GREEN BUILDING AND SUSTAINABLE DEVELOPMENT IN THE COMMERCIAL REAL ESTATE INDUSTRY

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Using the New ASTM BEPA Standard in the Property Transaction Market

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Introduction

A property transaction involves many players including a seller, a buyer, a lender, an attorney and a number of due diligence consulting service providers. Driven in part by regulatory requirements, the ASTM E2797-11 BEPA Standard is emerging as a useful tool for buyers, sellers, attorneys and lenders involved in commercial real estate transactions.

- Sellers and their attorneys are using the BEPA Standard in cities and states where they are required by law to disclose building energy performance to buyers, lenders and tenants.
- Prospective purchasers and their attorneys are incorporating the BEPA Standard into property condition assessments, and identifying poor energy performance as a deficiency that can become another negotiating point impacting a property's sale price.
- Lenders financing property acquisitions are becoming interested in a building's energy performance since it can impact the value of their collateral as well as the marketability and competitive position of the property in the marketplace.

Notwithstanding, disclosing the energy consumption of a building and benchmarking it against its relevant peer buildings from a national to local market level requires the collection of accurate and representative building energy use data. Unfortunately, this is a case where the devil is truly in the details.

Regulatory Background

Regulations requiring the collection, disclosure and performance labeling of buildings began when the European Union Energy Performance of Buildings Directive 2002/91/EC was adopted by the European Parliament on December 16, 2002 and became effective January 4, 2003.[1] The Directive required Member States to develop building energy performance disclosure laws to become effective no later than 2009.

In the U.S., Michigan became one of the first states to require energy performance assessment and benchmarking when in 2005 the governor issued an Executive Order applicable to state buildings.[2] In January 2007, the governor of Ohio followed with a similar Executive Order.[3] In October of that year, California passed AB 1103, the first law requiring the collection of energy use data at commercial buildings in the state. Moreover, at the time of a real estate transaction whether it be a building's sale, lease or financing,[4] California added a benchmarking and energy disclosure requirement

Benchmarking laws in one form or another have since been adopted in Denver, Colorado,[5] West Chester, Pennsylvania,[6] Washington, D.C.,[7] Washington,[8] Hawaii,[9] Austin, Texas,[10] New York City,[11] Seattle, Washington[12] and San Francisco, California.[13] States considering energy performance disclosure and labeling regulations include: Colorado, Illinois, Massachusetts, Maryland, Maine, Michigan, Minnesota, New Mexico, Ohio, Oregon, Tennessee and Vermont. Table 1 provides a comparison of select commercial building energy rating and disclosure policies.[14] Figure 1 maps the growth of cities and states across the country with existing and pending building rating and disclosure policies.[14]

It is evident from this growing body of legislative and regulatory activity at the local, state, national and international levels that building energy performance assessment is in the process of rapidly becoming an important new element in the management, acquisition and operation of commercial real estate.

California Implementation Example

AB 1103 in California was the first piece of legislation directed at disclosure of building energy performance information concurrent with a real estate transaction. The law required a commercial building owner or operator to disclose the building's Energy Star Portfolio Manager (ESPM) benchmarking rating for the most recent twelve (12) month period to a prospective buyer, lender and lessee. AB 1103 has become a model for many states and cities desiring to promote building energy efficiency. The law specifically requires:

- Electric and gas utilities to maintain records of energy consumption for all nonresidential buildings to which they provide service. The data must be maintained in a format compatible for uploading into ESPM, such upload completed upon receipt of written authorization from the building owner or operator.
- At least 30 days prior to required disclosure, the building owner must open an account with ESPM and identify the building, input building characteristics, and authorize utility companies servicing the building to release energy use data for each meter.
- At least 30 days prior to required disclosure, the building owner must open an account with the California Energy Commission (CEC) to supply ESPM building account information.
- Within 15 days of receiving authorization, the utility companies servicing the building must upload the building's energy use data into ESPM.
- The building owner must disclose the building's ESPM Statement of Energy Performance (containing the Energy Star Rating) and the CEC's Nonresidential Building Energy Performance Disclosure Report at the time a sales contract is presented to a prospective:
  - purchaser;
  - lessee;
  - lender.
- These requirements are phased in over time according to the following schedule:
  - buildings with a gross floor area of 50,000 sq. ft. or more must disclose on or after January 1, 2012, as do owner-occupied buildings greater than 1,000 square feet gross floor area;
  - buildings down to 10,000 sq. ft. must disclose on or after January 1, 2013
  - buildings down to 1,000 sq. ft. must disclose on or after July 1, 2013.

Other Marketplace Drivers

In addition to growing regulatory pressure, the commercial real estate industry is becoming increasingly concerned about how these trends may impact the value of real estate portfolios, given the nexus of energy consumption, net operating income and asset valuation.

For example, it is likely that less energy efficient buildings will become less competitive and likely require some form of rent discounting to attract and retain tenants, particularly since tenants are responsible for energy costs under triple-net leases.

In the past, prospective tenants would typically enter into a triple-net lease (where they generally paid an allocated share of utility costs based on the amount of floor space they occupy) on the erroneous assumption that such costs were essentially similar from building to building. Disclosure and benchmarking will significantly change that game with new negotiating power being placed in the hands of the tenant. This means poor building energy performance may well reduce the prospective tenant pool for any building with a poor rating. With tenants now looking for the "fully-loaded" occupancy cost that combines the base rent with operating expenses, of which energy cost is a major component, one can reasonably expect a building deemed to have relatively poor energy performance to be less valuable. This is one of the principal reasons why property owners, prospective purchasers of commercial real estate, and lenders who provide financing are becoming more concerned about a building's energy performance in their due diligence, and as such, are looking to quantify the building's energy performance.

The Problem

Unfortunately, until recently no consistent standardized methodology appropriate for the commercial real estate industry existed to collect building energy use data. While it may seem relatively straightforward to simply collect utility data, the devil is in the details. For example, prior to the adoption of the ASTM BEPA Standard, there was no standard time period over which building energy use data had to be collected. (Energy professionals have commonly used anywhere from one to three years). Also, there was no standard on how partial month data collected from a utility was "calendarized" or converted to a calendar month. (Some energy professionals simply used daily averaging while others utilized complicated factors such as weighing by heating or cooling degree days). If a building had undergone a major renovation, there was no standard on how this should be taken into consideration, if at all. There was not even a standard definition as to what constitutes a major renovation. There were no standards on how weather conditions should be analyzed and taken into consideration, how building operating hours should be factored in the analysis, or how building vacancy should be considered in the analysis. These and other issues had generated considerable marketplace confusion that called out for standardization.

The Solution

In view of this growing need to standardize the methodology for building energy use data collection and analysis, ASTM in February 2011 published its standard E2797-11 on Building Energy Performance Assessment (BEPA).[15] The Standard was developed over two years through a consensus process by a dedicated Task Group of more than 220 professionals, including engineers, architects, attorneys, real estate investors, owners, managers, bankers, energy equipment manufacturers, software providers, educators, government officials and professional associations. With so much at stake for the commercial real estate industry, the Task Group was determined to develop a practical methodology for data collection and analysis to be conducted in a technically sound, consistent, transparent, practical and reasonable manner.

What the BEPA Standard Does

The ASTM BEPA standard establishes a methodology for the collection, compilation and analysis of building energy use and cost data. Use of the methodology complements existing building rating systems and facilitates better benchmarking and building performance labeling initiatives.

The BEPA methodology standardizes a number of major variables such as:

- *the time frame over which data needs to be collected* [three years or back to the last "major renovation," with a minimum of one year]
- *the criteria that must be met for collecting reliable building energy use data* [see Table 2]
- *what constitutes a major renovation* [building renovation that either involves expansion (or reduction) of the building's gross floor area by 10% or more or impacts total building energy use by more than 10%]
- *how partial month data is calendarized* [by determining average daily usage during each partial month covered, and summing the daily average usage over the number of days in the calendar month]
- *what building energy metrics are to be used* [energy use in kBtu/yr and kBtu/SF- yr; energy cost in $/yr and $/SF-yr]
- *how building energy use is normalized* [by gross floor area in square feet and by using the independent variables that impact energy use such as heating degree days, cooling degree days, vacancy rate, building operating hours, etc.]
- *how independent variables impacting building energy use are to be treated* [a building energy use equation for the specific building is developed using ordinary least squares regression]
- w*hat weather data needs to be collected, over what time period and how it is to be statistically analyzed* [heating degree days and cooling degree days are collected for a minimum 10 year period, from the weather station nearest to the building with historical data available, and statistically analyzed to calculate the 25th percentile, mean and 75th percentile values]

- *what constitutes an appropriate range for building energy use* [upper and lower limit scenarios are determined based upon 25th percentile and 75th percentile values for the independent variables used in the building energy use and cost equation]
- *what the most representative values are for building energy use and cost* [the BEPA standard defines these as the pro forma building energy use and pro forma building energy cost]

The ASTM BEPA standard also includes an appendix that identifies for the major property types involved in commercial real estate transactions those building characteristics that may have a significant impact on a building's energy use.

How the BEPA Standard Supports Benchmarking and Building Labeling Initiatives

Unfortunately, today a publicly available, technically sound, statistically representative building energy performance database for use in benchmarking which has adequate coverage for all major building categories and subcategories associated with commercial real estate transactions is not yet available.[16] This is a serious shortcoming as it is a critical underpinning at the very heart of building energy performance benchmarking.

On the other hand, armed with the BEPA standard, commercial services are responding to this market challenge. Benchmarking databases are improving, but with so much at stake under disclosure regulations, they need to be carefully scrutinized. When evaluating the validity of a benchmarking system, it would be prudent to ask a number of questions such as those suggested in Table 3.

ASTM BEPA and the Property Transaction Marketplace

If the energy disclosure regulations require that ESPM be used, a question often asked is how the ASTM BEPA methodology fits in, how it can add value, and whether ESPM and BEPA conflict or complement each other. The answer is that while there are differences, the ASTM BEPA methodology can complement the Energy Star rating process. For example, data input into ESPM can be QA/QC'd using criteria in the ASTM BEPA standard (refer to Table 2). This will result in higher quality data uploaded to ESPM and, consequently, more reliable ESPM reporting. In short, the ASTM BEPA standard enhances, supports and complements ESPM.

Case Studies

Three property transaction cases are discussed. The first two describe property transactions in cities or states with existing building energy performance disclosure regulations requiring that data be loaded into, and benchmarked by, ESPM. The third case is applicable in cities or states not having yet initiated or completed building energy performance disclosure regulations. For each case, the position of the attorney representing the prospective purchaser (buyer), the attorney representing the seller, and the lender financing the deal will be reviewed. Attorneys and lenders associated with a property transaction play a key role in providing guidance to their clients and have specific responsibilities that intersect building energy use disclosure. Also, attorneys and lenders typically work closely with qualified professionals.

A. *Property Located in a City or State Where Building Energy Performance Disclosure Regulations Exist:*

Case 1: Property type is considered in ESPM (refer to Table 4) and meets Energy Star building characteristics criteria (refer to Table 5).

- Case 1A– Property is identified in ESPM as a good energy performer (top quartile or at least above the 50% level (or average) compared to buildings benchmarked against)
- Case 1B - Property is identified in ESPM as a poor energy performer (below the 50% level (or average) compared to buildings benchmarked against)

Case 2: Property type is not considered in ESPM or does not meet ESPM building characteristics criteria.

B. *Property Located in a City or State Where Building Energy Performance Disclosure Regulations Do Not Yet Exist:*

Case 3: Property is located in a city or state without building energy performance disclosure regulations.

Case 1A: Property Meets ESPM Criteria and is a "Good Performer"

If the property is determined to be a relatively good energy performer, preferably in the top quartile as compared to peer buildings, but at the very least better than the average, it is unlikely the seller will implement any further energy efficiency measures. As such, the information will happily be conveyed to the prospective purchaser, lender and prospective tenants. Notwithstanding, a prospective purchaser may still decide to conduct his or her own energy due diligence.

Attorney Representing the Seller

i. Advise on legal responsibility to disclose.

Attorney Representing the Prospective Purchaser

i. Advise on what the energy information being disclosed means.

Lender Financing the Deal

i. Review energy information disclosed and incorporate into property due diligence underwriting;

ii. If on-going building energy performance requirements exist (such as annual benchmarking), ensure that the buyer will comply with these requirements by including them in the loan documentation.

Case 1b: Property Meets ESPM Criteria, but is a "Poor Performer"

If a property is determined to be a relatively poor performer, defined as having less than the average performance compared to its peer group, one of two things is likely to occur. One, the seller may decide to provide this information "as is" to the prospective purchaser, lender and prospective tenants as required by law. In this case, a sophisticated buyer would likely consider the poor energy performance a deficiency and conduct a building energy performance assessment to determine an appropriate adjustment to the purchase price.

Alternatively, and prior to listing the property for sale, the seller may choose to evaluate the building's energy performance more thoroughly to determine the cost and benefits of improved performance. It is likely such an evaluation would include conducting an ASTM BEPA combined with an ASHRAE Level I or Level II energy audit, i.e., a BEPA Plus.

Attorney Representing the Seller

i. Advise on legal responsibility to disclose and the time schedule for disclosure;

ii. Verify (using a qualified professional) that building energy use data is complete, accurate and reliable (meets criteria established in the ASTM BEPA standard);

iii. Evaluate validity of the benchmarking process used (number of peer buildings, data currency, etc.);

iv. Seller may prefer to evaluate building energy performance using the ASTM BEPA Plus scope to meet industry best practice;

v. An energy audit may be appropriate to identify potential energy conservation measures that can be implemented prior to the sale;

vi. Seller is at price risk if building is viewed as a poor energy performer, i.e., poor energy performance may be viewed as a deficiency by the prospective purchaser and result in a lower price.

Attorney Representing the Prospective Purchaser

i. Advise the Prospective Purchaser on what the Seller is disclosing related to building energy performance, why it is being disclosed and what it means;

ii. Advise the Prospective Purchaser that as with everything disclosed by the Seller, it is always "Buyer Beware" because the Seller has a built-in bias and conflict of interest related to what is disclosed;

iii. Depending on the level of building energy performance disclosed by the Seller, the prospective purchaser may have an opportunity to reduce the price for a building viewed as a poor energy performer;

iv. As with other forms of property due diligence, it may make sense for the Prospective Purchaser to do his or her own due diligence – analogous to not accepting a Phase I Environmental Site Assessment (ESA) or Property Condition Assessment (PCA) provided by the Seller;

v. If the prospective purchaser decides to conduct building energy performance assessment due diligence, the prospective purchaser should follow ASTM E2797-11 BEPA methodology [by doing this, the prospective purchaser can only come out ahead - if the building is not energy efficient, the purchase price may be reduced accordingly - if the building is energy efficient, the prospective purchaser will know it is and may be able to use this as a competitive advantage with prospective tenants].

Lenders Financing the Transaction

i. Lender desires to loan on an energy efficient building recognizing that poor energy performance may translate into reduced collateral value and reduced competitiveness in the marketplace

ii. If the Seller does nothing about poor building energy performance, lender should consider asking the buyer to conduct a building energy performance assessment to determine steps that can be taken to improve the building's energy efficiency. The cost of such improvements can be factored into the deal similar to the way other property deficiencies are handled and may represent an additional loan opportunity for the lender.

Case 2: Property Does Not Meet ESPM Criteria

For a number of property types, such as multifamily, ESPM benchmarking is not available and the seller will have to rely on an alternative methodology. It is likely that the alternative methodology will include an ASTM BEPA combined with commercially available benchmarking data currently available from the private sector.

Attorney Representing the Seller

i. Advise on legal responsibility to disclose and the time schedule for disclosure;

ii. Use a qualified professional to collect building energy use data following methodology established in the ASTM BEPA standard;

iii. Utilize, if available, an alternative benchmarking process;

iv. If the building is a poor energy performer, Seller may want to do an ASTM BEPA Plus an ASHRAE Level I or II energy audit and improve performance;

v. If building is a good energy performer, this will be viewed as a positive;

vi. Seller is at price risk if building is viewed as a poor energy performer, i.e., poor energy performance may be viewed as a deficiency by the prospective purchaser and result in a lower price.

Attorney Representing the Prospective Purchaser

i. Advise the Prospective Purchaser on what the Seller is disclosing related to building energy performance, why it is being disclosed and what it means;

ii. Advise the Prospective Purchaser that as with everything disclosed by the Seller, it is always "Buyer Beware" because the Seller has a built-in bias and conflict of interest related to what is disclosed;

iii. Depending on the level of building energy performance information disclosed by the Seller, the prospective purchaser may have an opportunity to reduce the price for a building viewed as a poor energy performer;

iv. As with other forms of property due diligence, it may make sense for the Prospective Purchaser to do his or her own due diligence – analogous to not accepting a Phase I Environmental Site Assessment (ESA) or Property Condition Assessment (PCA) provided by the Seller;

v. If the prospective purchaser decides to conduct building energy performance assessment due diligence, the prospective purchaser should be advised to follow ASTM E2797-11 BEPA methodology [by doing this, the prospective purchaser can only come out ahead - if the building is not energy efficient, the purchase price may be reduced accordingly - if the building is energy efficient, the prospective purchaser will know it is and may be able to use this as a competitive advantage with prospective tenants].

Lenders Financing the Transaction

i. Lender desires to loan on an energy efficient building recognizing that poor energy performance may translate into reduced collateral value and reduced competitiveness in the marketplace

ii. If Seller does not address building energy performance, the lender should consider asking the buyer to conduct a building energy performance assessment to determine steps that can be taken to improve the building's energy efficiency. The cost of such improvements can be factored into the deal similar to the way other property deficiencies are handled and may represent an additional loan opportunity for the lender.

Case 3: No Disclosure and Labeling Regulations

When the property is located in a city or state without building energy performance disclosure and labeling regulations, it is likely that an ASTM BEPA combined with benchmarking data from available sources will be relied upon.

Attorney Representing the Seller

i. Use a qualified professional to collect building energy use data following methodology established in the ASTM BEPA standard;

ii. Utilize, if available, a benchmarking process;

iii. If building is a poor energy performer, Seller may want to do an ASTM BEPA Plus an ASHRAE Level I or II energy audit and improve performance;

iv. If building is a good energy performer, this will be viewed as a positive;

v. Seller is at price risk if building is viewed as a poor energy performer, i.e., poor energy performance may be viewed as a deficiency by the prospective purchaser and result in a lower price.

Attorney Representing the Prospective Purchaser

i. Advise the Prospective Purchaser that as with everything disclosed by the Seller, it is always "Buyer Beware" because the Seller has a built-in bias and conflict of interest related to what is disclosed;

ii. Depending on the level of building energy performance information disclosed by the Seller, the prospective purchaser may have opportunity to reduce price for a building viewed as a poor energy performer;

iii. As with other forms of property due diligence, it may make sense for the Prospective Purchaser to do his or her own due diligence – analogous to not accepting a Phase I Environmental Site Assessment (ESA) or Property Condition Assessment (PCA) provided by the Seller;

iv. If the prospective purchaser decides to conduct building energy performance due diligence, the prospective purchaser should be advised to follow ASTM E2797-11 BEPA methodology [by doing this, the prospective purchaser can only come out ahead - if the building is not energy efficient, the purchase price may be reduced accordingly - if the building is energy efficient, the prospective purchaser will know it is and may be able to use this as a competitive advantage with prospective tenants].

Lenders Financing the Transaction

i. Lender desires to loan on an energy efficient building recognizing that poor energy performance may translate into reduced collateral value and reduced competitiveness in the marketplace

ii. If Seller does not address building energy performance, the lender should consider asking the buyer to conduct a building energy performance assessment to determine steps that can be taken to improve the building's energy efficiency. The cost of such improvements can be factored into the deal similar to the way other property deficiencies are handled and may represent an additional loan opportunity for the lender.

Conclusion

There is no doubt that building energy performance assessment is in the process of rapidly becoming an important new consideration in the management, sale, acquisition and operation of commercial real estate.

ESPM is a reasonable starting point for evaluating building energy performance and is certainly raising awareness in the commercial real estate industry of the risks and opportunities related to a building's energy efficiency. Furthermore, it is likely that the use of ESPM by commercial property stakeholders will lead, more often than not, to expanded use of ASTM BEPA methodology – particularly in cases when an Energy Star rating is not available due to a building's size or type, or when a poor Energy Star rating motivates an owner to better understand the specific options available to improve the building's energy performance.

REFERENCES

(1) European Union Energy Performance of Buildings Directive 2002/91/EC, adopted by the European Parliament on December 16, 2002, effective January 4, 2003.

(2) State of Michigan, Executive Order 2005-4, April 2005.

(3) State of Ohio, Executive Order 2007-02, January 2007.

(4) California Assembly Bill (AB) 1103, October 2007, modified in October 2009 by AB 531, and again modified in 2010.

(5) Denver, Colorado Executive Order 123, October 2007.

(6) West Chester, Pennsylvania Borough Ordinance, March 2008.

(7) Clean and Affordable Energy Act of 2008, Washington, D.C., Law No. L17-0250, October 2008.

(8) Washington Bill SB 5854, May 2009.

(9) State of Hawaii, HB 1464, June 2009.

(10) Austin, Texas City Council Energy Conservation Audit and Disclosure Ordinance, Rule No. R161-09.35, September 2009.

(11) New York City Council Bill 476-A, December 2009.

(12) Seattle, Washington Building Energy Disclosure Council Bill (CB) 116731, January 2010.

(13) San Francisco, California, San Francisco Existing Commercial Buildings Energy Performance Ordinance, February 8, 2011.

(14) Reprinted with permission from the Institute for Market Transformation (IMT), Washington, D.C. (http://www.imt.org).

(15) ASTM Standard Practice E 2797-11, Building Energy Performance Assessment, published by ASTM, Conshohocken, PA, February 2011.

(16) Buonicore, A.J., The Formidable Challenge of Building Energy Performance Benchmarking, *Building Energy Performance News,* Critical Issues Series, Paper No. 10-001, April 5, 2010.

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Figure 1. Growth of U.S. Building Rating and Disclosure Policies[14] Click to view larger

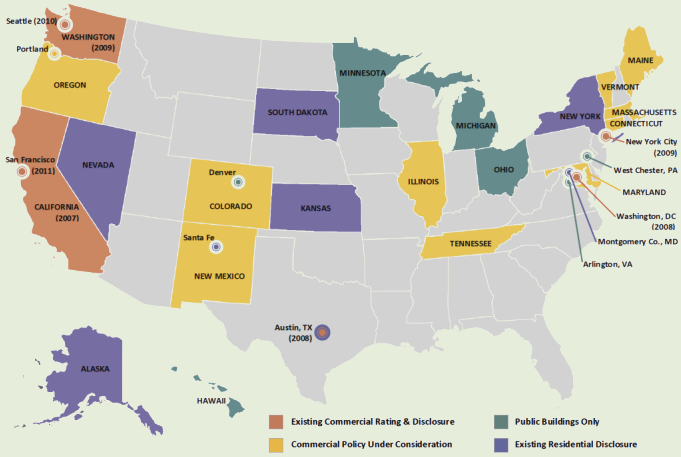

Table 1. Comparison of Select U.S. Commercial Building Energy Rating and Disclosure Policies[14] Click to view larger

	Legislation				Building Type & Size Threshold			Disclosure				Rating System		Additional Elements	
	Jurisdiction	Short name	Enacted	Effective	Gov't	Commercial	Multi family	Public Website	Gov't	Transaction	Tenants	Energy Star	Other	Utility Support	Audit/Improvement Requirement
Cities	Austin	Energy Conservation Audit & Disclosure (ECAD) Ordinance	Nov 2008	June 2011	✓	✓	Audits	-	✓	Buyers	-	✓	ACLARA	-	Audits & mandatory upgrades for multifamily buildings
Cities	District of Columbia	Clean and Affordable Energy Act of 2008	July 2008	2010 -2014	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	Energy Star Target Finder	-	-
Cities	New York City	LL No. 476-A	Dec 2009	2010 - 2013	10K SF+	50K SF+	50K SF+	✓	✓	-	-	✓	-	-	ASHRAE level II audits and RCx, public building audits
Cities	San Francisco	Existing Commercial Buildings Energy Performance Ord.	Feb 2011	2011 - 2013	10K SF+	10K SF+	-	✓	✓	†Buyers, Lessees, Lenders	✓	✓	-	†	ASHRAE level I or II audits every 5 years
Cities	Seattle	CB 116731	Jan 2010	2011 - 2013	10k SF+	10K SF+	5+ units	-	✓	†Buyers, Lessees, Lenders	✓	✓	-	✓	-
States	California	AB 1103	Oct 2007	2011 - 2012	†	1K SF+	-	-	✓	Buyers, Lessees, Lenders	-	✓	-	✓	Mandatory upgrades to be developed under AB 758
States	Washington State	Efficiency First SB 5854	May 2009	2011 - 2013	10K SF+	10K SF+	-	-	-	Buyers, Lessees, Lenders	-	✓	-	✓	Audits for public buildings with low ratings
Under Consideration	Colorado	SB 11-130	-	2012 - 2013	-	✓	-	-	-	Buyers, Lessees	-	✓	-	✓	-
Under Consideration	Connecticut	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Under Consideration	Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Under Consideration	Massachusetts	Building Energy Asset Labeling Program	-	-	10K SF+	10K SF+	10K SF+	TBD	-	-	-	TBD	Asset & Operational	-	ASHRAE level II audits and modeling
Under Consideration	New Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Under Consideration	Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Under Consideration	Portland, OR	High Performance Green Building Policy	-	2011 - 2013	-	20K SF+	20K SF+	-	✓	-	-	✓	-	-	Mandatory upgrades for blds w/ scores <30
Under Consideration	Tennessee	HB 96	-	2011	-	Audits	-	-	-	-	✓	-	TBD	-	Audit results displayed in building
Under Consideration	Vermont	H.57	-	2012	Audits	Audits	Audits	-	-	Buyers	-	-	TBD	-	Modeling proposed

† Required by previous action

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Table 2. ASTM E2797-11 QA/QC Criteria for Building Energy Use Data Collection and Analysis in ESPM

1. No "major renovation" (defined as involving expansion (or reduction) of the building's gross floor area by 10% or more, or as impacting total building energy use by more than 10%) should have occurred in the 12 month period over which the data was collected.
2. Proper calculation of building gross floor area.
3. Weather normalization based upon at least 10 years of heating degree day and cooling degree day data from the nearest weather station to the building having this historical data.
4. All non-weather independent variables (such as vacancy rate and building operating hours) collected each month in the 12 month period should be within 15% of the average monthly value determined by statistical analysis of three year's worth of data, assuming the data is available.
5. Space where a tenant has left but continues to pay the rent in accordance with the lease should be viewed as vacant space.
6. Partial month energy data should be "calendarized" by determining average daily usage during each partial month covered and summing the daily average usage over the number of days in the calendar month.
7. Confirmation of building data and characteristics by a qualified professional.

Table 3. Suggested Questions to Evaluate the Validity of a Benchmarking System

(1) How many "peer" buildings are in the benchmarking database?

(2) Is there a statistically supportable number of "peer" buildings that can establish a confidence level?

(3) How many of these "peer" buildings are located in the same geographic area?

(4) How current is the energy use and cost data collected for these buildings?

(5) If a single building energy use number, i.e., EUI, is used to evaluate what building label is appropriate, how truly representative is this single number? If there is statistical variability around this number, is this variability taken into consideration?

(6) What QA/QC has been performed to insure accurate data input?

(7) How similar are the design and characteristics of the "peer" buildings being benchmarked against?

(8) How transparent is the benchmarking database when a building is benchmarked and a label applied?

(9) Are the assumptions and limitations around the building label made clear?

Table 4. ESPM Building Types for Benchmarking

- Bank/Financial Institution
- Courthouse
- Data Center
- Hospital
- Hotel
- House of Worship
- K-12 School
- Medical Office
- Office
- Residence Hall/Dormitory
- Retail Store
- Senior Care Facility
- Supermarket
- Warehouse

Table 5. ESPM Sample Criteria for Building Types Commonly Encountered in Property Transactions (refer to Table 4.)

1. To classify a building in a category (refer to Table 4), more than 50% of the building's gross floor area (excluding parking lots and garages) must be defined in this category. The combined floor area of any space classified as "other" in the building (such as a restaurant, cafeteria, etc.) cannot exceed 10% of the total gross floor area of the building excluding parking.
2. The combined floor area of all enclosed and not enclosed parking structures cannot exceed the total gross floor area of the building (excluding parking).
3. All buildings must be at least 5,000 sq. ft. with the following exceptions:
   - if the building is a bank, it may be as small as 1,000 sq. ft.
   - data centers do not have a sq. ft. minimum
4. All buildings must be in operation at least 30 hours per week, but this does not apply to hotels.
5. Offices must have at least 50% average annual occupancy.
6. Hotels must have at least 55% average annual occupancy.
7. If the facility is a retail store, it must be a single store only and have an exterior entrance to the public.
8. If more than 50% of mixed use property is retail, the property is not eligible for benchmarking.
9. Entire mall buildings (enclosed or open) are not eligible for benchmarking.

BIOGRAPHY

Anthony J. Buonicore, P.E.

Anthony Buonicore is a past president and Fellow Member of the Air & Waste Management Association, a Diplomat in the American Academy of Environmental Engineers, a Qualified Environmental Professional and a licensed professional engineer. He is a member of the ASTM Property Environmental Due Diligence committee, former chairman of its ASTM Phase I Task Group, and currently chairs the ASTM Task Group that developed the U.S. standard for vapor intrusion screening for properties involved in real estate transactions. In addition, Mr. Buonicore is chairman of the ASTM Task Group responsible for developing the new Building Energy Performance Assessment and Disclosure Standard.

Mr. Buonicore has been a leader in the energy-environmental industry since the early 1970s, serving as General Chairman of the American Institute of Chemical Engineers' First National Conference on Energy and the Environment in 1973 and as founder and first chairman of the Air Pollution Control Association's Energy-Environmental Interactions Technical Committee in 1974. He pioneered the use of refuse-derived fuel pellets (a bio-fuel) mixed with coal in stoker-fired boilers and has written extensively on energy and environmental issues.

As a Managing Director of Buonicore Partners, LLC, Mr. Buonicore is responsible for management of the firm's commercial real estate holdings and all due diligence activities associated with property acquisition. He holds both a bachelor's and a master's degree in chemical engineering.