



## Opening Remarks and Introductions

Ken Sandler, Designated Federal Officer, welcomed the Green Building Advisory Committee (hereafter “the Committee”) and provided a brief overview of the meeting agenda.

Greg Kats, Committee Chair, thanked everyone for attending. He commented that there is strong momentum for action on climate change, and that the Committee should encourage government policies that demonstrate Federal leadership on this issue.

Kevin Kampschroer, Chief Sustainability Officer of the General Services Administration (GSA), also welcomed the Committee and seconded Greg’s comments, adding that there is an increased sense of urgency for the Federal Government to make its policies and programs sustainable. Particularly after the Paris Accords, there should be a significant uptake in Federal climate change activity, for example, in tracking climate change impacts across the supply chain. He expressed his enthusiasm for Committee proposals, e.g., on energy use intensity (EUI), which dovetails with the White House’s “Reduce the Footprint” initiative.

## Green Leasing: Task Group Report & Discussion

*Charlene Bayer, Hygieia Sciences LLC, Task Group Co-Chair*

*Victor Olgay, Rocky Mountain Institute, Task Group Co-Chair*

- Introduction
  - Most of the first few months of the Task Group have been spent getting up to speed on the existing state of the green leasing market and determining the direction of the Task Group’s recommendations
- Task Group goal
  - Recommend model green leasing provisions for commercial lessors
    - Help GSA meet requirements of Energy Efficiency Improvement Act of 2015
    - Provisions not for direct incorporation in Federal leases, but meant to incentivize commercial market adoption, as a supply-side approach encouraging leasing marketplace to supply greener buildings
- Approach
  - Provide clear, simple, actionable, implementable, cost-effective, enforceable, and broadly applicable recommendations
  - Align with Federal standards (GSA leases, Guiding Principles, etc.)
  - Align the interests of building owners and tenants
  - Encourage early adoption of relevant GSA sustainability goals and lease clauses in commercial buildings
- Potential impact
  - Green leasing offers potential for financial savings and energy & carbon emission reductions
    - Ultimately could represent over \$1.7 billion in annual cost savings
    - Effectiveness based on adoption of the ideas, highlighting the importance of making the recommendations useful and easy to implement
- Lessons from GSA experience with green leasing
  - Many leases don’t cover a whole building, sometimes only a portion of a floor, which decreases a tenant’s leverage

- Geographic and market differences, e.g., small vs. large markets and climate zones, makes “one-size-fits-all” solutions difficult to achieve
- TG matrix of green leasing issues (work in progress)
  - Includes sustainability, energy efficiency, indoor environmental quality (IEQ)
    - Currently tiered in a ‘good, better, best’ structure, though the group continues to debate preferred format
    - Desire for flexibility to allow participation from lessors in very different markets
    - Goal is not to create a new rating system
  - Landlord vs. tenant responsibilities: issues of who is responsible for what, who ultimately pays and where the incentives lie
- The Task Group has been examining model green leases and checklists as a basis for recommendations
  - Aim for a simple, straightforward, easy to understand format
  - Example of REALpac of Canada, which presents green leasing concepts, then breaks each down into a checklist of typical requirements
- Planned future work and timeline
  - Refine tiered matrix of green leasing issues
  - Incorporate language into an appropriate green lease template
  - Test draft proposal with focus group of commercial leasing practitioners/experts
  - Draft Advice Letter for review by the full Committee
  - Submit final draft Advice Letter to GSA Chief Sustainability Officer

### **Green Leasing Task Group – Committee Comments**

- Key question is how to balance flexibility for lessors in less advanced markets with standards high enough to make the lease genuinely green
- Important to signal to market what Federal government wants and where market is heading, while leaving room for suitable offers to be received. Savvy owners will pick up on the signals
- Extent of government leverage dependent on percentage of space occupied in a building and options available in local market. The Task Group could either try to account for these factors or present the provisions as a single list of voluntary items
- The recommendations should be designed to stimulate competition among landlords to provide the items that tenants are requesting
- Green leasing is a balancing act. Incremental progress is better than no progress, e.g., many buildings may be able to take basic steps like installing WaterSense fixtures
- Impacts are somewhat location-specific: in some areas, access to public transportation would have greatest environmental impact, while elsewhere net zero strategies might
- Besides energy and water, indoor environmental quality should be emphasized – the largest facilities expenses are occupant-related, and this is consistent nationwide
- Industry groups with which the Committee may consider partnering include:
  - [International Facility Management Association](#) (IFMA) has a sustainability group that works to prioritize performance criteria for various spaces
  - [Construction Users Roundtable](#) (CURT) is a consortium looking at the performance of leased space

The Committee voted unanimously to support the following motion:

- **Motion 1:** The Green Leasing Task Group will continue its efforts and report back to the Committee at the fall 2016 Committee meeting.

### **Portfolio Prioritization: Task Group Report & Discussion**

*Brendan Owens, U.S. Green Building Council, Task Group Co-Chair*

*Sarah Slaughter, Built Environment Coalition, Task Group Co-Chair*

- Introduction
  - The question is how to strategically plan and manage Federal agency building portfolios rather than deal with them on building-by-building basis under which individual managers have to keep “reinventing the wheel”
  - Focus of the Task Group:
    - Strategic integration of sustainability, resilience, and effective space utilization into all stages of management of Federal real property portfolio
    - Coordinating action to capitalize on the synergistic and complementary nature of strategies to simultaneously address these objectives
- Expected Benefits
  - Gain significant economic and resource efficiencies
  - Improve consistency across projects and agencies
  - Accelerate Federal progress in achieving mandates & goals
  - Streamline project delivery
  - Reduce risks of unintended consequences of adopting goals in a non-integrated fashion
- State of Knowledge and Practice
  - The Task Group and the National Academies’ Federal Facilities Council (FFC) jointly held two workshops to examine organizational frameworks and resources for economically evaluating and incorporating sustainability, resilience, and footprint consolidation into portfolio prioritization processes
  - Over 250 registrants (in person and via WebEx), with more than 20 Federal agencies and other organizations represented
  - The National Academies will issue workshop proceedings sometime in 2016
- **Recommendation 1:** Establish Integrative Portfolio Management Pilot Program
  - That GSA (and other agencies) establish a pilot program at one or more of its Regions, to develop, demonstrate, test, evaluate, and document opportunities to integrate sustainability, resilience, and space utilization objectives into all processes associated with portfolio management
  - Pilot Program Concepts
    - Institutionalize integration in all organizational processes associated with Federal real property assets
    - Develop and implement screening process to better integrate objectives into planning and management processes
    - Prioritize goals by eco-region (e.g., respond to drought in Southwest)
    - Target specific real property assets for further integrative study and work
    - Implement integrative solutions that take advantage of complementarity of sustainability, space utilization, and resilience objectives
    - Fund integrative approaches and solutions through multiple sources, e.g., local utility funding, energy savings performance contracts (ESPCs)
    - Develop training modules on integrative approaches and solutions for all professionals associated with Federal real property assets

- **Recommendation 2:** Incorporate Criteria in Federal Real Property Policy, Guidance, and Databases
  - That GSA Office of Federal High-Performance Green Buildings work with GSA Real Property Policy Division and the Federal Real Property Council (FRPC) to
    - Identify and incorporate key criteria (EO 13693 and EO 13653) into the Federal Real Property Profile and newly developing analytic tools
    - Incorporate integrative portfolio management concepts into Guidance for Asset Management Plans and Federal Management Regulations (FMRs)
    - Facilitate communication across the government through FRPC, etc.
- **Recommendation 3:** Compile Integrative Portfolio Management Tools, Methods, and Solutions
  - That GSA Office of Federal High-Performance Green Buildings work with GSA Regions, other Federal agencies, US national labs, and other partners to:
    - Identify and compile sets of solutions, processes, tools, and approaches
      - Examples provided in Appendix to Task Group Advice Letter
    - Advance integrative portfolio management for sustainability, space utilization, and resilience

### Portfolio Prioritization Task Group – Committee Comments

- Recommendation 1 comments
  - Successful pilots can initiate progress, help agencies identify champions and leaders who can promote innovative new strategies and policy changes
  - Bridging silos critical: bring people doing good stuff together
  - Need to increase incentives for agencies to get ahead of the innovation curve
  - Monetizing these issues (e.g., through social cost of carbon) and getting budget people engaged could help promote integration
    - Overlay proposals with the Federal budget cycle for maximum effect. GSA just completed project reviews for FY18, will begin reviews for FY19 in the fall, and can report back to the Committee at next spring meeting
  - Reach out to Chief Sustainability Officers Council to get multiple agencies involved
- Recommendation 2 comments
  - OMB Circular A-11, the primary Federal budget guidance, does reference the key EOs and Guiding Principles, but specific guidance documents and regulations on Federal asset management need to be updated
- Recommendation 3 comments
  - The Functional Programming Process (outlined in Appendix III of the report) can be applied to any type of building project
  - As incorporating more issues makes decision-making more complicated, advanced computer tools may be helpful, e.g., to run simulations to determine best possible integrative design of a building

The Committee voted unanimously to support the following motion:

- **Motion 2:** The Green Building Advisory Committee approves of the Portfolio Prioritization Task Group’s Advice Letter and will forward the Advice Letter to GSA’s Chief Sustainability Officer.

## **Working Lunch: Pathways to Net Zero Outcomes**

*Mark Frankel, Technical Director, New Buildings Institute (NBI)*

- NBI is a Portland, OR-based non-profit organization devoted to commercial building energy efficiency and net-zero energy (NZE) buildings
- NBI has collected six years of data on commercial net-zero buildings in the U.S., accessible in their [net-zero database](#) alongside their other NZE resources
  - The number of net-zero projects is increasing rapidly across building types (offices, schools, higher education), climate zones, sectors, etc.
  - While most NZE buildings are new, 24% are the result of renovations
- Energy goals, codes and standards are becoming more aggressive
  - Impact of [2030 Challenge](#), CA Big Bold Goals, Paris Accords, etc.
  - Increasing stringency of ASHRAE 90.1 meant to guide progress toward 2030 Challenge
  - Currently, NBI is working with about a dozen jurisdictions on developing their codes to promote NZE
  - With tightening appliance standards, energy use of most building components has gone down – except heating equipment
  - Building energy disclosure spreading to more markets
  - As regulated loads diminish, we have to look at unregulated loads
  - Outcome-based codes encourage more focus on plugloads and behavior
- Optimization of building efficiency improvements vs. photovoltaic (PV) investments is crucial for NZE, and the calculation is changing as the cost of PV drops
- NBI working with cities on building portfolio evaluation
  - Includes benchmarking, engagement, analysis, prioritization, policy changes
  - Leverages building lifecycle sub-cycles, including upgrades, retro-commissioning, and optimization
- NBI built a tool called [FirstView](#) to improve diagnostics
  - Using monthly utility bills and basic building information, the tool breaks out presumed energy uses by their “energy signatures”
  - Graphical output identifies inefficiencies via building energy use data
- In response to need for a leading-edge building performance evaluation scale, NBI developed [zEPI: Zero Energy Performance Index](#)

## **Energy Use Intensity (EUI): Task Group Report & Discussion**

*Projjal Dutta, New York Metropolitan Transportation Authority, Task Group Co-Chair  
Drake Wauters, American Institute of Architects, Task Group Co-Chair*

- Background
  - The Task Group has been working to develop new EUI concepts reflecting the impact of occupancy levels in buildings (e.g., following office consolidations) and the impact of energy used to commute to and from buildings.
  - At its 10-28-15 meeting, the Committee proposed that the EUI concepts be tested through case analyses, pilot studies and/or modeling simulations.
  - As DOE agreed to support this research, the Federal Energy Management Program (FEMP) is funding the Pacific Northwest National Lab (PNNL) to conduct a study to test and validate the Density-based EUI approach.

- Regarding the Transportation-based EUI concept, the Task Group has been collaborating with the Urban Development/Good Neighbor Program of GSA's Public Buildings Service, which recently released the [Smart Location Calculator](#), an online location efficiency scoring tool
- Peripheral Issues
  - In response to GBAC comments at the 10-28-15 meeting, the TG also examined several technical issues:
    - Site vs. source-based energy
      - The TG recommends using source energy to capture full energy impacts and allow fairer comparison with on-site energy sources
    - Electric cars
      - Not addressed in the proposal, as there are currently too many variables and uncertainties, but can reassess in future
    - Telework
      - Not addressed in the proposal due to complexities, unknowns and conflicting information
        - Some studies show telework appearing to increase rather than decrease energy use while others show energy use reductions

**Presentation: PNNL Occupancy-Adjusted EUI Study**

*Kathleen Judd, Pacific Northwest National Laboratory (PNNL)*

- Introduction
  - Kathleen Judd is the team lead on this study and Abinesh Selvacanabady the lead analyst, with experience in building simulation and modeling
- Objective/desired outcomes
  - Estimate range of influence (percent impact) of occupancy on EUI
  - Develop a defensible, repeatable method to account for occupancy impacts on energy in typical federal buildings
  - Test potential algorithms, adjustment factors, and/or influences that could be accounted for in an adjusted EUI metric
  - Provide guidance on pros and cons of use (e.g., policy and cost implications)
- Tasks
  - Literature review and modeling tool review
  - Approaches to accounting for occupant density and utilization rates in literature, case studies or modeling tools
  - Establish method for testing use of full-time equivalent occupancy and/or other methods with agency data for a standard office building
  - Collect data, test methods and assess impact on EUI
    - Gathering energy and occupancy data for GSA's 1800 F Street building
  - Evaluate whether an occupancy-adjusted EUI is appropriate and how it would might be used
  - Prepare summary report and present to GBAC
- Proposed Timeline
  - Literature review complete
  - Range of occupant impacts established, algorithm developed/refined: May 30
  - Algorithm validated with building data: June 30
  - Findings shared with GBAC EUI Task Group: July 30
  - Summary report to full GBAC: September 30

- EUI Task Group agreed to touch base biweekly with PNNL via conference calls and provide feedback through emails as needed

### **PNNL Occupancy-Adjusted EUI Study – Committee Comments**

- Factor in issues of oversized HVAC equipment and predicted improvements in efficiencies of plug load equipment (e.g., computers)
- Consider cost savings, possibly social cost of carbon

### **Presentation: GSA/EPA Smart Location Calculator (SLC)**

*Ruth Kroeger, GSA Public Buildings Service, Urban Development/Good Neighbor Program*

- One of the provisions of EO 13514 (2009) was for Federal agencies to implement sustainable locations for their facilities, for which the White House Council on Environmental Quality (CEQ) developed [guidance](#)
- GSA and EPA's Smart Growth Program recently created the [Smart Location Calculator \(SLC\)](#) to inform decision-making about Federal facility siting and reduce vehicle miles traveled (VMT) and related energy use and greenhouse gas emissions
- The SLC model is based on data from the National Household Travel Survey and the [Smart Location Database](#) built by EPA
  - The database summarizes 90 different location efficiency indicators, including development density, land use, street network design, accessibility to destinations, other demographic factors
- The SLC model:
  - Predicts occupant workday VMT, including commuting plus mid-day errands
  - Develops a regionally-normalized score designed for comparison among parts of a single metropolitan area (rather than across metro areas)
- SLC is initiated by entering workplace address or selecting a location on the map
- In the top right corner under "Layers & Legend", you can select and turn on Census block group data scores (green representing highest location efficiency)
- Users can then select a block group by clicking on the map, which will show data and charts summarizing:
  - Low, average and high VMT levels
  - Greenhouse gas emissions
  - Access to transit
  - Low wage access
  - Mode split (drive alone, carpool, active, transit)
- An SLC User Guide and FAQ is available at the bottom of the screen
- Not just for new buildings – SLC can be used to search for leased space as well
- GSA would like to expand the SLC and possibly incorporate Transportation-based EUI, depending on resources, capabilities and other considerations

### **Smart Location Calculator – Committee Comments**

- The SLC is different from tools like Walk Score's Transit Score as it was built with a focus on procurement, and targets workplace rather than household locations
- As SLC already looks like a very useful tool, the TG & GSA should assess how much value would be added by incorporating Transit-based EUI into it
- Transportation systems distributed across multiple buildings or a campus should be taken into consideration when calculating EUI per building or occupant

## Overall Energy Use Index Task Group – Committee Comments

- The newly proposed EUI options do not necessarily need to be made additive
- The Federal government needs metrics that facilitate useful comparisons

The Committee voted unanimously to support the following motion:

- **Motion 3:** The EUI Task Group will continue its work in expanding and testing the energy use intensity concept to include occupant density and transportation energy.

## Progress Updates

### **Update on Social Cost of Carbon**

*Jed Ela, GSA Office of Federal High-Performance Green Buildings*

- GBAC proposal: "All federal building investment, design, construction, retrofit and location decisions should incorporate the social cost of carbon (SCC), including carbon from energy use and embedded in materials. The cost of carbon referenced should be the most current calculation as [updated by the US Office of Management and Budget](#)."
- [EO 13693](#) requires agencies to incorporate climate change reporting in five major procurements per year
- GSA's Public Buildings Service (PBS) has begun developing plans for how to incorporate SCC in pilot procurements of products and services, including:
  - Plan to require an emissions estimate at design concept phase for new construction or major renovation design-bid-build projects, including:
    - Job site energy use, collected from different mobile units
    - Building materials or types of materials used
    - Estimate of ultimate building energy use
  - Provide factors based on OMB estimates to derive SCC from information on energy use, materials use and supply chain, though some designers may use more sophisticated software to estimate SCC
  - Require an emissions estimate prior to source selection; design-builders would need to provide an estimate at time of their bid
  - Info needs to be of high enough quality to distinguish fairly among bidders
- GSA will assess pilot results to determine how to apply these approaches more broadly
- Focus will be on larger projects, per the 80-20 rule, and as GSA has found small business partners to lack the resources to produce this type of information

### **Social Cost of Carbon: Discussion**

- Request for more information on GSA SCC methodology; GSA will determine which info is procurement-sensitive and which can be shared
- GSA should contact several sources working on methodologies to estimate embodied carbon in buildings (e.g., Siegel & Strain Architects)
- Several Committee members offered to provide occasional input on SCC, though the Committee decided not to form an actual Task Group on the issue. Volunteers included Greg Kats, Victor Olgay, Bob Fox and Tim Unruh.

### **Update on Net Zero Energy (NZE) Buildings**

*Lance Davis, GSA Public Buildings Service (PBS)*

- Congress is considering [S.2012, the Energy Policy Modernization Act](#), which would eliminate the requirement in the Energy Independence and Security Act of 2007 (EISA) for new Federal buildings to achieve zero fossil fuel use by 2030
- However, Executive Order 13693 still has an NZE provision for new buildings by 2030, as well as a requirement for agencies to set goals for numbers of NZE existing buildings
- PBS's 2016 P-100 Facilities Standards feature more stringent provisions including achieving energy performance 30% greater than ASHRAE Standard 90.1-2013
- PBS has set a goal (though presently unfunded) of 25 NZE existing buildings by 2025
  - PBS received significant funding for courthouses this year and is looking for NZE opportunities

### **Discussion of the Committee's Overall Direction**

- The work of this Committee has coalesced in the past two years and GSA has been referencing its proposals more frequently in discussions within the administration
- Need to get the Committee work before more Federal leaders – e.g., GSA plans to present the Portfolio and EUI proposals to the Chief Sustainability Officers Council
- Part of the value of the Committee is to push GSA and the government to more aggressively pursue progress in green building, by pushing into areas of innovation that can be difficult for Feds to pursue alone
- The Committee should review its recommendations and track record to date, see what has or hasn't worked, and identify areas to encourage more follow up by the government
- The impending threat of climate change demands that the government increase the speed of its response, including through green building
- As the Committee's scope expands, GSA may need to commit more resources to it. DOE funding PNNL study on EUI is a great example of how to expand this pie
- The more Committee recommendations can be framed as better business decision-making, the greater the odds they will carry over to next administration
- GSA will set up a process to collect ideas for next round of Committee topics to pursue
- Committee should hold a conference call/Web meeting before the fall 2016 meeting
  - Topics to include GSA supply chain work, PNNL progress on EUI study, plans for Committee to identify and pursue new issues
  - (Note: now scheduled for July 27, 2016; more information in [Federal Register](#))

### **Public Comment Period**

*Vicki Worden, Green Building Initiative (GBI)*

- GBI, which sponsors Green Globes, advocates for an open and competitive marketplace with Federal policies that are neutral in regard to green building rating systems

### **Closing Comments**

Kevin thanked all members for their continued dedication and hard work, and expressed his interest in advocating for the work of the Committee to be carried over into the next administration.