

# Built Energy Forum 2009



January 26, 2009

Draft Conference Report

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# About the Conference

## Overview

Despite the growing number of green building practitioners, the actual transformation of Maine's built environment is not happening fast enough.

For this reason, the conference brought together architects and building contractors, energy auditors and consultants, renewable energy contractors, and weatherization and insulation contractors for the following purposes:

- Explore and identify barriers to making Maine's built environment substantially more energy efficient.
- Learn about energy efficiency policies, resources, and successful examples of transformation.
- Develop lasting networks across disciplines and consensus on specific plans to foster rapid transformation to more energy efficient buildings.

The conference was convened by Build Green Maine, a program of the partnership between the Midcoast Magnet, a non-profit that supports creativity, livability, and sustainability, and the Newforest Institute, a land-based community restoration and development organization located in Brooks, Maine.

People attended from several different sectors of the green building and energy industries. At the conference, participants worded some of the time in regional and industry specific groups, each group with a good cross-sector mix.

To ensure maximum value for participants and a highly efficient process, the conference was facilitated by Craig Freshley and his associates, Chris McCabe and Kerri Sands, of Good Group Decisions ([www.GoodGroupDecisions.com](http://www.GoodGroupDecisions.com)) in Brunswick, Maine.

Many thanks to the sponsors of the conference: Midcoast Magnet; Newforest Institute; Coastal Enterprises, Inc.; Efficiency Maine; Maine Boats, Homes & Harbors; MaineHousing; ReVision Energy; and Sustainable Structures.

## ***Planned Agenda***

- 8:00            **Registration and Coffee**
- 8:30            **Opening Remarks**, George Callas, Build Green Maine
- 8:45            **Donna McNeil**, Maine Arts Commission
- 9:00    **Governor John Baldacci**, Intro by Skip Bates, Midcoast Magnet
- 9:30            **Keynote Address**, Joe Lstiburek, Building Science Corporation
- 10:30          **Break**
- 10:45          **Regional Breakout Sessions**, Moderated by Good Group Decisions
- 12:00          **Lunch**
- 12:40          **Regional Breakout Group Conclusions**
- 12:45          **Plenary Panel** (Moderated by Keith Bisson, Coastal Enterprises)  
Habib Dagher, Advanced Engineered Wood Composites Center  
Dale McCormick, Executive Director of Maine Housing  
Vicki Worden, Worden Associates
- 2:00            **Break**
- 2:15    **Industry Breakout Sessions**, Moderated by Good Group Decisions  
Panelists provided by Maine Housing, Efficiency Maine, USGBC- Maine  
Chapter, ReVision Energy, the AIA, Coastal Enterprises and Evergreen  
Home Performance)
- Session A**     Architects/Builders/Suppliers  
                  **Session B**     Renewable Energy Installers  
                  **Session C**     Building Performance Analysts & Contractors
- 4:00    **Commissioner's Response**, Commissioner John Richardson, Department of  
Economic and Community Development
- 4:15            **Last Steps**, Craig Freshley, Good Group Decisions
- 4:30            **Adjourn**

## Opening Remarks

### ***George Callas, Build Green Maine***

#### **Remarks**

- Good morning
- I'm George Callas from Build Green Maine
  - I'm not a builder, architect, or energy auditor, but I have built my own "green" house
  - I'm here with the New Forest Institute and Mid-Coast Magnet
- This Monday is the first real Monday of work in Washington
  - Also the first Monday that doesn't follow Sunday Night Football
    - Should be a good day to get a lot done!
- Thanks to sponsors
  - Midcoast Magnet
  - Newforest Institute
  - Coastal Enterprises, Inc.
  - Maine Housing
  - Efficiency Maine
  - Maine Boats, Homes & Harbors
  - ReVision Energy
  - Sustainable Structures
- Other thanks
  - Thanks to Civic Center
  - Thanks to panelists and speakers
  - Thanks to Jen Payson for helping organize the conference
- The task in front of us is so big that many new faces and organizations will be getting involved
  - We should not spend time protecting our turf and working against each other. To get results, we need to work together.
- Maine has the oldest housing stock and biggest carbon footprint in the nation
  - Yet we have the deepest, broadest concentration of green building contractors
  - There is something special here
- "I've done so much for so long with so little, I can do practically anything with nothing"
- REGGI money? "We should give it to you guys!"
- This is a work forum rather than an education forum

- Still, if you are seeking education credits for attending today, let the registration table know
- Good Group Decisions is here to help referee these sessions
  - Please be vocal and participative
- Conference agenda explained
  - The action will be in the Industry sessions
- After today, we will be back in touch with you all with a report of what happened
  - Perhaps we will establish some sort of guild or on-going organization
- Reminder: November 13, 14 – Rockland – JUICE Conference
  - We will report there about what happened here
- Build Green Maine is ready to work
  - We have developed a website and communication structure to help you

## ***Donna McNeil***

### **Bio**

As Director of the Maine Arts Commission, Donna McNeil is responsible for overseeing the cultural well being of the State of Maine through support for artists and arts organizations. She joined the Maine Arts Commission staff in 2003 as Contemporary Art and Public Art Associate where she oversaw the advancement of artists through advocacy, grants, professional development and the percent for art program. Donna sits on the board of the New England Foundation for the Arts and the Maine Film Commission, the Maine-Aomori Sister City Council and the Governors Quality of Place Council. She has served as a juror for the National Endowment for the Arts and worked extensively with Creative Capital Foundation. She holds a BFA in Painting from Syracuse University and a MLA in Art History from Harvard University. Donna has devoted a lifetime to the arts in both the for-profit and nonprofit sectors, holding directorial and curatorial positions in galleries, museums and the performing arts.

### **Remarks**

- The future will be different
  - We have been asked to rebuild the nation.
  - The election of Barak Obama goes along with this.
- Form follows function
- Historical figures have contributed to present day architectural design, including Walter Kropius and Buckminster Fuller.

- Large scale trends are occurring that include the whole planet
  - Comprehensive anticipatory design science is necessary
  - Maximum achievable for each pound material.
- Mathus had no way to foresee the advances in tech – adequate food & shelter.
- Objective & responsible inventors, such as Ford and Einstein, were comprehensive.
  - Art & science would eventually come together: Leonardo Da Vinci
    - Wheelbarrow
    - Art & science approach
  - Fuller model is needed
- Middle class modernism centers on consumer desires
  - Parallel groups design concepts, which causes redundancy
  - New England imitates the past
    - No chance to define this century, this moment.
- Consumers covet possessions
  - Signature architects photographed in Miami, Dubai, Brooklyn
- Democratize Design
  - In this century: less design, but better and affordable design.

## ***Governor John Baldacci***

### **Bio**

Governor Baldacci is serving his second four-year term as Maine’s Governor. Born and raised in Bangor, Governor Baldacci was first elected to public office in 1978, earning a seat on the Bangor City Council at the age of 23. In 1982, he was elected to the Maine State Senate, where he served for twelve years.

John Baldacci was elected to the United States House of Representatives in 1994. He was reelected to Congress by wide margins in 1996, 1998, and 2000.

John Elias Baldacci was first elected Governor of the State of Maine in 2002. In his first term as Governor, Baldacci won approval for major initiatives including Dirigo Health, the Community College System, and Pine Tree Zones.

Governor Baldacci, in his second term, is building on the foundation he created in his first four years in office. He is working to increase Maine's competitiveness in the global economy; streamline government services; attract good paying jobs; and ensure all Mainers have access to quality education, workforce training, and health care.

Governor Baldacci was born on January 30, 1955. He is a graduate of the University of Maine in Orono. The Governor resides with his wife, Karen, and son, Jack, at the Blaine House in Augusta.

## **Introduction by Skip Bates**

### **Bio**

Skip Bates is a Commercial Loan Officer at Bangor Savings Bank. He is also the Board President of Midcoast Magnet.

### **Comments**

- Thank you Donna for a great presentation
- I'm the board president of Midcoast Magnet
  - Very privileged to work with a dynamic group of young leaders
  - I work as a commercial loan officer for Bangor Savings Bank
- I live in a 1890 Victorian
  - I have had an energy audit done
    - 1.3 air exchanges every hour
- Governor Baldacci has been a leader on this front
  - For instance, \$6.4m in energy funding
  - Maine is first in the nation to take advantage of this federal funding
- The Governor convened the first ever Creative Economy conference
  - He believes in the development of young leaders
  - He believes in the creative economy
- Governor – we thank you for your support

### **Remarks from the Governor**

- Thanks
  - Thanks to Midcoast Magnet
  - Thanks to Representative Pingree and Senator Rector, Speaker Simpson and other legislators present
- With the Internet you can live in Maine and work anywhere
- Maine will not look like any other state
  - Dover-Foxcroft provides an example of downtown revitalization
  - Creating sustainability locally is important

- Maine has the largest number of organic farmers in the country
- We have an opportunity to get down to basics
- When I look at you I see that the lights are burning and we are on our way to make change
- We started the Office of Energy back when oil was \$20/barrel
  - When oil go more expensive, we had already started taking steps regarding:
    - Fuel efficient vehicles
    - Hybrid vehicles
    - Setting into motion fuel efficient standards
- Energy: the battle we ought to be fighting
  - It's so significant and severe that we ARE going to change
  - We are going to address our environmental and economic security
    - We should not be sending young people off into battle to fight for oil
- We just witnessed a peaceful transition of power in Washington with the world watching – we have something great here
  - This is what we are going to reclaim.....especially as it pertains to the energy area
- Energy transects several different orbits
  - Environment
  - Economy
  - National security
- At the heart of the battle: we don't have enough people in our state over 18 with a higher education degree
  - This is the largest determinant in per capita income
- We have structures that are outdated
- In the recent power outages due to an ice storm, power was maintained at the Maine Mall with an innovative, make-do fix
- Will there be enthusiasm for energy efficiency when prices are low?
  - Prices goes up by telegram but goes down by pony express
  - We can expect energy prices to shoot up again
- We need to build an army around energy conservation and weatherization
- We need to decentralize our energy production
- We're all in the same boat together
  - In the future, we need to power our state and our country together
- When my parents went through The Great Depression, they actually didn't think it was a bad situation when they were in it
- When all is said an done, it's about our kids an our children
  - Our primary responsibility is our kids and our natural resources
- People all over the world get “recharged” in Maine

- People like the people of Maine
- We have assets that not all other states have
- Our mission is to develop an army that will work on what's good for our environment, economy and national security.

## **Joe Lstiburek**

### **Bio**

Joseph Lstiburek, B.A.Sc., M.Eng., Ph.D., P.Eng., is a principal of Building Science Corporation. He is a building scientist who investigates building failures and is internationally recognized as an authority on moisture related building problems and indoor air quality. He is a member of ASTM and the past chairman of ASTM E241 – Increasing the Durability of Building Assemblies from Moisture Induced Damage. He is a contributor and reviewer of Chapters 21 and 22 of ASHRAE Fundamentals. Dr. Lstiburek is an ASHRAE fellow and a voting member of ASHRAE Standard 62 – Ventilation for Acceptable Indoor Air Quality. He is also a voting member of both the ASHRAE Technical Committee 4.3 Ventilation Requirements and Infiltration and ASHRAE Technical Committee 4.4 Building Materials and Building Envelope Performance.

Dr. Lstiburek has appeared on PBS Nova (“Can buildings make you sick?”) and is the author of numerous books and technical papers on building science, indoor air quality and durability. He is the author of the U.S. DOE Handbook on Moisture Control and a special contributor to the EPA guidance document on Building Air Quality: A Guide for Building Owners and Facility Managers. He is one of the world’s foremost authorities on energy efficient construction techniques and heads one of the four Building America program teams for U.S. Department of Energy. He is the developer of ADA (the Air Drywall Approach to air barriers) and a building science researcher affiliated with the Centre for Building Science, University of Toronto. He is a former Director of Research of the Housing and Urban Development Association of Canada.

Dr. Lstiburek has written numerous books and technical papers on building construction. He is the best selling author of the Builder Guides and has over 50 technical and journal articles to his credit. He has conducted forensic investigations and served as an expert witness on building failures all over the U.S. He is an expert in the areas of rain penetration, air barriers, vapor barriers, air quality, durability, and construction technology. He specializes in rain damage and mold and microbial contamination of buildings.

Dr. Lstiburek is an acclaimed public speaker and lecturer in building science. His seminars and presentations on building durability issues are attended by hundreds of architects, engineers, builders, and property managers in the United States each year.

Dr. Lstiburek received an undergraduate degree in Mechanical Engineering from the University of Toronto, a masters degree in Civil Engineering from the University of Toronto and a Doctorate in Building Science at the University of Toronto. Dr. Lstiburek has been a licensed Professional Engineer in the Province of Ontario since 1982.

## **Remarks**

### **Opening**

- 1000 years of building science evolution.
  - Building science evolved and devolved over the centuries
- “Don’t do stupid things”
  - Glass is inefficient, and expensive
  - Joe cited a number of statistics for glass and its use in constructing residential and commercial buildings
- In order for residential green to survive, we need to fix commercial/industrial green, which are expensive and not performing well
  - Again: glass
- BUT, ugliness is not sustainable, because beauty is the only thing that’s sustained and cared for.
- Steel Studs
  - Most inefficient way of binding things
  - Steel is a great conductor
  - Points to the need to insulate the outside of construction
  - Insulation isn’t helping much
- Architects don’t consider/know physics well enough.
  - Too much glass and steel, we rely on fads/style/gimmicks, not air tight

### **Commercial Green**

- Conclusions – what’s wrong with commercial buildings
  - Too much glass
  - Too much steel
  - Rely on gimmicks and fads
  - Are leaky
- Air exchange factors in LEED certification are too high

- It's not that "Green" doesn't work; "stupid green" doesn't work
- Grass roofs are not green roofs
  - Insulation and a white membrane make more sense than dirt and grass
- The way to evaluate energy efficiency is to look at the utility bills
  - Don't look at the modeling prior to when the bills come in
  - Residential green works because if "you don't deliver," the retribution is instantaneous and brutal – resident know their bills
- We know what to do
  - Less glass, but good glass
  - Tight
  - Ventilated right
  - Lots of insulation
  - Don't do stupid things
  - Measure efficiency based on actual energy consumption

### **What to do?**

- We've got to get serious in this country about energy security and climate change
  - Buildings are the key to both
  - Real green is the key to green buildings

### **Energy**

- Observations
  - Hubbert's peak
    - In 1954, Hubbert predicted that oil would peak in the lower 48 states in 1971
  - Uppsala Hydrocarbon Depletion Study Group
    - Predicted that oil globally would peak in 2008
      - We know this was true because the price of oil peaked in 2008
  - Production vs. Discovery
    - For some time we have been pumping out of the ground much more than we have been finding
    - Each new major discovery "buys us a decade"
    - Still, the discovery trend is heading down
    - Today, most oil is in countries that don't like us
      - Imagine if a trillion dollars per year stayed in the U.S. instead of going to these countries?
  - Natural Gas
    - Tight supply – likely past it's peak

- We are taking natural gas to make steam to get oil from the tar sands
  - Nuclear
    - Latest idea: make nuclear energy to make energy to get oil
    - Not a sound idea
    - We don't know what to do with the waste
- Energy Uses
  - 40% of energy used in the US is used to heat and cool buildings
    - Residential – 21%
    - Commercial – 17%
    - Industrial – 30%
    - Transportation – 27%
  - Industrial sector in US is the most efficient sector
  - Residential and transportation are the least efficient in the US
    - These are the sectors we need to address
  - In the future, all sectors will be competing for the same energy
    - Transportation will win because of plug-in cars
      - This will increase the price of electricity
      - This will cause the price of natural gas to go up
      - This will result in building costs going up
  - There will be a huge incentive to improve energy efficiency
    - We should either make houses four times as efficient, or build them half the size
  - The transportation sector will compete with the building sector for the same energy
- We're running an uncontrolled planetary experiment with one sample

## **Climate Change**

- It's happening
- Huge implications of sea level rise
  - Will it be a foot over century, or a meter over a decade?
  - Unknown effect at this point
- Let's hedge our bets
- Energy security is not connected to climate change
  - If you fix energy security (build coal plants) you don't fix climate change
  - If you fix climate change, you fix energy security
    - The trick to fixing climate change is energy efficiency buildings
- Transportation solution: buy plug-in hybrids and fix the house

- Fixing house infrastructure cannot be outsourced to India
- Minimize the need for energy (80%), water (10%) and materials (10%) in order to satisfy need with the least disruption
  - Materials: measure number of dumpsters
- Question: How do you improve efficiency?
  - Use proper materials and techniques
  - Build tight
  - Utilize 'Green Program'

### **Habitat House as an Example**

- 50% of the way toward a net zero energy house
- Conservation is the key to the good life
- Specifics
  - R-10 under the slab
  - R-20 basement
  - R-40 walls
  - R-60 roof
  - Triple-glazed windows
  - Cellulose insulation
  - Wood walls
    - Wood is the most environmental material we can think of
    - A tree is a gift from the sun
    - The ultimate in carbon sequestration
  - Direct load path
    - No jacks, no cripples
  - 2 x 6 – 24" in center
    - Electricians and plumbers love this
  - Sided with fiber cement

### **Conclusions**

- We're going to see a transition from a carbon-based economy to a carbohydrate-based economy
- The most energy conserving appliance is one that's not running
- Don't develop alternatives until conservation is complete
  - Conservation first!
  - No money for PV until after conservation
    - Don't get to have dessert until you've had the vegetables
- Our Challenge: improving energy efficiency of old houses



# **Regional Breakout Sessions**

## ***About the Sessions***

### Focus Question

What is the single most important thing we can do to improve the energy efficiency of more homes?

### Ground Rules

The following ground rules were utilized during the Regional and Industry Breakout Sessions:

- All views heard – hands to speak
- Say your name first time you speak
- Listen with respect
- Minimize distractions
- Neutral facilitation

## ***Northern Maine***

### **Major Themes**

- 1) Education (of public, contractors)
- 2) Financing Challenges and Possible Solutions
- 3) Need for Coordination/Collaboration

### **Comments and Discussion**

#### **General Comments**

- Maine has lots of talent – how do we put it together? Coordinate?
- Education of public
  - Marketing campaign
  - Willingness to pay

- Publication with comprehensive list/directory of weatherization resources
- License requirement and enforcement
- Energy audits play bigger role
  - Bid for contracts
  - Town solicits

### **How to Pay for Investment/How Finance/Incentives?**

- Debt-personal
- Tax breaks (local)
- Require audits in new homes
- Rebate for auditors
- Banks
  - Energy efficient mortgages
    - They're out there but somewhat unknown
    - These take time/money, and banks are reluctant
- Tax on inefficiency
- Tax on oil
  - Public is unaware of the enormity of the oil crisis
  - Make the price of oil reflect the true cost
- Landlord tax or credit

### **How Educate?**

- Education of builders
  - Techniques
  - List of builders/directory
  - Code education (new code)
- Educate public
  - Publicize new code and piggy back education
  - Flyer in newspaper
  - Contractor input
  - Web pages
- Middle income bracket
  - How educate?
  - What will get them to call?
    - Demonstration sites
    - Utility bill blurb examples
- Enforcement

- Property tax bills
- Realtors
- Require energy efficiency disclosure in sales (in the works)
  - Sneak in audit into closing costs
- Workshops are available that teach efficiency techniques
  - There is a cost to workshops because there's no money for them at the state level
  - Training contactors a big need

### **Major Obstacles**

- Code can be restrictive
- Aging workforce in trade

## ***Central Maine***

### **Major Themes**

- 1) Education
  - a) Contractor training
  - b) Homeowners
    - i) Create demand, empower them
  - c) Realtors
    - i) Integrate into weatherization process
- 2) Networking/Collaboration
- 3) Standards and Policy Development
  - a) Ratings, labels and certifications
  - b) Code enforcement
- 4) Financing

## **Comments and Discussion**

### **Reactions to the Keynote Address**

- Codes, standards:
  - Identify strategies, tactics, implementation, needs

- Create some sort of “Sign on if you like thoughts” document
- Participate without process that dilutes it
- Retrofitting:
  - We’d like to know the cost structure
  - \$200sq/ft is prohibitive
- Don’t be seduced by green washing
- Reinforced doability
- Strategic to be successful – R.O.I.

### **General Comments**

- We – focus on what we can do ourselves
- Networking/partnership
- Job training, placement, skilled workforce
- Available technology for the workers

### **Finance**

- Incentives:
  - Figure out the cost
  - Taxes on carbon
  - Tax breaks
  - Performance-based incentives
- Balance needs:
  - Investing in cons and alternatives
- Incentive retrofits:
  - Performance-based
  - Tax credits
- Money to drive the system:
  - Incentives
  - Code is voluntary
  - Reps won’t take a stand
  - Carbon tax
- Financing for retrofit in a careful manner
- Total energy purchase:
  - per degree day
  - per occupant
  - By square feet?
  - By bedroom?

- What can we do?
  - Lenders can offer discount to motivate
  - Create partnerships (networking, long range plan, emails)

## **Education**

- “We” become empirical and do the work
- Education:
  - Homeowners:
    - Increase demand needed
    - Educate so they embrace weatherization
    - Energy efficiency leads to savings
  - Realtors:
    - Infuse them into process
    - Change the building code when the house changes hands
- What can we do?
  - Convince homeowners and lenders of the profitability of efficiency
  - Code enforcement and cost
    - Embrace code!
    - Licensing
  - Make sure that everyone knows about home auditors

## **Technology**

- Train workforce in technology
  - Obstacles: lack of educational resources

## **Standards and Policy**

- Retrofits: Create meaningful rating and label
  - Work price into rating/label
  - Make it measurable
  - Increase resale value
  - Performance-based
  - Tax credits
- LEED is insufficient
- Public Policy
  - Code enforcement (non-voluntary)

## ***Southern Maine***

### **Major Themes**

- 1) Educational (marketing)
  - a) Homeowners
  - b) Practitioners
  
- 2) Government Intervention
  - a) Incentives
  - b) Regulations
  - c) Establish energy utility
    - i) Surcharge on energy (Efficiency Maine)
  
- 3) Standardization
  - a) Common matrix to measure and compare

### **Comments and Discussion**

#### **Financing**

- Funding mechanism to convert Maine homes to R-40 walls and r-60 attic
- Better disclosure and qualification for loans
- How to reach the middle-income group
  - Incentives
- Solar panel tax rebates currently available are improperly applied

#### **Efficiency**

- Energy efficient utility
  - Efficiency Maine
  - Examples: UT, OR
- Focus on existing houses

#### **Education**

- Educate homeowners

- Where to put the money
- Start in the schools
- Pool marketing dollars
- Case studies, success stories
- 
- Training and licensing of producers
  - Help and train career-changers
  - Monitor and verify performance
  - Course for best practices
  - Couple energy efficiency with safety
  - Training for multi-family buildings
- Need to involve lenders
  - They can help market

### **Public awareness**

- Too much of it is market driven
- Educate on the facts

### **Build smaller homes containing multi-use spaces**

- Co-housing movement
  - Small homes and shared space
- Multi-family buildings

### **Audits**

- Energy audit with every home sale
  - Improvements into the mortgage
  - Must be profitable for real estate broker

### **Practical solutions**

- Website
- Maine Home Performance

### **Energy Standards**

- Put energy standards into the code
- Common matrix to measure and compare
- Very challenging to get 40% improvement
- Concrete definition of green building

### **Responsibility of the Government**

- Loans
- Incentives
- Need data-driven decision making

# Regional Session Conclusions

## What to Do?

- Education
  - Homeowners and Practitioners
- Financing
  - Incentives
  - Energy Efficiency Utility
- Regulations
  - Building codes
- Standardization
  - Common matrix to measure and compare
  - Especially retrofit
- Skilled Labor

## Who to Do It?

- Government
  - Education
  - Regulations
  - Taxes
  - Incentives
  - Standards
- Practitioners
  - Educate – provide success stories
  - Advocate via trade associations
- Real Estate brokers. Lenders, landlords

## Regional Highlights

- North
  - Need to share and build on what's out there
- South
  - Lots to do on many fronts
  - Large role for government
- Central
  - Nobody likes LEED

- Focus on what WE can do

## **Plenary Panel**

### ***About the Plenary Panel***

#### **Moderator:**

Keith Bisson, Coastal Enterprises, Inc.

#### **Panelists:**

Habib Dagher, Advanced Engineered Wood Composites Center

Dale McCormick, Executive Director of Maine Housing

Vicki Worden, Worden Associates

### ***Introduction by Keith Bisson***

Keith Bisson is the Project Developer at Coastal Enterprises, Inc.

#### **Comments**

- Keith Thanked George for the opportunity.
- CEI provides financing for many different social and business ventures, and for many demographics.
- Today's goal is about mobilization of resources and on-the-ground impact of energy efficient housing.

### ***Dale McCormick***

#### **Bio**

In January, 2005, Dale McCormick became Director of MaineHousing (Maine State Housing Authority), Maine's housing finance agency and one of Maine's leading mortgage lenders. MaineHousing provides decent, safe, and affordable housing for low and moderate income Maine residents through a variety of programs, which it funds primarily through the sale of its mortgage revenue bonds or through federal funds it acquires for Maine.

Under her leadership, MaineHousing-financed projects are required to meet MaineHousing's Green Building Standards and several other energy programs have

started, including loans making homes and apartments energy efficient, expanding weatherization, and converting carbon savings to finance housing and energy initiatives.

Dale created an On the Job Training (OJT) Program for the MaineHousing in 2005 that requires one training slot for a woman or a minority for each million of project. The OJTs are 700 hours each and are modeled on the Department of Transportation's successful program.

Dale was the first woman in the United States of America to complete the Carpentry Apprenticeship with the United Brotherhood of Carpenters and Joiners in 1975.

In 1984, Dale helped found and became the first President of the Maine Lesbian/Gay Political Alliance, which advocated statewide for civil rights and better treatment for homosexuals. Dale helped write and successfully lobbied for Maine's Hate Crimes Bill in 1987. In 2005, after decades of struggle and three anti-gay referenda, Maine's Lesbian-Bisexual-Gay-Transgender (LBGT) community achieved civil rights protections.

Dale became the first woman elected Treasurer of the State of Maine in 1996. She served as Treasurer for eight years before stepping down because of Maine's term limits. As Treasurer she was very involved with corporate governance issues. She co-convened the first Institutional Investor Summit on Climate Risk at the United Nations in November 2003, and founded the National Coalition on Corporate Reform along with several other Treasurers and Controllers.

Before becoming Treasurer, Dale served three terms in the Maine Senate. In 1988, Dale founded Women Unlimited, a program that successfully trains women on welfare to compete for high paying jobs in trade and technical occupations.

She has a BA from the University of Iowa. Dale founded her own construction and design firm and wrote two books about her experiences, *Against the Grain: A Carpentry Manual for Woman* and *Housemending: Home Repair For The Rest of Us*.

## Remarks

- **About Maine Housing**
  - Serves 90,000 households annually.
  - Five areas of emphasis: first time home buyer, section 8, fixing houses, financing, supportive housing for the homeless and people with disabilities, and energy
  - Manage and administer fuel assistance.

- We just received more funding and provide weatherization services to low-income housing.
- Maine has more data than any other state.
- MaineHousing is about to launch an online audit program (the ECOS Program) for contactors and the public.
  - Auditors input info about the house, ECOS will provide a work order with action plan.
- HELP Loan provides low-cost financing for weatherization.
  - Only 50 people used it when the rate was at 1%
  
- **Systematic Change**
  - We need systematic change
    - Offering “green mortgages” through CAP agencies.
    - Carbon Project: carbon reduction programs – we are a part of voluntary carbon reduction program.
      - Developing a booklet/program that itemizes how to measure and verify carbon emissions.
  - Maine is a scary place with expensive oil
    - Maine is the most oil-dependent state by far (80%)
      - The next closest is 56%.
    - My advice: participate in your government and public agencies
      - Government works best when it partners with companies and nonprofits.
  - One stop shopping
    - We need to have one stop shopping for weatherization.
    - Loan programs, like the HELP Loan, have a limited penetration.
  - Financing
    - We have no money in the state.
    - We need a low cost way to weatherize and make it easy for home owners to pursue weatherization.

## Questions

- The HELP Loans, if you utilize an average cost of oil of \$3.50 per gallon, will save money every year.

- Who is pushing the HELP Loan program nationally?
  - A number of national organizations, including the Federal Housing Authority

## **Vicki Worden**

### **Bio**

Vicki Worden is President of Worden Associates, Inc., a Maine-based consulting firm specializing in the development and launch of green products and services. She is an experienced leader and public speaker with 18 years of experience in planning and business development. Over the last four years, she has overseen the launch of one of the United States newest and most promising green labels—the Green Globes™ commercial building rating system—developed by the Green Building Initiative and based on the successful BREEAM rating system from the United Kingdom. She has also witnessed the expansion of the green labeling market, developed programs and services that take advantage of green trends, and helped manufacturers and others understand how important it is to be well positioned in this expanding green marketplace. Worden is a certified association executive (CAE). She has served as Vice President of Commercial Programs for the Green Building Initiative and as Executive Vice President for the National Lumber & Building Material Dealers Association. She holds an MBA from Loyola University in Maryland and a BA in political science from West Chester University in Pennsylvania. She now lives with her family in Camden, Maine, after more than 15 years in the Washington, DC, area.

### **Remarks**

- **Opening**
  - I am involved in the national scene, not the local scene.
    - I will share trends from a national perspective.
  - I share the feeling that LEEDs might not be the best option.
    - Energy Star is out there and well recognized.
    - Green Building Council is also out there.
  - ‘Green’ is out there
    - Efficiency is most important
    - LEED might not be great, but it was an effort to get green into the public, which it did.
  
- **Trends**

- LEED is being written into legislation
  - Alternatives to LEED have been proposed, including Green Globes
  - Professionals are finding that energy performance has not improved to a great extent
  
- Housing
  - Putting green code is becoming normal and required, sometimes
    - Even if you don't like LEED, pay attention to what the standards are and provide feedback.
  - Green certifications (100%) are not very numerous right now
  
- Needs
  - Education of green building techniques and available resources
  - Measurement improvements or, if not happening, start measuring
  - Workforce development – training for all levels of the process
  
- What To Do
  - Feed good research, good standards into the government system
  - Be involved in what's being created and the standards that are coming down the pipe.

## ***Habib Dagher***

### **Bio**

Dr. Dagher is Professor of Civil/Structural Engineering at the University of Maine, Bath Iron Works Professor of Structural Engineering, and founding Director of the University's AEWComposites Center [www.aewc.umaine.edu](http://www.aewc.umaine.edu).

Established by the National Science Foundation in 1996, the interdisciplinary AEWComposites Center is a world leader in the development of cost-effective, high performance hybrid composite materials for construction applications. The Center's goals are: (1) World leadership in its research programs, (2) Outstanding education for its student trainees, and (3) Supporting and growing industry through technological innovation.

With Dr. Dagher's leadership, the Center has grown from 4 to 40 associated faculty and full-time staff in 10 years and annually employs 100 graduate and undergraduate students from 15 different academic departments. The Center does contract research for private companies worldwide, as well as US government agencies, generating \$5 million in external annual R&D funding. The Center has successfully conducted major multi-million dollar R&D programs for numerous clients including the National Science

Foundation, the Office of Naval Research, the U.S. Army, the Federal Highway Administration, the USDA, the US Department of Homeland Security, the US Coast Guard, and over 100 industrial clients worldwide. Over 10 years, Dr. Dagher led efforts to raise \$20 million for the construction and equipping of the AEW lab, which is currently housed in a world-leading 48,000 ft<sup>2</sup> facility on the UMaine campus.

Dr. Dagher has received numerous awards for his work including the University of Maine's Distinguished Maine Professor Award in 1995 (the highest award offered annually to one faculty at UMaine), the 2004 New England Board of Higher Education Excellence Award, and the UMaine Presidential Research and Creative Achievement Award in 2003. He has written over 120 technical publications, chaired national technical committees in the structural/bridge engineering and composite materials fields, and serves on the Science and Technology Advisory Board for Maine's governor.

Dr. Dagher received his doctorate in structural engineering from the University of Wisconsin-Madison in 1985. He also holds two masters degrees in structural engineering and in engineering mechanics.

## Remarks

- **Renewable Energy Revolution**
  - Where does Maine fit into the renewable energy revolution?
  - Where will the green jobs come from?
    - Roughly 20,000 for Maine under Obama's plan
- **Trends**
  - Share of the average family budget spent on energy (transportation and heat) is increasing every year
    - Electricity isn't the problem
  - Both healthcare and energy is growing as a share of household budget
  - Maine needs around five gigawatts in the future.
- **Heating Crisis Solutions**
  - Short term: energy efficiency
  - Medium term: bridge fuels: natural gas, pellets, wood
  - Long term: offshore and land-based wind
- **Other Heating Sources**
  - Best way to heat commercial/government buildings: geothermal
  - Best way to heat houses: cold-air heat pumps.

- **Long -Term Transportation Energy Sources**
  - Electric-hybrid vehicles
  
- **Elements of Maine’s Future Electricity Sources**
  - *Offshore: within 50 nautical miles off the Maine shore is the equivalent of 40 nuclear power plants, but we can’t get out there yet*
    - Offshore wind provides the greatest long-term solution
    - Maine could sell wind energy!
  - Hydro (25% now, will stay that way)
  - Biomass: wood/wood waste, pellets
  - Solar: yes, but smaller piece
  - Onshore wind
  - Tidal: Maine does not have much, but some
  - Wave energy: not significant
  - Nuclear: issues
  
- **UMaine Offshore Wind Siting – GIS Decision Tool**
  - Work in progress at UMaine
  - Wind resource mapping
  - Bathymetry
  - Geophysical conditions
  - Exclusion zones
  - Multi-use regions
  - Environmental data layers
  - Transmission/grid connectivity
  
- **Make Maine the Greenest State**
  - Potential Timeline
    - 2008-10: siting study, policy, permitting, transmission issues
    - 2010: state issues RFP
    - 2012: shallow/medium depth commercial
    - 2009-16: deep water research and development
    - 2017: deep water commercial
  - Delaware, Rhode Island: leaders in offshore wind planning (models)
  - U Maine is using a GIS tool to figure out where the best places for offshore wind would be

## Questions

- Question: Can Maine sign onto the Kyoto Protocol?

- Answer: No, but energy savings can be monetized in the same way and sold to other entities.
- Question: what about placing solar panels on cars in parking lots (during work)?
  - Possible energy source, but it hasn't been fully tested

## Industry Breakout Sessions

### *About the Industry Sessions*

#### Format

Each industry breakout session utilized three panelists (bios below) who spoke about their experience and to whom questions and discussion were directed.

#### Guiding Questions

The discussions revolved around predetermined “Guiding Questions.” The Guiding Questions were as follows:

#### **Session A:** Architects/Builders/Suppliers

1. How can high-performing houses gain recognition/certification?
2. How can we create stable and sufficient demand for high-performing and local materials?

#### **Session B:** Renewable Energy Installers

1. What role can decentralized installations play in Maine's Future Energy Supply?
2. Does the playing field need to be levelled between residential suppliers and multi-megawatt projects?
3. Are current residential incentives sufficient?

#### **Session C:** Building Performance Analysts & Contractors

1. Is there a need for a single certification/license in Maine? Should reports be standardized?
2. What is the best platform for delivering and tracking continuing education?

3. How can we get more insulation contractors into the field?

### Ground Rules

The following ground rules were utilized during the Regional and Industry Breakout Sessions:

- All views heard – hands to speak
- Say your name first time you speak
- Listen with respect
- Minimize distractions
- Neutral facilitation

## **Session A: Architects/Builders/Suppliers**

### **John Egan**

#### **Bio**

John Egan has been in community development for over 20 years. He is currently the Director of Housing Development for Coastal Enterprises Inc. in Wiscasset Maine. CEI operates a housing program developing and managing units throughout Maine. John also worked for MaineHousing as manager of development programs, overseeing the tax credit and bond financed multifamily activity for Maine. He has 12 years experience in Alaska as a developer and asset manager for several non-profits, including a CHDO that completed Alaska's second tax credit deal in 1992. Through the mission of CEI as a triple bottom line CDC organization, John has been focused on the practical implementation of green building for both multifamily and single family developments for the past 9 years.

#### **Remarks**

- Performance standards were forced on CEI's projects by government (federal and state).
- CEI has been doing green construction on a very skimpy budget.
- CEI has undertaken a number of affordable housing projects.

#### **Response to Guiding Questions**

- *How can high performing houses gain recognition/certification?*
  - People want the label, and it can leave details unresolved
  - Needs to be a better understanding about what the consumer is actually getting
  - It's about lowering occupational cost and performing better
- *How can we create stable and sufficient demand for high-performing and local materials?*
  - Must make cheap
  - Must continue to improve quality
  - Products can't be too weird or far out there

## **John Gordon**

### **Bio**

John Gordon has been designing and constructing buildings since 1982. His body of work includes public schools, university buildings, municipal buildings, performing arts facilities and houses. John has been an active member of the American Institute of Architects, Maine Chapter since 1991. In 2003, he joined the AIA Maine's Board of Directors and served as the Chapter's president for two years (2005-2006). John is a founding member of AIA's Maine's Committee on the Environment and currently serves as its chair.

### **Remarks**

- American Institute of Architects (AIA)
  - Involved heavily in the education of practitioners
  - Address sustainability issues
- Contribution to today's effort
  - Recent experience: last two years, part of two big projects for green houses on MDI thru Bar Harbor Housing Authority
    - \$100/sq foot, high performance
    - Shared knowledge of green building with Bar Harbor Housing Authority
    - Ran into issues with some of the supplies used

### **Response to Guiding Questions**

- *How can high performing houses gain recognition/certification?*
  - Do good work, and the good news will travel
  - Not worried about the certification
  
- *How can we create stable and sufficient demand for high-performing and local materials?*
  - Grassroots buzz

## **Peter Taggart**

### **Bio**

Peter Taggart, owner/president of Taggart Construction in Freeport, ME started his design/build company in 1994 “to develop, practice and promote sustainable methods of building design and construction.” Pursuing this goal, Taggart Construction quickly defined the cutting edge of sustainable building in Maine, building Maine’s first EnergyStar® home and the first LEED® certified home in the USA. Serving on the board of numerous non-profit organizations dedicated to sustainability, Peter is also a founding member and recent Board Chair of the Maine Chapter of the U.S. Green Building Council.

### **Remarks**

- Joseph Lstiburek
  - Taggart Construction has used his techniques for a long time, and continue to work on improving techniques
- Taggart Construction
  - Built first energy star certified in Maine
  - Built first LEED in U.S.
- Maine Needs
  - Auditors
    - Need third party verification, which increases the value of the home because it’s more trusted.
  - Universal performance standards
    - Finite measurements/numbers
- Interesting Programs
  - Affordable Comforts: organization looking for 75% reduction in energy use

## Response to Guiding Questions

- *How can high performing houses gain recognition/certification?*
  - Whatever the certification, make it more affordable through by increasing experience and professionals in the field
- *How can we create stable and sufficient demand for high-performing and local materials?*
  - Need to recognize more different types of wood products as being “LEED” worthy, so we can expand our product base
  - Use our talent
    - Step up, coordinate and share information

## Questions and Discussion

- Energy Star is the only one for ratings?
  - Not only, but it’s pretty good. The average per square foot.
- To John Egan: Can you increase loan amount for energy efficiency investment?
  - Yes, but it’s tough for CEI to push because they aren’t the loan officer
  - Maine Housing is and they can sometimes do it, but private banks are tougher
- Is there a green certification for contractors?
  - The USGBC
- Presenting products that are high performing are becoming more usual; people are starting to get it and willing to spend.

## Obstacles to Overcome

- **Certification**
  - Lack of understanding in the public about green certifications
  - Lack of uniformity with certifications/performance standards
    - Finite numbers, specifications (ex: BTU’s per x feet)
  - Number of auditors – need more
  - Over emphasizing the obstacles – just do “stealth green”
- **Creating demand**

- Price
- Competition
- How to create the buzz for MAINE materials?
- Get more materials to be “LEED” worthy (more than just FSC)
- Disparate information
- Presenting products that are high performing are becoming more usual; people are starting to get it and willing to spend.
- **Homeowner Turnover**
  - Short live-in duration of homeowners (5-7 years before turn around)
    - Lack of incentive to invest in energy savings
  - Possible solutions
    - Mortgage stays with the house
    - Ask the state/county to enforce energy code
- **“Green” Marketing**
  - “Green” is a tough word to market in the real world – how do we get past it?

## Next Steps

- **Create Online Network** (full agreement with vote):
  - Create an Online Network of Architects, Builders and Suppliers
    - Listserv and shared website for collaboration
    - Ability to share documents/articles/work plans
    - Built Green Maine sets it up
  - Topics should center on: “Certainty, predictability, verifiability”
  - Potential issues:
    - Topics can’t be gossipy – must be substantive items of discussion and working.
- **Other Ideas**
  - Creating an owners manual for homeowners
    - They can learn what it takes to weatherize
  - Work with the university system
    - Find out what research is going on and what is being made
  - Public service messages announcements
    - Simple message, like the rubber duck for water/sewer/drainage
  - Literature
    - Prove the worth of investments to the public

- Gather numbers for examples of how people can save with efficiency investment and show them
- There is some of this going on now

## **Session B: Renewable Energy Installers**

### **Mark Isaacson**

#### **Bio**

Mark Isaacson is a founding partner in Competitive Energy Services, LLC (CES), formed in 1999, and co-Managing Partner of CES affiliate, CETX Energy Agency, formed in 2002. Mr. Isaacson began his career in the electric industry in 1980 by becoming a partner in two hydroelectric facilities in Maine – the Edwards Dam and the Worumbo Dam. In 2004, the Worumbo project became the first in Maine to receive certification from the Low Impact Hydro Institute as low impact project and thus Green-E certified as well. Mr. Isaacson is a founding Partner in Maine Renewable Energy, a retail electric supplier of 100% renewable electricity to the residential and small commercial market in Maine. Mr. Isaacson has extensive expertise in marketing as well as in the development of mathematical models. His recent modeling efforts have been concerned with the operation of cogeneration systems as well as the behavior of the energy markets.

#### **Remarks**

- Been in business for quite a long time.
- Not an installer the way we think
- 10 years Worumbo, then 10 years Edwards.
- Decided to form CES – to assist buyers in retail electricity
  - Sellers experienced, buyers not very experienced.
  - Commercial and industrial.
  - Midwest, Houston, Maritimes.
  - 30 employees, 1000 customers, billion dollars of energy.
  - ISO standards.
  - Wind energy – Freedom Wind Project
    - Farm more controversial than hoped

### **Pat Coon**

#### **Bio**

Pat Coon is a founding partner of ReVision Energy, formerly Energyworks. ReVision Energy is the state's largest renewable energy company with offices Downeast, Midcoast, Portland and New Hampshire. He has been designing and installing renewable energy

systems for the last 15 years, including residential and commercial solar thermal systems, residential and commercial PV systems, and high efficiency wood and pellet boilers.

### **Remarks**

- Company has gone from 4 people to 35.
  - Growing into Downeast Maine.
- On the ground installations.
  - 80% residential.
  - Large PV installations.

### **Martin Orio**

#### **Bio**

Martin Orio is V.P. of Sales and Marketing at Water Energy Distributors Inc. of Hampstead, NH. Martin's family – led by his father, Carl Orio – has one of the longest involvement's with geothermal heat pumps in the United States today. They are full members of ASHRAE, employ three full time *Certified GeoExchange Designers* (-AEE), and a *Certified Geothermal Instructor* ( IGSPHA). They have been long standing members of the International Ground Source Heat Pump Association's (IGSPHA) Advisory Board. In the past 33 years they have been involved in over 12,000 geothermal heat pump installations as designers and distributors. Water Energy recently coauthored, the "Geothermal Heat Pump Manual" for New York City's Department of Design and Construction. For ASHRAE we coauthored and lectured on, "Studies Applied to Standing Column Well Design", "Geothermal Standing Column Wells: Ten Years in a New England School" for ASHRAE Transactions 2006.

### **Remarks**

- We freeload analysis residential home - cost homeowner nothing.
  - If you are son of engineer you know all about proper method.
- Low temp geo thermal – not creating energy but using it more efficiently.
- Heat pumps part of evil empire.
- Electric heat is the devil because it's resistance heat.
- Relative efficiency of a heating or cooling mechanism: fantastic marriage of community & energy.

## Questions and Discussion

- Exxon-Mobil and other large corporations have control – lobbying
- Making electricity is a 19<sup>th</sup> century technology
- Markets
  - Hydrocarbon price volatility
- Rebates
  - Costs company more than they get as a rebate
  - Turn on and shut off
  - Makes consumer care less about learning – opens door for bad work.
- Peak pricing is not driven by consumer – move it to bandwidth system rather than a meter
- Skilled workforce
  - Enough?
  - Have had to develop elaborate in-house training program.
  - Not a whole lot of folks who know refrigeration.
  - Very capable people in Maine.
- Decentralized vs. centralized distribution system.
- Systemic change
  - We have to make massive change and massive investments
  - Retirees cash in 401ks for sustainable energy and future. Take our resources and convert them into a sustainable future.

- Is it feasible to develop micro-hydro sites in Maine?
  - Less than 100 in Maine.
  - Capital cost high for small scale projects
  - Heat pumps as related to that.
  - Scale and scalability
    - Commercial vs. residential – difference in expenses
  - Turbine technology
    - Power is a function of square of radius of blade.
    - Cost goes up with cost of blade.
  
- What's average wind speed you are looking for? Where are components made?
  - Average wind speeds of 14 miles/hr or better.
    - Only get 1/3 of the energy that's on the nameplate.
  - Some think offshore wind farm is a complete fantasy.
  
- Where are areas of improvement if electricity is old technology?
  - Biomass in boilers, perhaps.
  
- Efficiency Maine rebates – do they have any effect?
  - In general rebates are necessary part of the business.
  - The public kicking in its share in the form of a private investment.
  - A good rebate will be long term and consistent.

## Obstacles to Overcome

- Consumer education (low bid OK if consumer no BTU language)
- Low Bidder System:
  - Leads to marginally efficient projects
- Markets
  - Volatile pricing
  - Rebates cost homeowner and don't motivate consumer
- NIMBY
  - Controversy over freedom wind
  - Vinalhaven – overwhelming public support
  - Not allowed to see from street – dropped rule in intervening year – people get it – understand on a gut level that making these transitions is critical 5-10 yrs ago harder b/c more people get it
  - Political message – just keep going until its \$5/ gallon.
- Knowledge gap between buyer and seller in developing electric markets.
- Technology branding - Evil Empire vs. the green good guys.
- Little guys fighting oil and gas industry
- Capital cost.

## Next Steps

- Every town has and energy committee
  - Work on standards
- Education/Literature
  - Stats that make it into general population
  - Websites (energy co. and decision tree)
  - 4<sup>th</sup> grade reading level to create info accessible
- Community Visibility (for Community)
  - Consumers push for more information
- Carbon Tax (Variety of perspective and agreement)
  - Equate costs to different energy types

- Proceed with caution – impact on low income
  - Sort out negative implications of taxing efficient homes
- Cool Cities Programs:
  - Falmouth
  - Blue Hill
  - Belfast
- Commitment as Society:
  - Massive commitment and change
  - Convert resources (401ks) into sustainable energy
- People follow the leader and also inspire the leader:
  - Guild concepts
  - “Different camps” come together

## ***Session C: Building Performance Analysts & Contractors***

### **Richard Burbank**

#### **Bio**

Richard Riegel Burbank founded Evergreen Home Performance LLC in 2006. The company provides building diagnostics, building performance evaluations, energy audits and modeling, training, and building envelope installation and renovation for residential, multi-family, and commercial buildings. He was one of the first Building Performance Institute certified Building Analysts and Building Envelope Specialists in Maine. He is a BPI certification proctor, an ASHRAE member, and an affiliated contractor with Maine Home Performance with Energy Star and ZeroDraft. He is a consultant on building envelope air tightness and testing for ESCO’s, architects, and builders. In the fall of 2008, he founded Evergreen Building Science Trainings, a BPI affiliate training provider. Evergreen offers BPI training and certification testing for Building Analyst and Building Envelope Specialist.

#### **Remarks**

- Transitioned from another career
  - started with trying to insulate my own house
  - signed up for energy auditing class in 2006
- To get more contractors into the field
  - We need to get more women in the field
  - Need to
    - Train them

- Pay them
- Equip them

## Response to Guiding Questions

- *Is there a need for single certification/license in Maine?*
  - RESNET and BPI
  - Yes – we feel like the kid of divorced parents
    - Should there be a national one?
    - The national one is far from perfect
  - Maine could be the lead on merging RESNET and BPI
- *Should reports be standardized?*
  - Yes – we should have a single score
    - But not too complicated; needs to be simple
  - Right now, level of competency to do an energy audit is really high
    - Should be simplified
- *What is the best platform for delivering and tracking continuing education?*
  - Need a great team
    - Weatherization contractors
      - These are the most important people because they are in the field having to readjust
    - Energy auditors
- *How can we get more insulation contractors into the field?*
  - Insulators are the super-heroes
  - Air leakage in homes is like polio – let's eradicate it
  - We need to celebrate them and support them

## Rick Karg

### Bio

Rick Karg was trained as an economist, was a building contractor for ten years, and is now the president of R.J. Karg Associates. He has been working with low-income weatherization programs and electric and gas utilities for over twenty-five years as an educator and consultant. He is a member of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 62.2 committee, is a member of the Maine Technical Building Codes and Standards Advisory Board, an editorial advisor for Home Energy Magazine, and is the senior technical advisor and trainer for the Maine Home Performance with ENERGY STAR Program.

### Remarks

- The biggest problem – how are we going to ramp up?
- 80% of the houses that we are going to have in 2030 are already here
  - We have to address existing housing
- Obama stimulus package – lot's of money will be going into low income weatherization

### Response to Guiding Questions

- *Is there a need for single certification/license in Maine?*
  - Currently two in Maine
    - 1984 – State Law established Maine Energy Auditor Certification
      - Handled by Office of Energy Resources then to DECD then to PUC
      - Used in Governors weatherization program
    - 2006 – Energy Star program
      - BPI certification
      - Nationally recognized
      - Works pretty well
      - There is a testing in but there must be a testing out
      - Holistic audit
      - Emphasizes getting the work done
  - Best way to go is with a program like Maine Home Performance Standard
    - Low-income weatherization is an entitlement

## Dale McCormick

### Bio

In January, 2005, Dale McCormick became Director of MaineHousing (Maine State Housing Authority), Maine's housing finance agency and one of Maine's leading mortgage lenders. Dale was the first woman in the United States of America to complete the Carpentry Apprenticeship with the United Brotherhood of Carpenters and Joiners in 1975. In 1984, Dale helped found and became the first President of the Maine Lesbian/Gay Political Alliance, which advocated statewide for civil rights and better treatment for homosexuals. Dale became the first woman elected Treasurer of the State of Maine in 1996. She served as Treasurer for eight years before stepping down because of Maine's term limits. Before becoming Treasurer Dale served three terms in the Maine Senate. In 1988, Dale founded Women Unlimited, a program that successfully trains women on welfare to compete for high-paying jobs in trade and technical occupations. She has a BA from the University of Iowa. Dale founded her own construction and design firm and wrote two books about her experiences, *Against the Grain: A Carpentry Manual for Woman*, and *Housemending: Home Repair For The Rest of Us*.

### Response to Guiding Questions

- *Is there a need for single certification/license in Maine? Should reports be standardized?*
  - If BPI is a certification and Maine Energy Auditor is a certification – it's fine to have both if they meet an umbrella standard
    - Right now, they do both meet an umbrella standard: Energy Star
  - It's okay to have different trainings and certifications
    - As long as everyone meets the Energy Star standard
  - If we all know how to get the first 20% savings (air draft-proofing and insulation), then why not combine the audit and weatherization?
    - Why have an audit?
  - MSHA is developing a database that will be able to be used by the private sector
    - Will further unite MSHA and ECOS under a united system
- *What is the best platform for delivering and tracking continuing education?*
  - It would be good to offer training at the high school level – it's relatively simple

- We can demonstrate over 20% savings in the houses that have participated in the statewide energy program
- Last Fall, MSHA created a new weatherization program in order to create more capacity in the industry
  - Created a certification program for weatherization technicians
  - We are creating capacity to weatherize all Maine homes
  - Where we are lacking capacity is weatherization contractors
- All weatherization contractors in Maine are now Energy Star auditors
- *How can we get more insulation contractors into the field?*
  - Loans are available to contractors through community banks to be able to buy specialized equipment
  - More contractors into the field?
    - If the price of oil goes up
    - Incentives, tax write-off and credits that encourage use of your services

## Questions and Discussion

- Clarified that both certifications can use the energy star seal
  - Maine recognizes both certifications
- Weatherization and auditing is not simple
- Maine home performance audit is not being used much b/c too complicated, therefore there is a lack of resulting data
- Don't forget what people can do for themselves – everything is not someone else's responsibility
- We should all be on the same team
- Can energy auditors also do retrofits?
  - Yes, they should be able to
- Being a weatherization contractor is hard
- Good training for an auditor would be to try and pull off what you're recommending
- We need to make this simpler for all of us – not harder
- Certification should be reciprocal with other states
- We need continuing education for weatherization
  - We should invest public money into continuing education
- Every time a home is sold, it should be brought up to a new standard – incremental improvements
- All weatherization people should be professional – “Building Science” is the perfect term

- Its extremely difficult to make incremental steps in the private, subsidized market
- The marketplace is demanding bigger jobs, but there's not a large enough skilled workforce
  - We have to band aid
  - We can't keep band aiding!
- Our problem is that there is a card missing – we're not playing with a full deck – we don't have the resources to do what needs to be done
- Instead of saying “this is what you need,” auditors and contractors should give homeowners and incremental plan – that they can work on in pieces as money allows
- Concentrate on the middle class
- There should be a simple place for energy efficiency information
- How are appraisers valuing energy efficiency improvements?
  - MSHA is trying to create models that any bank can use for loans and appraising
  - Appraisers do not establish home values – the market does
- We need to get the market to recognize the value of energy improvements
- We need to build a bridge between weatherization and loan-to-value
- More training would result in more contractors in the field
- Buying a new home – that's a great time to apply for a HELP Loan
- Getting into the field has been very confusing – now it is less so
- We need to get the word out that certification is now easier to get into
- Its not simple – it IS rocket science
- Is there any collaboration between MSHA and U Maine regarding training?
  - MSHA is working on it
  - Training opportunities are emerging in the community college system
  - Also, adult ed. Programs
- We should not control who teaches weatherization

## **Closing Comments**

### ***Commissioner John Richardson***

#### **Bio**

John Richardson is Commissioner of the Maine Department of Economic and Community Development (DECD). As Commissioner, he is responsible for coordinating and directing the state's economic development offices, which include the Office of Business Development, the Office of Small Business, the Office of Community Development, the Office of Innovation, and the Maine Office of Tourism.

Richardson served four consecutive terms in the Maine House from 1998-2006 as the State Representative from District 63, representing part of Brunswick. During that time he rose in the ranks to House Chair of the Joint Standing Committee on Business and Economic Development in the 120th Legislature; to House Majority Leader in the 121st Legislature; and to Speaker of the House in the 122nd Legislature.

In December 2004, John Richardson was sworn in as the 97th Speaker of the Maine House of Representatives. In his role as Speaker, he presided over all actions of the House, appointed members to committees, and managed the daily operation of the House.

In addition, Richardson led efforts to create a fair and stable business environment in the state. He strenuously promoted investments in people and technologies, including bond investments for economic development projects. He helped guide the phasing out of the business equipment tax and continues to be actively engaged in the redevelopment of the Brunswick Naval Air Station. Most recently, Richardson has traveled across the state soliciting regional economic development solutions.

As a freshman on the Banking and Insurance Committee, he led the effort to enact a Patient Bill of Rights. The following term, as chair of the Business and Economic Development Committee, he sponsored and wrote the economic development bond bill that passed on the June 2002 ballot.

Richardson is a 1983 graduate of the University of Maryland. He worked as a management consultant for a major public accounting firm before entering law school. He received his law degree from Creighton University in 1989 and became a partner in the Portland firm of Troubh, Heisler and Piampiano. He is a skilled negotiator, and has a particular interest in law enforcement, having represented police officers in the state.

John Richardson is married to Dr. Stephanie Grohs, an OB-GYN physician with a practice in mid-coast Maine. They have three children. He is a former vice president of the St. John's Parish Council. He enjoys sports and outdoor recreation.

## Remarks

- I'm struck by Mark Twain quote about the weather, and how no one does anything about it.
- The conference boasts a tremendous turnout
- What has brought us here?
  - Global warming.
  - Noteworthy time: new administration in DC.
  - Clean Technology
  - Opportunities for US and abroad.
- Clean Tech revolution – much like the internet age.
  - 5 million jobs can come from this clean tech industry.
  - 10,000 jobs here in Maine.
- Maine's Efforts
  - Our state has embarked on an ambitious plan.
  - Governor has long, expensive list of what we want from the Obama plan
- Today's Themes
  - Not the right policies in place today.
  - Lack comprehensive plan around energy.
  - Not very consistent when it comes to incentives.
    - Rebates, tax credits, not sustained over long period of time.
    - Running out of money, changing policy quickly
  - Sustainability in public outreach is needed
  - Consumers are strapped with debt, but if they knew a little bit more about efficiency options, that would serve us well.
- Government will commit to public outreach
- What You Can Do
  - Form your own groups and associations
  - Create own standards before they are imposed upon you.
  - Be as professional as possible.
  - Apply to MTI for cluster funding.
- What We Can Do
  - Distribute Obama funds in a strategic way
  - Sustain rebate programs
  - Public outreach

- Help you facilitate your industry

## ***Conclusions by Craig Freshley, Meeting Facilitator***

Craig concluded the day by reviewing the take-home messages as delivered by the conference's guest speakers, as well as by outlining the themes and to-do lists generated by the breakout sessions. The following outline summarizes Craig's comments:

### **Review of Messages, Themes and Next Steps**

#### Morning Plenary Speakers

- **George Callas**
  - Anyone can build a green house
    - George is not a builder, architect, or auditor and he did it!
  - Maine has the oldest housing stock and biggest carbon footprint in the nation
- **Donna McNeil**
  - We are democratizing design
  - The country is headed toward less design but better design
- **Governor Baldacci**
  - Maine state government started planning early
  - Energy transects several different orbits
    - Environment
    - Economy
    - National security
  - Our mission is to develop an army that will work on what's good for our environment, economy and national security
- **Joe Lstiburek**
  - What's wrong with commercial buildings?
    - Too much glass
    - Too much steel
    - Rely on gimmicks and fads
    - Leaky
  - Buildings are the key to climate change which is the key to economic strength and security

- Real green is the key to green buildings
      - Residential buildings is where the most change can happen
  - Buy plug in hybrids and fix the house
    - Make houses four times as efficient or half the size
    - And the jobs are here!
  - Conservation before Greeny Weeny alternatives

### Regional Session Themes

- **North**
  - Need to share and build on what's out there
  - Education of public and practitioners
- **South**
  - Lots to do on many fronts
  - Large role for government
- **Central**
  - Nobody likes LEED
  - Focus on what WE can do

### Afternoon Plenary Panel

- **Dale McCormick**
  - Some folks have been nurturing this movement for 30 years and now are at the center of it
    - This is our time
- **Vicki Warden**
  - Energy Star is a place to start - 40% of consumers recognize this brand.
- **Habib Dagher**
  - Maine's energy mosaic – where is the utility-scale opportunity?
    - Off-shore wind; and other states and countries are doing it
  - Maine can be the greenest state if:
    - We do renewable energy (off-shore wind) AND weatherization

### Industry Breakout Session Themes

- **Highlighted Comments**
  - Air leakage in homes is like polio – let’s eradicate it
  - Insulators are the super-heroes
    - We need to celebrate them and support them
  - 80% of the houses that we are going to have in 2030 are already here
    - We have to address existing housing
  
- **To-Do**
  - Industry-specific website and list serve
  - Set up local meeting groups
  - More available training – short labor supply
  - Use the term “building science”
  - Give people incremental plans that they can chip away at as money allows
  - Build a bridge between weatherization improvements and loan to value ratio – appraisals and loans should consider energy efficiency
  - Every town should have an energy committee

#### Closing Plenary

- **Commissioner Richardson**
  - Need a state energy plan
  - Consistency regarding incentives
  - Sustained public outreach – it’s the most important thing we can do

#### Concluding Remarks

- “I’ve done so much for so long with so little, I can do practically anything with nothing”
- “Everybody always complains about the weather but nobody ever does anything about it”
  - Well WE are doing something about it!
- It’s what can WE do – we’re the ones we’ve been waiting for