

**Construction, Codes and Commerce Webinar Outline**  
**Feb. 12, 2015 at 2:00 p.m. EST**

1. **Title Slide:** Construction, Codes and Commerce: The Economic Impact of Commercial Energy Codes in the Southeast (Judy)
2. **Who is SEEA?:** SEEA is a Regional Energy Efficiency Organization (REEO). We focus on 11 states in the southeast. (Judy)
3. **I'm Ashley:** I'm holding a calculator because I like data. I am very excited to be with you all today and share the results of our commercial building data analysis with you.
4. **About our Building Energy Codes Program:**
  - a. Energy Codes Team: Many of you are familiar with our energy codes team which is comprised of our Energy Codes Manager, Lauren Westmoreland and our Energy Codes Associate, Amy Dzura. They focus on building energy codes all the time and in addition to Lauren and Amy, all SEEA staff that work closely with our state based partners have a hand in the work related building energy codes.
  - b. What do we focus on? As this slide indicates our goal is increased energy efficiency through energy code compliance in new and existing buildings. We do this by providing technical assistance, guidance and support to states to navigate the process of developing, adopting, and complying with a new building energy code
  - c. As we work with partners on the ground one of the things that we run into is that there is a lack of data and analysis to support, not only the benefits of building energy codes, but to help clarify misconceptions that exist.
5. **What we will cover today:** Today we will be talking about our recently completed analysis of commercial building construction data and the relationship of commercial building codes.
  - a. First, we will provide some context and background on the status of commercial building energy codes over the past few years. Next we will discuss some underlying assumptions and questions that we wanted to answer with this analysis
  - b. Then we will review our data analysis process and methodology
  - c. And finally we will share conclusions and next steps
6. **Housekeeping**
  - a. You can hide or open your GoTo Webinar control panel at anytime
  - b. To submit questions you can either submit questions by typing them in the questions box or at the end of the presentation you can click the raise your hand button and I will unmute you to ask a questions verbally.
7. **Background:** Having an understanding of commercial building code adoption over the past several years will be helpful when reviewing the results later. So looking at this map created by the Building Codes Assistance Project you can see the current code status for states in the southeast.

- a. Since 2008 **almost all** of the states in SEEA's territory have implemented stronger commercial energy code.
- b. **Majority of the adoption** and implementation occurred between **2011 and 2013**.
- c. **Of SEEA's** 11-state region **most states** have a commercial code that meets or exceeds ASHRAE 90.1-2007
- d. There are **3 states** that have a commercial code that meets or exceeds ASHRAE standard 90.1-2010.
- e. Having stronger codes in the SE has **been a positive step forward** for energy efficiency in the region
- f. There is still a **lack of understanding on the impacts** that a new code can have in a state or locality.

## 8. Assumptions

- a. One of the comments that we often hear in the field is that stronger codes:
  - i. Stronger code can increase first construction costs
  - ii. Which will deter businesses or developers who wouldn't want to undertake construction projects
  - iii. Which would negatively impact the local economy
  - iv. This line of thinking is often used to sway decision makers in implementing stronger codes and is often a trigger because the economy is important and obviously no one wants to make a decision that will have negative impacts.
  - v. Its **these assumptions** along with the **lack of data** to counter these assumptions that **make it very difficult** for state energy offices, local planners and code officials to **implement and enforce new code**.

## 9. The Question: Do commercial energy codes suppress local construction activity?

- a. If that previous assumption is correct we should see a trend in the data that after a new code becomes effective, there is a decrease in the number of projects. And if that is a trend we should see that across the board.
- b. In this first whitepaper we are looking at the **basics**, and specifically we wanted to **analyze commercial building construction data to see if there was any evidence that a new commercial code suppresses local construction activity**.
- c. Our hope is that by doing this analysis that we have the **data and conclusions** that can be used for by SEOs, developers, planners, etc. to help **focus resources** for outreach, planning, training, etc. on areas that need it the most.

## 10. Data Analysis

**11. CMD Construction Data:** We purchased commercial building construction data from CMD Data (formerly Reed Construction Data). Residential construction data is actually fairly easy to come by as it is collected in US census data. Commercial data however is much more difficult and often costs money to access.

- a. We looked at a range of data from years 2005 to 2013.

- b. Data collected for commercial and civil construction projects in planning, bidding, and post-bid phases
  - c. Based on project starts, which is a 60 day window around the project start time or 60 days past bid date. We use the phrase “Project Starts” interchangeably with “permits pulled” in our whitepaper.
  - d. The data included fields such as project type, state, county building type, cost and square footage. We looked at each type of data at the regional and state level.
  - e. We then took this data and compared it to when the commercial code was effective
- 12. Types of Commercial Construction:** This list shows you all of the types of commercial construction that are included in the data sets. This is very comprehensive. We are looking at a lot of different types of buildings.
- 13. Regional Analysis:** Lets talk about some regional trends that we noticed. Now when we reference this regional data we are referring to data aggregated from all 11 states in SEEA’s region over the period from 2005 - 2013.
- 14. Schools:** We found that elementary, jr/high schools and college and university projects, which total around 37,000 projects, made up 39% percent of all projects over the period of 2005-2013. This is sizable! nearly 40% of all projects.
- 15. Shopping:** The next largest category of construction was shopping which included over 20K projects or 16%. This includes grocery stores, shopping centers, and independent stores
- 16. Governmental Offices:** Then after shopping we have governmental offices which include over 14K projects or 12%.
- 17. Everything else:** We know that over 60% of the projects during this period were schools, shopping or governmental offices. What about the rest?
- a. **Multi Family: 7%,8,200** Projects, includes townhomes, condominiums, and apartments
  - b. **Retail Misc.: 7%, 9,000** projects. Misc. Retails includes bank branches, restaurants, automotive service buildings
  - c. **Offices: Over 5%,5,000**
  - d. Everything else which are categories that represent **4% or less** of the total number of projects in the region: Around 30K projects  
Hospitals/Clinics,Religious,Warehouses,Police/Fire,Military,Library/  
Museum,Prisons, Hotels/Motels, Courthouse, Nursing Homes/Assisted Living,  
Sport/Convention Center, Manufacturing, and Industrial Labs/Labs/School  
Labs.
  - e. **What is this telling us?** Schools and government offices and military (4%) are typically considered public buildings. They represent a huge share of the commercial construction market. This is important when we are consider the types of trainings and resources that can most most useful for people (architects, designers, code officials) who are working on these projects.

- 18. Value of commercial permits:** We just looked at the number of commercial project starts and where there is the most activity by building category, but lets compare that to the value of projects and what is being spent.
- As we see schools made up a large number of projects and they also account for a large portion of the expenditures.
  - Next we have multi-family. This is interesting because as we saw multi-family accounted for about 7% of the total number of projects, but account for a large portion of expenditures. Part of the analysis, you can't just look at one number and understand what's going on in the market. You have to look at a number of different data points. This is telling us that we may not have a large number of permits, but MF is accounting for a lot of new construction and a lot of the expenditures. This is also an area to take note of because MF projects are so big it would be beneficial to focus on new constructions trainings for MF.
  - The other categories you can see shopping and hospitals. Shopping aligns with the number of projects and hospitals tend to be larger, more expensive projects.
- 19. Commercial Project Starts by Year in the Southeast:**
- We see a steady increase in the number of project starts
  - We see a dip in 2009 which can likely be explained by the economic downturn, but in general we see an upward trend
  - Remember I mentioned majority of commercial energy code adoption occurred from 2011-2013, we are still seeing an upward trend. If we were to assume that stronger commercial codes suppress or decrease commercial construction activity we would expect to see that in the data here.
- 20. Type of Construction: New vs. Renovation:** In addition to looking at the number of project starts we also wanted to look at types of construction
- What we find is that renovation now accounts for a large portion of our commercial construction projects. We can also see that the number of new construction projects decreased and is starting to level out
  - This is interesting because for many years there has been a focus on new construction, but we may need to shift our perspective to better address the challenges related to complying with codes in a renovation project
  - One comment we received recently is, "well does this indicate that stronger commercial energy codes are forcing this increase in renovation because its easier to do a renovation than new construction?". No, That seems highly unlikely due to the fact that whether you are doing a renovation or new construction project for commercial projects you will have to file permits, go through a review, submit drawing. The process is much more transparent, compared to residential.
- 21. Average Construction Expenditures per Project:** This chart shows average project expenditures, again for the whole region.
- We can see that we had increasing project expenditures prior to the economic downturn, but then decreasing to lower levels.

- b. There are many things that we could attribute this decrease in average project expenditures to, but in light of the previous chart it would be hard not to attribute some of this to the fact that renovations typically cost less than new construction (don't need to acquire land or purchase a much material or labor)
- 22. **State Level Analysis:** Lets now look at the state level data
- 23. **Where to find the reports:** I will show you an example of the data analysis that we have done for each state. If you want to look up a particular state
- 24. **State Analysis Alabama:** Lets take a look at the state of Alabama. Each state level analysis includes the following information:
  - a. Current Commercial code
  - b. Effective date - When the code was required by law.
  - c. Population
  - d. Total number of projects, broken down by renovation and new construction.
- 25. **State Analysis Alabama- Number of Project Starts:** Similar to the regional chart we have plotted the total number of projects by year with the green bar representing renovations and the blue bar representing new construction. The little orange asterisk indicates which year the code became effective. So we can see that even though a new commercial code became effective in 2012 we still saw an increase in the total number of projects in 2013. In this instance the total number of projects increased. In a couple it decreased slightly and in a few it stayed about the same.
- 26. **State Analysis Alabama - Projects by Type:** Here we have all of the commercial projects by type. Does this look familiar? Look at the top project types. Schools, government offices....Here we show the top 10 project types and then the rest are grouped in the other category.
- 27. **State Analysis Alabama - Top Five Counties:** Finally for each state we look at the top five counties in terms of number of project starts. You can see here we have a pie chart that shows the distribution of projects and then we also have these counties mapped out in their corresponding colors. Much of this we had an idea of top counties based on residential construction trends, but now we have the data to back it up.
  - a. All of this information I have just covered is available for each state in SEEA's region and can be downloaded off of our website
- 28. **Conclusions and Next Steps:**
- 29. **High Level Conclusions:**
  - a. Commercial project starts numbers are on the rise in the Southeast
  - b. Renovation activity growing, new construction has declined and leveled off
  - c. Construction expenditures have decreased overall
  - d. Finally, in our analysis we found no evidence that stronger energy codes suppress construction starts
  - e. All of that being said, what I have provided is a high level overview of our findings. The white paper will include much more detail including our methodology and analysis by state which will include:
- 30. **Why is this information important and how can we use it?**
  - a. Education materials specific to local construction types - by building type

- b. Energy code compliance tools tailored to construction types - by construction type, new vs renovation
- c. Benchmarking and disclosure programs based on building sizes/types, state, city, or county
- d. More accurate data for use in legislation/legislative proceedings

**31. Next Steps:**

- a. Update report with 2014 data
- b. Collect feedback for additional whitepapers
- c. Want specific analysis? Let us know!

**32. But wait a minute...What about residential data?:** We had been operating under the assumption that because residential data was readily available that doing this type of analysis for residential wouldn't really be needed. However we received feedback from many of you that are interested in residential data. I'm going to share with you some very high level findings of preliminary residential data analysis.

**33. Where the data came from:**

- a. Census data
- b. Residential Single Family
- c. New Construction Only

**34. Number of Residential Permits in the Southeast (2005-2013):** This chart shows the total number of projects each year for the 11 state region from 2005-2013.

- a. The numbers on this chart are in thousands and this data represents single-family, new construction only.
- b. Now remember we saw a dip in the commercial chart around 2008, but here we see a gradual decrease and leveling out from around 2009 to 2011.
- c. Also keep in mind that this is new construction only and we did see a pretty significant decrease in new construction for commercial as well. In recent years construction has increased.

**35. Top States for Residential Construction Activity:** This chart shows the total number of residential projects for each state ranked from largest to smallest. As we can see Florida has the most with around 650k. Following that we have North Carolina and Georgia.

- a. Keep in mind Florida's population is much larger than the following two states.
- b. The analysis is ongoing, but if you look at state migration patterns, population.

**36. Residential Data Analysis:** Available in early March 2015. What I just presented we very high level regional findings. Similar to what we have done for commercial we will be creating individual state pages that breakdown the number of projects for each year, costs and which counties have the most construction activity.

**37. Resources and Other related Projects:**

- a. Check out our website [www.seealliance.org](http://www.seealliance.org) to download the full whitepaper or individual state info pages. Check back in early march to find our residential data.
- b. If you are interested this type of data but in other parts of the county our colleagues at SWEEP (Southwest Energy Efficiency Project) have done the

same type of analysis for the states of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming.

- c. If you are interested in additional projects related to building energy codes SEEA in partnership with Advanced Energy and Southface are conducting a Residential Energy Code Field Study in the Southeast looking at innovative resources and programming to increase residential energy code compliance rates in Arkansas and Georgia. More information about this project can be found on our website.
38. **THANK YOU:** Thank you all for your time and listening to this presentation. I hope this has provided you with valuable information. It is being recorded and we can send out slides and the recording in the next couple of days. Now we have some time available for questions. I'll throw it back to Judy to moderate.
39. Questions.

### **Questions:**

1. **Doesn't this show that energy codes are driving people to do more renovation projects?**
  - a. Not necessarily because whether they do a new construction or renovation project the project will still have to comply with code. The process of pulling permits, inspections and reporting is a little bit more transparent than in residential.
2. **Building energy codes are an unfunded mandate. Why should anyone change their resources for this stuff?**
  - a. We recognize that with building energy codes, and all other building codes for that matter it can be a slow process to understand and implement the new code and there may be an increase, at least initially, in construction costs.
  - b. You can either pay for KNOWN costs now or pay for UNKNOWN costs later. For instance if you took a school project. We typically want projects to have the highest comfort and durability. If we didn't then we would have problems down the line that would impact taxpayers.
  - c. What is really missing is the market has not embraced stronger codes even though it is a good economic decision. If you have a stronger code. You have better buildings that require better products. Codes create employment opportunities. Product manufacturers, installers can benefit.
3. **Have you looked at this information in reference to state GDP?**
  - a. Not yet, but we plan to.
4. **What states saw a decrease in number of permits pulled?**
  - a. Louisiana and Arkansas
5. **Why have you done a separate analysis for both commercial and residential construction?**

- a. There are a lot of nuances between the two types of construction so they really have to be handled separately
  - b. Residential data has typically been available and has been used as an indicator of how the construction market is doing
  - c. In a commercial project you often put a project out to bid, you have a licensed architect, engineer, designer, you have an official review. Typically plans are reviewed. For residential, sometimes you have to submit plans, sometimes you have to pull a permit, sometimes you don't.
- 6. What is the payback of adopting a code?**
- a. PNNL has done studies on this. They are state specific because the payback depends on building types and climate. They have not done this study for all states in the southeast, but for several of them they have.
- 7. Homes and commercial projects are being built, but they are not being built as big as they were?**
- a. From this level of analysis it is hard to determine that level of data. There are MANY factors that go into the design and construction of a project.
- 8. What about states that didn't update their code? What about their numbers? Does that show that permits have gone up significantly. Have we shifted to places where code has not been updated. Let's look at TN when surrounding states have adopted stronger codes. Slight uptake in 2012, but not enough to indicate that construction is shifting to this state. We don't see construction moving.**
- 9. Commercial code compliance study in GA, showed compliance 80% with code. (DCA funded through GEFA.)**