Better Buildings Residential Network Program Sustainability Peer Exchange Call Series: *Incorporating Energy Efficiency into Disaster Recovery Efforts*

Call Slides and Discussion Summary

October 9, 2014

Better Buildings Residential Network

- **Better Buildings Residential Network**: Connects energy efficiency programs and partners to share best practices to increase the number of American homes that are energy efficient.
  - Membership: Open to organizations committed to accelerating the pace of existing residential upgrades. Commit to providing DOE with annual number of residential upgrades, and information about benefits associated with them.
  - Benefits:
    - Peer Exchange Calls
    - Tools, templates, & resources
    - Newsletter updates on trends
    - Recognition: Media, materials
    - Optional benchmarking
    - Residential Solution Center

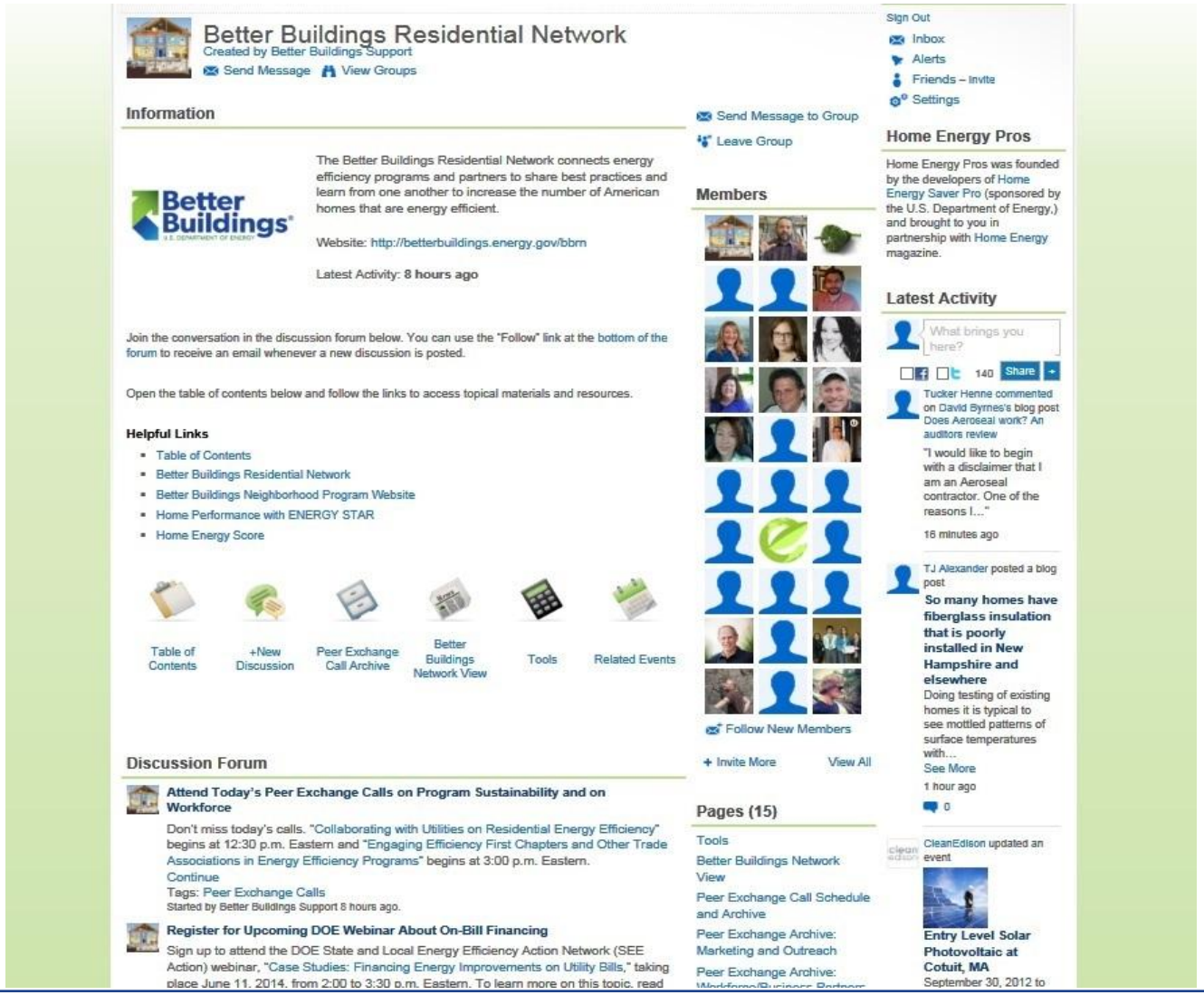
For more information & to join, email bbresidentialnetwork@ee.doe.gov.

- **Better Buildings Residential Network Group on Home Energy Pros**

  Join to access:
  - Peer exchange call summaries and calendar
  - Discussion threads with energy efficiency programs and partners
  - Resources and documents for energy efficiency programs and partners

  http://homeenergypros.lbl.gov/group/better-buildings-residential-network

Better Buildings Residential Network Group on Home Energy Pros Website



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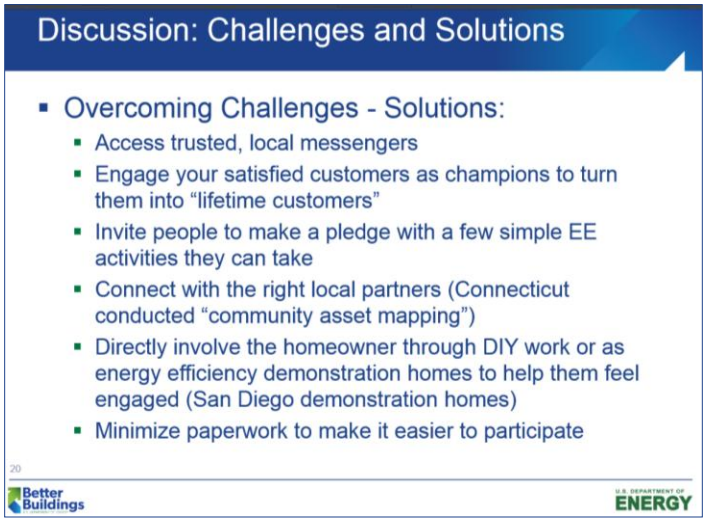
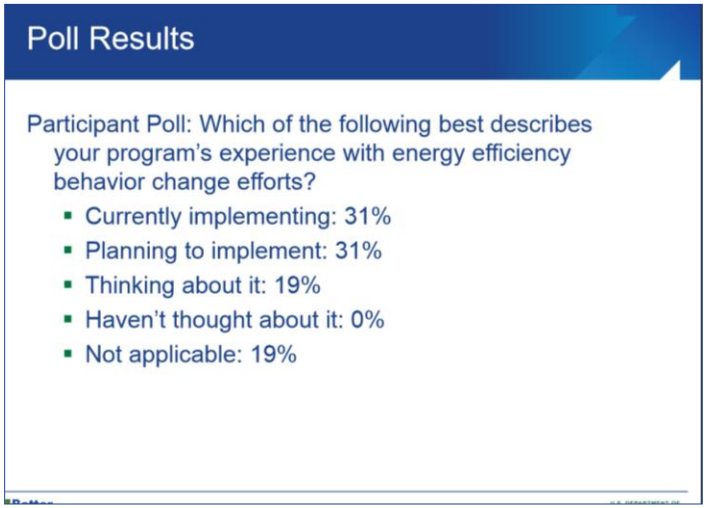
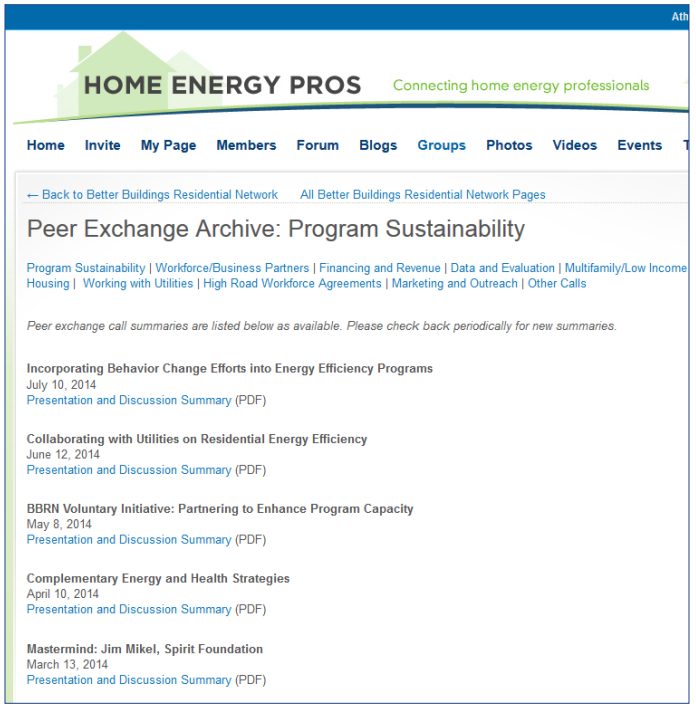
Peer Exchange Call Series

- There are currently 6 Peer Exchange call series:
  - Data & Evaluation
  - Financing & Revenue
  - Marketing & Outreach
  - Multifamily/Low-Income Housing
  - Program Sustainability
  - Workforce/Business Partners
- Calls are held the 2nd and 4th Thursday of every month at 12:30 and 3:00 ET
- Upcoming calls:
  - Oct 23, 12:30 ET: Financing & Revenue: Crowdfunding: Enabling Small Investors to Help Fund Business Loans for E3 Upgrades
  - Oct 23, 3:00 ET: Voluntary Initiative on Partnerships: Toolkit Training Webinar
  - Nov 13,12:30 ET: Program Sustainability: Combining Solar and Home Performance Services
  - Nov 13, 3:00 ET: Marketing & Outreach: Leveraging Service Calls and Emergency Repairs for Energy Efficiency Marketing
- Send call topic ideas or requests to be added to additional call series distribution lists to peerexchange@rossstrategic.com

Peer Exchange Call Summaries







How do you eat an elephant? One bite at a time. A slight shift in perspective goes a long way.

Understanding how EE can solve a financial, public relation, or customer service problem for the utility is the right place to start.

Call Participants

- American Council for an Energy Efficient Economy (ACEEE)
- Corvallis Environmental Center
- City of Seattle
- Efficiency Maine Trust
- Elevate Energy
- The Energy Coalition
- Energy Efficiency Specialists
- EnergySmart (Boulder County, CO)
- Greater Cincinnati Energy Alliance
- International Center for Appropriate and Sustainable Technology (iCAST)
- Massachusetts Department of Energy Resources
- National Association of State Energy Offices
- Oklahoma State Energy Office
- PECI
- Southeast Energy Efficiency Alliance (Atlanta, GA)
- United Way of Long Island

Agenda

- Call Logistics and Introductions
- Opening Poll
- Overview of DOE/NASEO Project on Energy Efficiency and Disaster Recovery
  - Chris Wagner, National Association of State Energy Offices (NASEO)
- Featured Speakers
  - Elise Anderson, Massachusetts Department of Energy Resources
  - Kylah McNabb, Oklahoma State Energy Office
- Discussion
  - What should states and communities do ahead of time to be ready to incorporate energy efficiency into disaster recovery if disaster strikes?
  - What are keys to successful response after a disaster to ensure that energy efficiency is part of recovery?
  - How can energy efficiency help build community resiliency?
  - What are key partnerships to establish to incorporate energy efficiency into disaster recovery?

Opening Poll Results

- Which of the following best describes your experience incorporating energy efficiency into disaster resilience or recovery efforts?
  - **Just learning about it today—55%**
  - Currently doing it—18%
  - Planning to do it—18%
  - Not applicable—9%
  - Thinking about it—0%

Poll Results—January 9, 2014

- What would be the biggest barrier for coordinating energy efficiency and disaster recovery in your community?
  - **Lack of a clear response plan or protocol (46%)**
  - Lack of awareness about energy efficiency (23%)
  - Lack of inter-agency coordination (15%)
  - Lack of adequate funding/resources (15%)
  - Other (0%)

Incorporating Energy Efficiency into Disaster Recovery Efforts Lessons Learned:

Chris Wagner, Program Manager
National Association of State Energy Offices (NASEO)

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Incorporating Energy Efficiency and Resiliency into Disaster Recovery Efforts

NASEO
National Association of State Energy Officials

Chris Wagner, NASEO Program Director

October 9, 2014

About NASEO

A national non-profit representing the 56 governor-designated energy officials from each state and territory.

State Energy Offices invest $4 billion annually in a variety of priority areas, including:

- Efficiency in residential, multifamily, commercial and industrial buildings;
- Renewable energy;
- Oil, gas, electricity production and distribution;
- New and emerging technologies and services;
- Energy emergency preparedness and resiliency; and
- Advanced transportation technologies, fuels, and infrastructure, among others.

Committees


Buildings


Government Affairs


Industrial and Advanced Manufacturing


Energy Security


Financing


Transportation


Fuels and Grid Integration

NASEO – DOE Project: Energy Efficiency and Resiliency in Disaster Rebuilding and Mitigation

- Research previous state and local natural disaster rebuilding and mitigation efforts in the residential sector (detached homes)
- Identify common State Energy Offices actions and roles
- Synthesize best practices and lessons/learned from these previous experiences to help State Energy Offices be more prepared in the future and share resources
  - Residential Disaster Rebuilding Protocol
- Build off of NASEO and State Energy Offices' work in Energy Assurance Planning

NASEO – DOE Project: Energy Efficiency and Resiliency in Disaster Rebuilding and Mitigation

- States Interviewed:
  - Oklahoma, Kansas, Florida, Georgia, Massachusetts, New Jersey, Colorado, Nebraska

Home in Union Beach, New Jersey on November 8, 2012 (Lynch)

Flooding in Hygiene Colorado (Richardson, 2013)

NASEO – DOE Project: Energy Efficiency and Resiliency in Disaster Rebuilding and Mitigation

- Preliminary Findings/Themes:
  1. Post-disaster is not the best time to plan
     - Disaster rebuilding planning should occur as part of existing state energy policy and energy assurance planning efforts.
  2. Pre-existing relationships/organization are crucial to effective/efficient rebuilding
     - Homebuilders, contractors, local governments, NGOs, homeowners, homeowner associations, big-box stores, other state agencies, governor's office, etc.
  3. Mitigation should be higher priority (e.g., building codes that address energy efficiency/disaster resilience).
  4. State Energy Offices and local governments can take multiple actions: convene, advise, implement programs.
     - First step is to analyze existing programs and determine which (if any) can be leveraged in rebuilding situation.
  5. Knowledge of federal disaster response/recovery process (e.g., FEMA, HUD) is needed.

NASEO-DOE Project Highlights

- DOE and NASEO are working on a joint effort to develop a **residential disaster preparedness protocol** to help states incorporate residential sector energy efficiency in recovery efforts after a disaster. The protocol leverages lessons from State Energy Offices that have experienced a disaster.
- **Key preliminary findings:**
  - The best time to plan for a disaster is before a disaster occurs.
  - Develop relationships, focus on mitigation, and know the federal disaster response and recovery process in advance.

Incorporating Energy Efficiency into Disaster Recovery Efforts Lessons Learned:

Elise Anderson, Program Coordinator
Massachusetts Department of Energy Resources

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Creating A Cleaner Energy Future For the Commonwealth

DOER
Massachusetts Department of Energy Resources

Rebuild Western MA: Incorporating Energy Upgrades into Tornado Recovery

ReBuild
WESTERN MASSACHUSETTS

DOER Massachusetts Department of Energy Resources

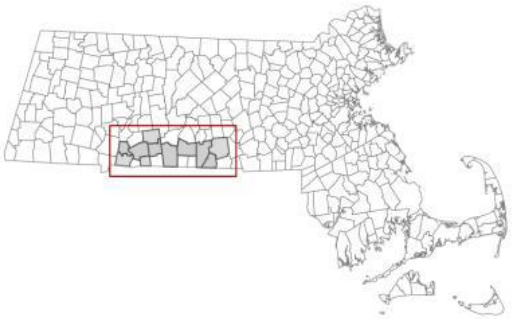
MASSACHUSETTS CLEAN ENERGY CENTER
JOIN THE INNOVATION REVOLUTION

TOTAL PROGRAM PARTICIPATION

Through the *ReBuild Western Massachusetts* program, the Department of Energy Resources in partnership with the Massachusetts Clean Energy Center provided grants and subsidized construction loans for energy improvements to help over 250 homeowners whose homes were damaged or destroyed by the June 1st 2011 tornadoes in Western Massachusetts

Rebuild Massacusetts Project Sites

Tornado Path



Creating A Cleaner Energy Future For the Commonwealth

DOER Massachusetts Department of Energy Resources

F5 Tornado: June 2011

- 39 miles of damage, 9 towns affected
- Over 1,500 homes damaged
- Downtown Springfield, heavy urban area
- Monson Town Hall, Schools, Airport damaged
- Governor Patrick “Call to Action” Dedicates $8M

Program Offerings

- Grants *(up to $20,000)* & 0% financing *(up to $100,000)* available for major renovation, complete rebuilds, or prescriptive measures (windows, AC).
- Funding possible through ARRA and ACP
- Dedicated case managers & toll free number (ICF)
- Grants 50-80% of the cost of Solar PV and thermal

Program Impact

- $1m grants, $17m leveraged
- 10 commercial buildings
- 226 residential units (16%)
- Solar thermal grants
- $ Adder for low income
- 1,100 trees planted, net benefit of $2.8m
- $90,000 of 0% interest loans

Sample Project: Community Music School

- Serves 1,400 students
- Windows damaged
- Geothermal/solar thermal heating to replace old gas-fired HVAC
- Reduce electricity use >60% and gas use >80% percent
- Est. $30,000 annual savings
- Received $124,000 grant from Rebuild WMA + utility and financing support

Challenges

- Outreach to affected residents
- Timing of program – need to move quickly for safety and code.
- Confusion between programs (utility)
- Collaboration across multiple agencies
- Insurance companies

Creating A Cleaner Energy Future For the Commonwealth

DOER
Massachusetts Department of Energy Resources

Lessons Learned

- Importance of resiliency
- Preparedness for response to disasters, quick program deployment needed
- Consistent early communication of program requirements before materials selection
- Help to municipalities is critical – quick response
- Expedited permitting and inspection process
- Coordination with local community groups & financial institutions critical

Massachusetts Department of Energy Resources Highlights

- Reached 16% of residential units affected by the tornado; 25% of those served were low-income residents.
- Found outreach to residents difficult; the program didn't have access to a list of who was affected. Did outreach on foot and through community groups and flyers.
- To receive assistance, residents had to certify through their insurance company that the tornado caused the property damage. This created frustration for residents and meant that damage caused by peripheral events (e.g., a microburst) was not covered by the EE program.
- A tree replacement program improved aesthetics, provided shade and temperature control, and reduced GHG emissions.
- After the tornado, the Governor allocated $40 million to prepare for future disasters. The State is currently involved in a technical evaluation of strategic opportunities to apply this funding.

Incorporating Energy Efficiency into Disaster Recovery Efforts
Lessons Learned:

Kylah McNabb, Program Manager
Oklahoma State Energy Office

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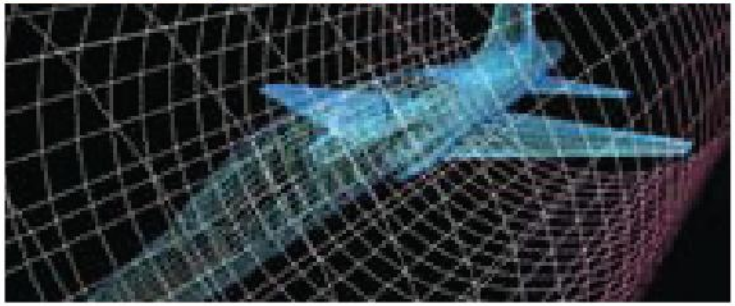
OKLAHOMA
DEPARTMENT OF COMMERCE

Rebuilding Stronger

Moore, Oklahoma – May 20th Tornado Recovery

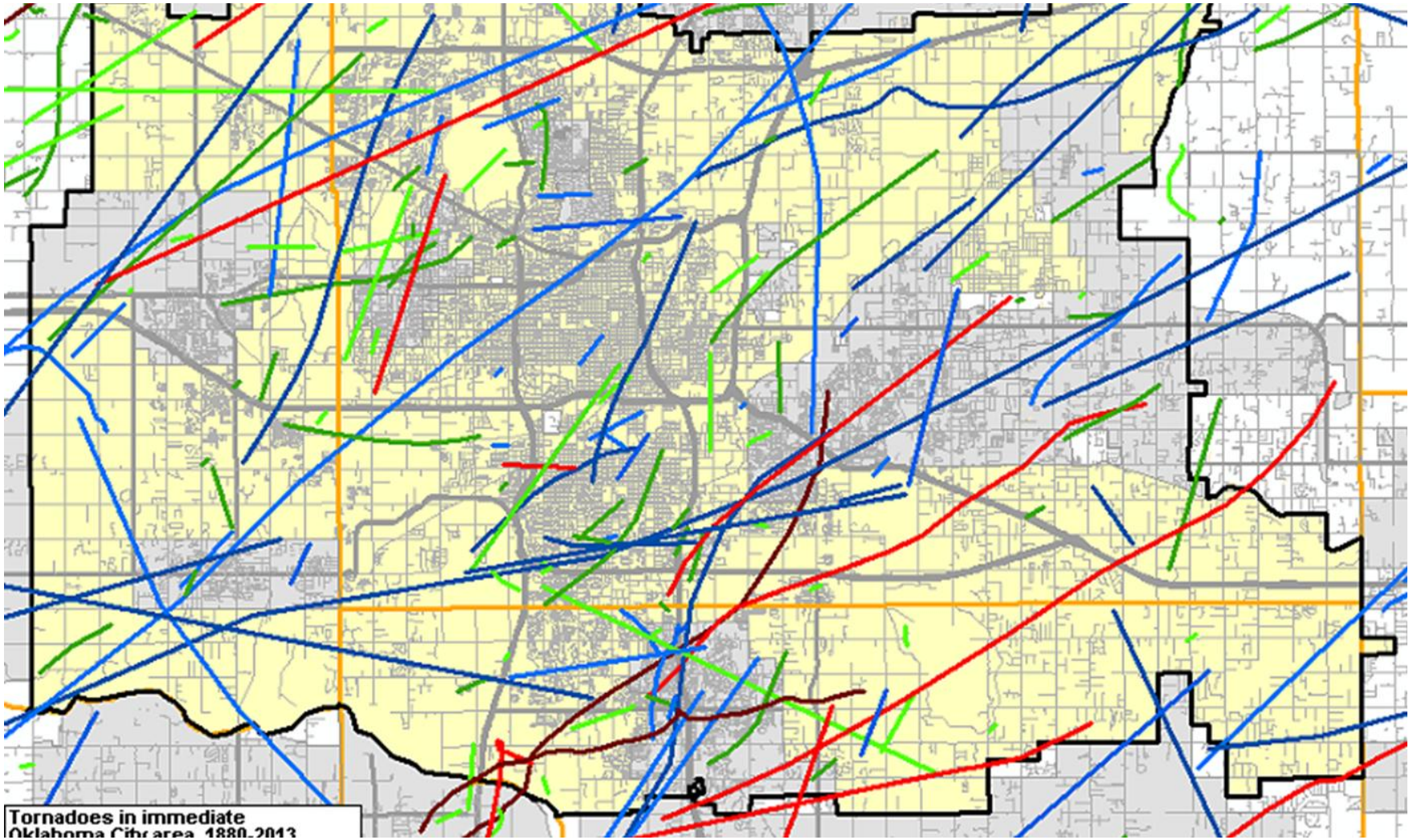




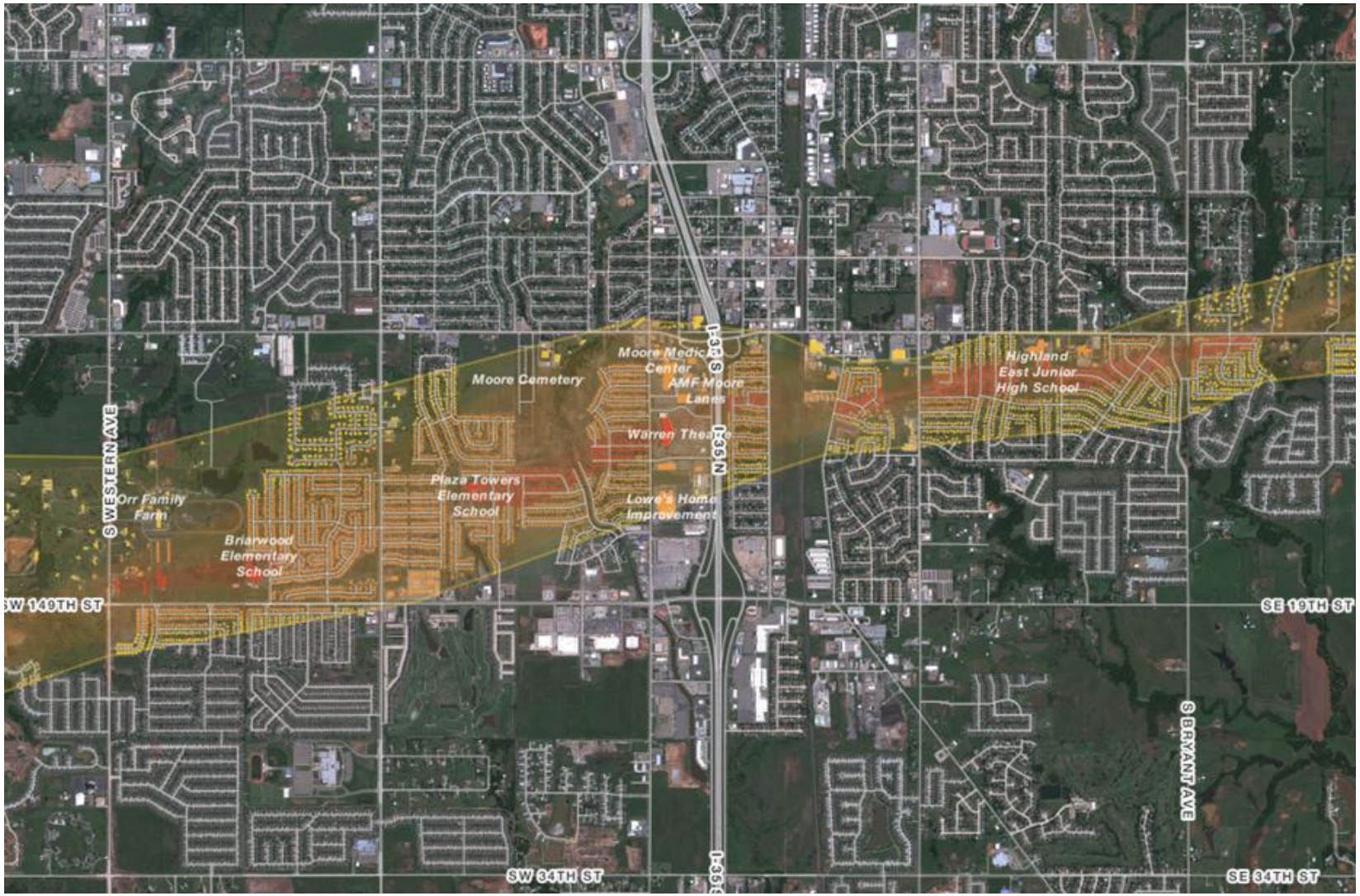


Oklahoma State Energy Office

- Located within OK Department of Commerce
  - Community Development division
    - Work alongside CDBG program
- Limited resources – but good partnerships!
  - City and county levels
  - No in place financing streams, no access to large amounts of grant funds, minimal incentive programs.
- Bring a bit of a personal experience…..



Oklahoma City Area – No Stranger to Tornadoes!



Path of May 20th Tornado through Moore

The Statistics

- May 20th was the 13th F5 tornado experienced in Oklahoma since 1905
- 1,150 homes destroyed, thousands more damaged and affected
  - 300 homes suffered EF4/EF5 damage
- 3 schools – 2 destroyed, 1 damaged
- Moore Medical Center, Orr Family Farm, horse training facility, bank, post office, multiple other businesses

Short Term Actions

- Ensure proper disposal of damage materials
  - City of Moore has standing contract for debris removal
  - City of OKC had to do two RFPs – slowed clearing efforts
- Do quick review of existing resources and materials for community leaders and general public inquiries

Medium Term Actions

- Host workshops for residents for their rebuilding efforts
- Host workshops, meet with homebuilders regarding the rebuilding process
- Work with big box stores (Home Depot/Lowes) for those that have just minor damage
  - Windows, doors, roofing, etc.
- Compile technical assistance resources to have available on demand
- Work with city/county/local officials on any gaps they see
- Redirect funding as able to assist with rebuilding efforts
  - Appliances, small home repairs, assistance with workshops

Long Term Actions

- Review and studies surveys of affected structures – study of what made up structures that were most strongly affected
- Consider adoption of more stringent building codes
  - Tornado straps, garage doors, frame-to-foundation
- Review home building plans and considerations
- Review and adapt resources for future events
- Review lessons learned
  - Management of volunteers, outside contractors/builders

Building Codes Example

- Effective March 2014 – City of Moore adopted more stringent building codes
- Requires roof sheathing, hurricane clips or framing anchors, continuous plywood bracing, and wind-resistant garage doors
- Built to withstand winds up to 135mph
  - Standard code is up to 90 mph


EF5
EF5
EF4
EF2
EF1
Google earth

OKLAHOMA
DEPARTMENT OF COMMERCE

Thank You

Kylah McNabb, Program Manager
Oklahoma State Energy Office

Oklahoma State Energy Office Highlights

- Leveraged partnerships to make up for limited resources.
- F5 tornadoes occur every 3-5 years; building resiliency is critical.
  - Engineering reviews revealed weak permitting policies and building requirements.
  - Moore updated the building codes after the tornado; assessed incorporating energy efficiency standards into building codes.
  - Permitting requirements helped stabilize the rebuild ‘rush’ to better incorporate energy efficiency and resiliency measures.
- Reached affected residents through local sustainability offices and big box stores (e.g., Home Depot) with the aim to educate people and direct them to federal funding opportunities for EE measures when rebuilding.
- Suggest educating contractors and homeowners on building codes and energy efficiency before disaster strikes.

Discussion: Incorporating Energy Efficiency into Disaster Recovery Efforts

- What should states and communities do ahead of time to be ready to incorporate energy efficiency into disaster recovery if disaster strikes?
- What are keys to successful response after a disaster to ensure that energy efficiency is part of recovery?
- How can energy efficiency help build community resiliency?
- What are key partnerships to establish to incorporate energy efficiency into disaster recovery?

Discussion: Quality Assurance in Rebuild Efforts

- After the tornado in Massachusetts, consultants inspected 10% of projects to check whether residents installed measures for which they received a rebate. Poor insulation was most common.
  - Massachusetts also uses HERS ratings and performance-based codes.
- Boulder County found it difficult to enforce EE standards in the large volume of small-scale repairs occurring post-disaster.
- Major rebuilds can be delayed by insurance and FEMA processes, and require permitting and planner review.
- Programs have to move quickly if they want EE to be part of recovery. The first response for homeowners is often health and safety related. For example, homeowners just want hot water; whether the water heater is the most efficient is not necessarily a high priority.

Discussion: What are the keys to a successful response post-disaster?

- **Leadership**, such as mayoral or gubernatorial emphasis on energy efficiency in the rebuild, can help prioritize the incorporation of energy efficiency improvements.
- **Incorporate a plan for outreach** to affected residents into your disaster recovery program.
- **More resilient homes** require less repair.
  - Disaster resiliency can provide another angle to incorporate EE standards into building codes.
- **Prepare before the disaster occurs**; form partnerships in advance.
  - States and local municipalities should start the conversation with homeowners, the building community, insurance companies, etc.

Future Program Sustainability Call Topics

- Combining Solar and Home Performance Services (November 13)
- Update on Revenue Strategies (December 11)

We are currently developing topics for our 2015 call series—please share thoughts on what you would like to hear about and discuss by contacting peerexchange@rossstrategic.com