

Mandatory Disclosure of Commercial Building Energy Efficiency

**Public Consultation Comments Response
to
Commercial Building Energy Efficiency Team
Department of the Environment, Water, Heritage and the Arts**

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Public Consultation Comments Response on the Mandatory Disclosure of Commercial Building Energy Efficiency

Purpose

This document will formally comment and respond to the Consultation Regulation Impact Statement (CRIS) and the Consultation Regulation Document (CRD) on the Australian Government initiative through the National Framework for Energy Efficiency (NFE) to develop a nationally consistent, mandatory disclosure scheme for commercial office building energy efficiency.

The rationale for the government to provide incentive to industry through regulation to address energy efficiency and promote best practice is supported from a sustainability perspective. However, there are some issues to be considered when selecting and fine tuning the preferred option.

This response will comment on the following key aspects:

- The extent of the 'problem' in commercial building energy efficiency
- The adequacy of the options assessed in the CRIS in addressing the problem
- The availability of meaningful and comparable energy efficiency information in the commercial building sector
- The assessment of costs and benefits of options

Discussion of Key Aspects

The extent of the 'problem' in commercial building energy efficiency

Generally, the arguments made in the CRIS document regarding the lack of action from building owners, facility managers and tenants to improve energy efficiency appear to accurately reflect the current commercial building market. The two major barriers identified by the CRIS will be addressed separately.

Major Barrier 1: Lack of reliable energy efficiency information

The lack of reliable energy efficiency information represents the most significant hurdle facing the commercial building industry. The identified reluctance to provide such information is often because it is often difficult to obtain for existing buildings, not just because there is little incentive to do so.

Some of the older commercial building stock has been designed in a way that it is not easy to obtain accurate or meaningful information for energy efficiency assessments. This is perceived to be due to poor or no sub-metering to enable an understanding of where energy is being used. These buildings may have a single energy meter where tenants are charged for energy on the basis of the percentage of the building area they occupy. This issue is acknowledged in the CRD¹. There is no way to

¹ Refer to CRD, p21

accurately separate and audit the different energy uses within the building enabling the distinction between tenant use (beyond the control of the building owner) and base building services. Not only can this lead to 'unfair' billing to tenants, but it also makes it very difficult for facility managers to effectively identify and address operational problems with base building services such as HVAC.

A significant portion of potential energy savings lie with base building services, therefore improving maintenance at no additional costs or capital requirements as indicated in the CRIS² is not necessarily an accurate conclusion. While there may little impact on the costs for maintenance from facilities manager, equipping them with the information required to improve their systems may require the capital investment involved with retrofitting or upgrading an appropriate electrical sub-metering system. This will provide a challenge in particular to building owners and facility managers.

Major Barrier 2: Imperfect information and decision-making costs

There is a general unawareness of the significant of benefits achievable through addressing energy efficiency. Additionally, the current wide availability of cheap energy means the potential financial savings to building owners through capital investment for improvements often appear insignificant in comparison with other cost saving initiatives. Likewise, there is often more of focus on the physical appearance of a tenant fit out rather than optimum operational efficiencies. Visitors and staff will respond better to comfortable, more expensive chairs than more expensive, but more efficient lighting for instance. This attitude may change in the future with the introduction of a carbon trading scheme and the potential implication for energy price hikes.

There is also a natural reluctance to be the 'first' to install an unknown (if not necessarily new) technology and take the risk that their capital investment may not pay off. An example of regretted uptake of more efficient technology is the installation of waterless urinals in an effort to reduce water consumption which are now being replaced with water using systems. Overcoming this mindset may be confronting to building owners, and will pose a challenge to any of the proposed options gaining acceptance with industry.

The adequacy of the options assessed in the CRIS in addressing the problem

Comments for all Options

Rating Type

A general observation of all three options is that there is no specification of a particular rating type for building owners (i.e. there is a choice of either a whole building or base building NABERS Energy assessment). Without specifying one of these as the standard, it will be impossible for potential buyers or tenants to directly compare their options. Especially considering that a whole building rating includes the consumption of all tenants whereas a base building rating is only the central services. Therefore it is suggested that a base building rating be the chosen rating for any proposed system.

Consider the following hypothetical case study to justify why a single rating type should be used:

Mr. A is looking to purchase a building to expand his commercial property portfolio. He has narrowed it down to two options – Building 1 and Building 2. Being concerned about energy efficiency, Mr. A is hoping to use the NABERS energy rating of each building (which has been provided to him) to help him decide which one to buy. He knows that Building 1 has a base building NABERS Energy rating of 4 Stars, and Building 2 has a whole building NABERS Energy

² Refer to CRIS, p3

rating of 3.5 Stars. Because Building 1 has a higher star rating, Mr. A decides to purchase that building.

Unknown to Mr. A is Building 2 has a major tenant who has significantly higher than usual energy consumption, as well as more conventional tenants. This tenant operates many meeting rooms with supplementary air-conditioning running continuously, and has a lot of overseas business in Asia so operates extended hours of 8am to 8pm rather than 8am to 5pm. Building 2 has been unable to provide a base building rating because of inadequate sub-metering. If sub-metering was in place, Building 2 would achieve a base building rating of 4.5 Stars – half a star better than Building 1 which was selected. In this instance, Mr. A's choice is no better informed than if energy ratings were not disclosed.

Sub-Metering

Appropriate electrical sub-metering is going to be a potential issue for all options. Without the ability to exclude the energy consumed by tenants (both commercial office and retail spaces as often found in CBD locations) it is very difficult to assess the energy efficiency of the base building, building owners impact area.. Likewise, if the tenancy energy cannot be isolated by a meter or sub-meter, a Tenancy rating cannot be undertaken. These implications will not affect all buildings, however it would be expected that older building stock will may need to retrofit buildings accordingly. These issues are noted in the CRD in Section3, however here it is recommended that affected buildings be granted an exemption for leases when the leased period is less than 12 months. It still does not remove the implication for buildings owners to retrofit sub-metering equipment.

Area Threshold

Of the two considered size thresholds for mandatory disclosure, 2,000m² should be selected to cover as much of the market as possible. As the Energy Efficiency in Government Operations (EEGO) Policy³ has been using this for several years and been deemed appropriate for larger office buildings, a proposal to increase this to 5,000m² and exclude part of the market appears to be contradictory to the aim of this proposal – to improve the overall energy efficiency of national commercial building stock.

Option 1: Mandatory disclosure of NABERS energy efficiency ratings at the point of sale and lease

This option will be met with a measure of industry criticism, however as described in the CRIS will not impose compulsory building improvements if a building rating is poor. Rather, the reliance on market forces to provide incentives will be more readily accepted by those who prefer to run their business with a more wait-and-see, reactive approach. However as large building transactions do not occur all the time, consideration could be made of applying a minimum energy efficiency rating standard to be met by the new building owner within 12 or 24 months of purchase.

Mandatory Tenancy Ratings

The consideration for mandatory tenancy ratings will be subject to many arguments. It is important to recognise that the impacts of the tenant fit out design and business activities are significant when undertaking NABERS tenancy ratings. However, the combination of a base building and tenancy rating together with an inspection of the existing fit out design may provide any prospective tenant with a ballpark figure for the potential energy performance and cost. This may enable a reasonable comparison of accommodation options and an indication to the extent of modifications required to achieve company targets, but only if the new tenants fit out style and operation is similar to that leaving.

³ <http://www.environment.gov.au/settlements/government/eego/publications/eego.html> (accessed 29-01-2009)

NABERS Commitment Agreements

With regards to NABERS Commitment Agreements for new buildings, it should be noted that the existing Commitment Agreement system is design for both new buildings and refurbishments⁴. Therefore, any existing building which has undergone refurbishment will be required to undertake a commitment agreement with the associated modeling rather than a NABERS rating based on previous consumption. It is also important to note that the protocol used to model and predict energy consumption allows a number of assumptions which do not necessarily translate into actual building use. These assumptions are listed in Table 1 below. The danger lies in the risk that the building is not operated /used as assumed when the simulation was undertaken, especially in regards to the impacts of tenant designed fitouts. It should also be noted, that as with any modeling process, there is an unavoidable level of error. In its current form, commitment agreements where a rating of 4.5 Stars or above is targeted a Simulation Report must be included (which should state all assumptions and inputs including those in Table 1). It is recommended that should mandatory disclosure of a predicted rating be required, that a simulation report be provided for *all* predicted rating levels.

Table 1: Allowed Input Assumptions for NABERS Energy Simulations

Allowed Assumption	Area of Energy Consumption Influenced
Occupant Density	HVAC
Equipment Loads	HVAC
Tenancy lighting loads	HVAC, Lighting
Lifts	-
Domestic Hot Water Demand	Hot Water
Operational Profiles	HVAC, Lighting

Energy Efficiency Assessment Reports (EEAR)

The proposal to provide an EEAR utilizing a modified NABERS assessment tool⁵ is difficult to comment on without having some understanding of what the tool inputs and outputs will be. However, it is suspected that a simplified NABERS assessment tool will not be able to adequately assess the current condition of the building (such as HVAC plant, lighting installations, and building fabric) and recommend actions to improve energy efficiency. In order to effectively assess this, knowledge of how building systems operate and what can be easily addressed is required. While some NABERS Accredited Assessors have this skill set, it cannot be assumed that all do.

It is suggested that rather than a simplified EEAR tool, a comprehensive building condition report is prepared by an appropriate person to establish the state of repair and consequently the life span and performance of relevant systems is made available at time of sale or lease with the energy rating. While not a common practice in Australia, there are facility managers who offer this service and will produce the associated reports.

Option 2: Industry code of practice

It is believed that while this option will be met with the least industry backlash, as is it would also be the least effective in improving the energy efficiency of the commercial building market. As highlighted in the CRIS, there are already voluntary schemes in place that lead to improvements in energy efficiency, however there has only been limited participation.

⁴ <http://www.nabers.com.au/page.aspx?cid=628> (accessed 29-01-2009)

⁵ Refer CRIS, p24

Suggested Government support such as preferential treatment, publicly accessible list of rated buildings, and the ability for rated premises to differentiate themselves is already available. This is undertaken in a number of ways:

- The EEGO Policy whereby government tenancies give preference to buildings with an operational benchmarked equivalent to a 4 Star NABERS Energy rating⁶.
- The publishing of NABERS ratings on the NABERS website
- The permission to advertise a currently valid NABERS rating or participation in various schemes using official branding

This has not proven to be effective, as evident by the proposal for mandatory disclosure of commercial office building energy efficiency. Therefore, it is expected that this option would be ineffective in achieving improvements in energy efficiency.

Option 3: Mandatory minimum energy efficiency standards

This option can be expected to meet the most resistance from industry. While having the most immediate effect in improving energy efficiency standards, for many older buildings with aging HVAC equipment and lighting systems significant building refurbishment costs may be incurred in order to comply with minimum standards.

Imposing a minimum energy efficiency standard which is in some cases higher than that achieved through compliance with Part J of the Building Code of Australia (BCA) will mean that many new buildings designed to BCA Part J deemed-to-satisfy criteria will immediately fail the minimum energy efficiency standard of 3 Stars⁷. As a consequence, some new buildings will be required to immediately invest additional capital to improve the building. It is recommended that if a minimum efficiency standard is to be introduced based on the NABERS Energy system, the appropriate BCA Part J deemed-to-satisfy criteria is adjusted to avoid expensive redesign and refit work when a design fails to meet commitment agreement requirements.

The availability of meaningful and comparable energy efficiency information in the commercial building sector

There have been many studies in recent years into the potential to improve energy efficiency in commercial buildings. However, without properly understanding the efficiency of a building, it is almost impossible to judge if the building in question is good or bad, and what measures are appropriate to apply. As discussed above when addressing the extent of the 'problem', for many buildings it is difficult to appropriately break down the energy use within a building to identify areas of inefficiency.

The assessment of costs and benefits of options

The analysis undertaken of costs and benefits considers a survey result of industry costs to undertake NABERS Energy ratings. However, those buildings that are currently undergoing formal ratings have the infrastructure and processes in place to enable collection and processing of the appropriate information and the assessment does not appear to address the cost of retrofitting electrical sub-metering. As noted previously in this document, older building stock may be required to undertake

⁶ <http://www.environment.gov.au/settlements/government/eego/publications/eego.html> (accessed 29-01-2009)

⁷ Refer to CRIS, p27

such retrofits in order to accurately undertake base building and tenancy NABERS Energy assessments.

Likewise, there are the hidden time costs for facility managers and accounts departments in finding the information in the required formats which can be considerable in some cases, well exceeding the assumed 8 hrs of an assessors' time. These hidden costs are difficult to estimate and normalize, as they will vary significantly depending on the way the building is operated, the record keeping system, the design of the electrical services system in the building and the way the building is leased out. These costs do not appear to have been considered when undertaking cost-benefit analysis of the proposed options. However it is important to note that over time, as the industry shifts to accommodate the requirements and established internal systems for the proposed options, the recurring costs to maintain appropriate certificates and reports can be expected to decrease then plateau.

The costs used in the study have been considered and compared with the time and expenses involved based on experience as a consultant being involved in undertaking NABERS ratings and doing predictive computer modeling in the Queensland market. Comment cannot be regarding the costs of building upgrades due to lack of relevant experience in this area.

Table 2: Assessment of Costing Assumptions Used⁸

Item	Assumed Cost	Recommended Minimum Cost	Reasoning
NABERS Assessment Costs – Building Owners / Tenants	\$ 3,392 – Building Owners / Tenants \$3,100 - Tenants	\$ 10,000 – Building Owners / \$9,500 - Tenants	<ul style="list-style-type: none"> The time assumed to prepare materials is 8 hours. This is only practical if all relevant information is provided immediately upon request. This is very unlikely, as facility managers and accounts departments do not necessarily have the information on hand, nor understand immediately what is required. Also, 8 hours does not allow the time required to realistically undertake the required surveys and site inspections, collate all relevant materials, and prepare the submission accurately. A minimum of 24 hours is a more realistic time frame to collect all information to undertake a rating and process it accordingly. The cost assumed for 8 hours of consultants work is \$414, which equates to an hourly rate of \$51.75 including mark ups. Most consultants qualified as NABERS Assessors have a charge out rate of \$200 - \$250 per hour, which equates to \$1,600-\$2,000 for 8 hours work. If considering 24 hours as a more realistic minimum timeframe, this is a price range of \$4,800-\$6,000 before adding in the cost of processing the rating.
NABERS Energy Commitment Agreement Costs	\$35,000	\$35,000	<ul style="list-style-type: none"> This cost is a reasonable estimate of the cost to undertake predictive modeling of an average sized building for the purposes of a Commitment Agreement. It should be noted

⁸ Refer to CRIS, p36

Item	Assumed Cost	Recommended Minimum Cost	Reasoning
			though that the size, and complexity of the building services systems in the building may affect this price.

Recommendations

The following recommendations are based on the comments and discussion above.

- Pursue the preferred option, however investigate the implications of introducing a minimum standard energy efficiency rating to be achieved by the new building owner for existing facilities within a set time frame (e.g. 24 months – allowing time to make changes if needed, then collect 12 months of data). For new buildings, increasing the minimum rating over time should be considered, such as is occurring in the new residential market.
- Base building ratings be specified as the required rating type for mandatory disclosure.
- Consideration is made in a revised CBA for sub-metering installation costs, modeling and commitment agreement costs for retrofitted buildings, and potential hidden time costs when undertaking ratings.
- A survey of facility management organizations is undertaken to get an industry statistic of the percentage of existing buildings which have appropriate sub-metering already in place.

Contacts

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