



# Workshop Results

Owner-occupied/Government/Institutional



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## COMMERCIAL BUILDINGS INITIATIVE

Solution	Description	Potential Barriers
Mandatory building rating/scoring/labeling system	This information might be displayed or made otherwise publicly visible, but would be required upon building sale, lease, or renovation.	Determining the benchmark numbers and assessment methods, given non-uniformity in performance metrics; weak/non-existing mechanisms for enforcement and compliance.
Mandatory national building codes, with all the entailed activities to make the codes enforceable and effective	A national code would serve as a mechanism to encourage the implementation of efficient commercial buildings, and bring state w/o codes up to speed .	Congress may not take up the issue, considering it a state's rights issue.



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**CBI** COMMERCIAL BUILDINGS INITIATIVE

Solution	Description	Potential Barriers
Packaging of financial and policy incentives for portfolios of technologies, at the project-level, or by building characteristics.	Align the values of stakeholders who can create real cost reductions and time savings.	Inadequate financing tools/incentives currently available.
Implement educational, certification, and technical assistance programs for architects, engineers, construction and operators.	Use continuing education and new university programs to improve the knowledge base of how to design, build, and operate HPB.	Resistance w/in the educational system and professional communities; funding sources.



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Solution	Description	Potential Barriers
Full cycle RDD&D emphasizing demonstration and deployment of technologies	Decision makers need to be shown that efficient technologies work, are being used successfully, and cost-effectively in order to impact market penetration.	Lack of clear performance metrics, monitoring and verification, case studies, and multiple rather than single project implementation studies; financing.
Pricing carbon	Pricing carbon is essential in raising the importance and business implications of efficiency in buildings.	Lack of clear performance metrics; need to implement the necessary markets, pricing schemes, and stakeholder coordination.



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## COMMERCIAL BUILDINGS INITIATIVE

Solution	Description	Potential Barriers
Market validation of energy performance	Extend integrated design build process to link performance with design and value.	Lack of feedback loops to designers; lack of clear performance metrics; lack of industry-wide integrated design practices.
Expand tax incentives for HPB to building owners and operators	Encourage the adoption of HPB by making them more financially attractive; reward reductions of use from a baseline/benchmark	Lack of funding in federal and state budgets; limited awareness of the economic benefits of building efficiency.



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Solution	Description	Potential Barriers
Utility rates/tariffs to encourage efficiency and penalize increased consumption.	Proper pricing that promotes efficiency is necessary to form a cohesive national plan for HPB/ZEBs.	Decoupling sales and revenues for utilities; rate adjustment is a burden for utilities, so they do it every 3 years at most. Legislation might be necessary to achieve this solution.
Improve BIM systems to encourage increased integrated design, deployment/use, and advanced features	More effective integrated design-build strategies are crucial to increasing the prevalence of HPBs.	Difficulties in communicating among all stakeholders; differences in language and terminology and priorities.



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Solution	Description	Potential Barriers
Implement teach and share for state and federal policy makers and politicians.	Dissemination of best practices and success stories can lead to more informed appropriate and successful, enforceable standards/codes/policies	Lack of centralized comprehensive case studies; climatic and regional differences in aggressiveness.
Technology development: individual environmental controls, combined heat/power and co-gen. plants; daylighting/SSL, advanced controls, diagnostics, metering.	Leveraging emergent and existing technologies is essential in meeting the ~80% reductions in energy consumption necessary to realize ZEBs.	Lack of research funding, collaboration, and demonstration, and deployment activities, and technical assistance; perception of increased cost for efficient technologies.



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Barrier	Strategy	Actions	How	Who	Schedule
<p>Determining the benchmarks and evaluation methods, given non-uniformity in metrics; weak/non-existing mechanisms for enforcement and compliance. <b>(Mandatory building labeling)</b></p>		<ol style="list-style-type: none"> <li>1. Translate EI into a ranking excluding process E</li> <li>2. National legislation to provide info upon sale/lease or refinance</li> </ol>	<p>Utilities assist in submetering and linking to EPA portfolio manager, where owner inputs profile</p>	<p>NARUC, DOE, public and IOUs, NRDC</p>	<ol style="list-style-type: none"> <li>1. 3 yrs for action 1</li> <li>2. 3-4 yrs for legislation, compl/enf, necessary agencies</li> </ol>



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Barrier	Strategy	Actions	How	Who	Schedule
<p>Congressional resistance to national building codes and standards, citing states rights.  <b>(National building code)</b></p>	<p>Leverage the 'model codes' from aggressive states, and implement something similar to the highway program where if the state doesn't adopt, they lose federal funding.</p>	<ol style="list-style-type: none"> <li>1. Adopt some %age over IECC</li> <li>2. Form lobbying group to advocate and fight adversary special interests</li> </ol>		<p>Developers, WalMart, AHRAE, BOMA, ASE, utilities</p>	<ol style="list-style-type: none"> <li>1. 3 yrs to pass bill</li> <li>2. New buildings must comply for permits</li> <li>3. 2-3 yrs after bill for admin, bureauc, enforce, review</li> </ol>



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Barrier	Strategy	Actions	How	Who	Schedule
Inadequate financing tools/incentives currently available. <b>(Incentives for tech. portfolios)</b>		<ol style="list-style-type: none"> <li>1. Utility rebates</li> <li>2. Local land entitlement, expedited permitting</li> <li>3. Specific and general state tax credits</li> <li>4. National tax credits, load projects</li> </ol>		Banks, utilities, local and federal govmt, local permitting agencies, tax agencies	5 yrs?



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# CBI COMMERCIAL BUILDINGS INITIATIVE

Barrier	Strategy	Actions	How	Who	Schedule
<p>Resistance w/in the educational system and professional communities; funding sources.  <b>(Educational and tech asst programs )</b></p>		<ol style="list-style-type: none"> <li>1. Enhance college curricula for arch and eng – sust. and eff.</li> <li>2. Develop robust training and certification programs for operators and constr.</li> <li>3. Expand successful programs</li> <li>4. Simplify and train: design tools</li> </ol>		<p>State E Cmmsns, utilities, USGBC, eng/arch accred programs,</p>	<p>1-10yrs</p>



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<p>Lack of clear performance metrics, monitoring and verification, case studies, and multiple rather than single project implementation studies; financing.</p> <p><b>(Tech demo and deployment)</b></p>		<ol style="list-style-type: none"> <li>1. Develop multiple project demos of efficient tech implementations</li> <li>2. Create show-houses of existing tech</li> <li>3. Engage govmt, mfrs, and utilities in aggressive procurement</li> </ol>		<ol style="list-style-type: none"> <li>1. DOE, LBNL, NREL, industry leaders, utilities, state energy commssns, mfrs</li> </ol>	3-5yrs



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Barrier	Strategy	Actions	How	Who	Schedule
<p>Need for more aggressive pursuit of emergent technologies <b>(Tech RDD&amp;D)</b></p>		<ol style="list-style-type: none"> <li>1. Cogeneration</li> <li>2. More efficient cost-effective BIPV</li> <li>3. Passive solar heating lighting, cooling</li> <li>4. Advanced metering</li> <li>5. Intelligent integrated control</li> <li>6. Thermally activated and frostless heat pumps</li> </ol>		<p>NREL, DOE, LBNL, industry mfrs, utilities, govmt, university research, ORNL</p>	<p>5-15yrs</p>

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## COMMERCIAL BUILDINGS INITIATIVE

Barrier	Strategy	Actions	How	Who	Schedule
Lack of clear performance metrics; need to implement the necessary markets, pricing schemes, and stakeholder coordination. <b>(pricing carbon)</b>		<ol style="list-style-type: none"> <li>1. Enter into or merge with existing carbon markets and pricing strategies, ex. EU</li> <li>2. ID differences between site energy, source energy, embodied, energy and carbon output, and define how to calculate</li> </ol>		Utilities, government, EU Carbon actors, policy makers, financial and env. analysts	3-5 years



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## COMMERCIAL BUILDINGS INITIATIVE

Barrier	Strategy	Actions	How	Who	Schedule
<p>Lack of feedback loops to designers; lack of clear performance metrics; lack of industry-wide integrated design practices.</p> <p><b>(Mkt. validation of E perf.)</b></p>		<ol style="list-style-type: none"> <li>1. Implement performance-based fees for design and construction</li> <li>2. Perform continuous Cx and post-occ evaluation</li> <li>3. Collect and publish actual energy performance (see bldg labeling)</li> <li>4. Protocols for reports to decision makers</li> <li>5. Improved BIM w/ features for integrated design-build processes</li> </ol>		<p>BOMA, AEC, AIA, O&amp;M staff, individual owners,</p>	<p>4yrs</p>



Barrier	Strategy	Actions	How	Who	Schedule
<p>Lack of funding in federal and state budgets; limited awareness of the economic benefits of building efficiency.</p> <p><b>(Expand tax incentives for HPB to building owners and operators)</b></p>		<ol style="list-style-type: none"> <li>1. Specific and general state tax credits</li> <li>2. National tax credits, load projects</li> <li>3. Programs for capital subsidies and loans</li> <li>4. Enable cost/benefit analysis for HPB investments</li> </ol>		<p>Banks, GBFC, federal and state tax agencies, utilities</p>	<p>5-7yrs?</p>



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Barrier	Strategy	Actions	How	Who	Schedule
<p>Rate adjustment is a burden for utilities, so they do it every 3 years at most. Legislation might be necessary to achieve this solution. (<b>Utility rate/tariffs to encourage efficiency</b>)</p>		<ol style="list-style-type: none"> <li>1. Decouple sales and revenues for utilities</li> <li>2. Install advanced and sub-metering</li> <li>3. Use rate blocks that increase dramatically for high usage, above average</li> </ol>		<p>Utilities, NAURUC, PUCs, Local and state gov, O&amp;M staff</p>	<p>3yrs</p>



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Barrier	Strategy	Actions	How	Who	Schedule
<p>Lack of centralized comprehensive case studies; climatic and regional differences in aggressiveness</p> <p><b>(Implement teach and share for state/federal policy makers and politicians)</b></p>		<ol style="list-style-type: none"> <li>1. Combine existing HPB databases into 1, disseminate results</li> <li>2. Engage state and national political staffers</li> <li>3. Publish and distribute reports on most successful aggressive programs and policies</li> </ol>		<p>Utilities, local/state government, political staffers and lobbyists, state energy commissions, industry leaders</p> <p>3. Specific and general state tax credits</p> <p>4. National tax credits, loan projects</p>	<p>2yrs</p>



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