created in a larger market. Code change proposals that slow down housing production will also slow job growth.

Jobs include direct-job-created and indirect-job-created, link suppliers and people who provide inputs for the construction industry. Then there is induced spending from those jobs. There is a multiplier effect for construction jobs. The Bureau of Economic Analysis has determined there are over 50 industries that feed into the construction industry.

Eric said the Department of Employment Security's 2008 Green Job Study identified 40,000+ green jobs in Washington. Since the vast majority of those jobs are in the construction industry, Eric wonders how many of those jobs still exist. He said while jobs are created in one sector, they're lost in another sector. The important question is how many jobs, on net, are created or destroyed.

Kristyn said the commercial market shows a measurable value for green building construction, homes that save energy and save money on homeowners' monthly utility bills. Those energy savings are attractive to and sought by home buyers, including first-time home buyers. Brian said the building industry agrees with the long-term value of green building. But concerns arise when energy code changes increase the cost of a new home so much that potential buyers are forced into a less energy-efficient home or into an existing home. Unlike their commercial

counterparts, residential builders are very sensitive to increased costs and the entry-level market.

Brian said the building industry doesn't oppose all energy code change proposals. He thought an excellent earlier question was, "Are there individual energy code proposals that can advance that increase energy savings but do so in a slower, incremental fashion that has less of a cost impact on the building industry?" The timeframe of SB 5854, ending in 2031, covers seven code cycles.

Joe Herr, Burnstead Construction

Joe has designed and built homes for 35 years. Currently houses he builds are to Energy Star standards, way above WSEC standards. Because that fact is advertised and it doesn't draw consumers to buy his homes, Joe disagrees with Kristyn's previous comment that consumers seek green buildings. His experience is that potential homebuyers want to know the square footage of the home and its price. He said homebuyers don't equate Energy Star construction with any reason they have for buying a home.

Joe said surveys don't ask the right questions. For example, they ask if consumers want to buy an Energy Star home. The answer is invariably yes. However, they don't then follow that question up with, "Would you pay \$25,000 extra for that?" Joe said, if asked the second question, the majority of people would change their mind and want to spend that money on something other than energy efficiency.

Joe wondered what houses that achieve 70 percent increased energy stringency will be like, considering the magnitude of current changes that only yield 15 percent increased stringency. He asked, "Will those houses have windows at all? Or will the walls be five inches thick?" He remembered Chuck Murray commenting at an Energy Code TAG meeting that building envelope improvements had almost been maxed out. Joe asked how future energy savings will be achieved, at what cost to the consumer, and at which livability to the house.

As Kim Drury favorably compared energy conservation to the cost of building power plants, Joe said increasing the energy efficiency of existing housing can be favorably compared to adding energy-efficiency costs to new housing. He said no one wants to deal with existing housing stock.

Joe said he's seen study after study showing zero-energy-consumption homes cost 150-200 percent more to build. That amount of increased cost can never be recovered during the lifetime of the house.

Joe said his company has started side-companies into such things as weatherization. But consumers don't want to spend their money for that. When people think about remodeling

their home, instead of adding more insulation in the attic, they want a new kitchen. The mentality of consumers hasn't yet moved to energy efficiency.

Dan Salinas, Nelson Electric, representing lighting designers

Dan said the code changes are unrealistic. By his evaluation, they don't conform to recommended practice by the Illuminating Engineering Society. He said their evaluation is not based on modeling, but on actual installation, actual evaluation of customer needs. In addition to the life cycle cost analysis of the systems and how they are maintained over time, there are many other things that a lighting designer has to evaluate to develop that information. That concerns lighting designers very much, because it drives up the cost. When equipment of a higher efficiency is used, the luminaire concept has to be changed. That drives up the cost as well.

John Cochran asked if the code change proposals affect the manufacturing of equipment. Dan responded that the 90.1 energy document, 2004 edition is currently on the federal register as a minimum standard. It has been effective since December 31, 2007. Manufacturers are meeting that standard. They want to move to higher efficiency, but the cost has been prohibitive. Dan said he's found cost much higher than reported. It's much more than is achievable on return on investment. He said the cost impacts have to be viewed differently, depending on whether the user is a short-term tenant or a longer-term building owner.

Tim invited Tom Young to speak to written job information he submitted.

Tom Young said there are 8,000 employees in Washington State in the masonry industry, with grow wages of \$350 million. The industry is in large part composed of small businesses with less than 50 employees, but it also contains larger businesses above that threshold.

Tom supported economic data coming from the industry. He spoke in favor of Don Jordan's suggestion that direct cost data be submitted upfront with code change proposals.

Looking at cost benefits and payback times for typical masonry buildings, Tom said it's well over 100 years, in some cases, for payback. He said the masonry industry has been frustrated with the Council process, like the window manufacturers.

David Baylon, Ecotope, a member of Energy Code TAG

Dave said the Ecotope study involved a detailed audit of 146 Washington buildings. They were all new buildings permitted between 2002 and 2004, and built between 2004 and 2006. They were drawn by random sample, from F. W. Dodge datasets using the entire State of

Washington as the base, from a little over 2,000 total buildings. Statements made in the study were based on this detailed audit, not from speculative models.

First addressing lighting, Dave save roughly 82 percent of all buildings in the audit comply with the current WSEC. If that code were amended to add energy code change proposals related to lighting, 50-55 percent of the buildings would still comply. If the T-8 fixtures, designed and installed in 2000-01, in the buildings that didn't comply were replaced with high-efficiency fixtures from the current market, then 70 percent would comply with the amended WSEC. Dave said the 12 percent difference between 70 and 82 percent is the incremental cost of the amended code. The cost for such conversion would be \$1.50-2.00 per fixture.

Regarding the masonry wall issue, Dave said the extra cost is due to the need for some kind of furred out insulation. However that price is tempered by the fact that 60-70 percent of walls currently have such furring. The current WSEC requires furring in all buildings in Climate Zone 2, which is basically Wenatchee and Spokane.

Dave said furring out walls doesn't change their nature in any way. Masons do not lose jobs because walls are furred out. The only result is that furred out walls are twice as efficient as those that aren't furred out.

Tim said staff will be working with the Chair and members of the Council to develop a recommendation to bring forward on November 12, regarding methodology and validating data that has been submitted. Modification of the economic impact statement attached to code change proposals will also be considered.

Paul O'Connor, Fire Sprinkler Advisory Board of Puget Sound

Paul said earlier this week he prepared a fire sprinkler industry job loss impact projection, assuming residential fire sprinklers were eliminated from the code. Data from 1997-2008 was gathered from the U.S. Census Bureau and the Washington State Fire Marshal's Office.

While data is specific to Washington State, it doesn't differentiate single-family from multifamily residential, commercial or industrial. On average, there are 163 licensed contractors operating in Washington State. Installation labor of a fire sprinkler system has been estimated to be 30-40 man hours. So the job loss to the fire sprinkler industry if residential fire sprinklers are deleted from the IBC is just over one million hours of labor or, based on an estimated, average wage of \$35 per hour, \$30-40 million.

Tom said jobs won't be lost. They don't presently exist, except in very small numbers. No new jobs will be created. An incentive for requiring residential fire sprinklers is to stimulate this number of jobs and income. Paul agreed.

ADJOURNMENT

Peter adjourned the meeting at 1:15 p.m. The next Council meeting will be November 12, 2009.