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## REGULATION & IMPLEMENTATION OF DAs & SEPP 65

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### ESD and Amenity

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#### 1. Introduction

Why do Councils regulate development, and why do they do it by planning? It takes little to realise that the development approval process is actually supposed to be about protecting the continuing amenity of our physical environment. If we look at the introductory paragraphs of almost any Council's website entry, under its planning and development link, we find something like:

"We aim to protect and enhance the quality of the built environment.  
To meet this aim we will ensure:

- Areas of special character and of heritage significance are protected and enhanced.
- New development complements existing development and respects neighbouring amenity.
- New development meets the needs of existing and likely future residents.

This Division ensures environmental protection and the enhancement of the local area through the control of development, design and planning, whilst adhering to Local & State Government regulations and our own Policies and Codes."

On first glance, 'sustainability' isn't mentioned. Or is it? In reality, the third dot point, which has always been with us, is as good a jargon-free definition as we need. Sustainable development, and regulating for it, isn't new. Making sure future generations have the means to face their lives with no less than we do, has always been what planning was supposed to ensure.

Arguably, past planning approval practices have failed in this regard. But inexorably, the approval regime has got a lot tougher. Present trends take as their beginning the first UN Earth Summit, in Rio de Janeiro in 1992. That meeting famously adopted the broad principle of sustainable development, earlier proposed in the 1987 *Brundtland* Report, also known as 'Our Common Future':

**"Development that meets the needs of the present without compromising the ability of future generations to meet their own need".**

A more expansive UN position demands "... we seek ways of living, working and being that enable all people of the world to lead healthy, fulfilling, and economically secure lives without destroying the environment and without endangering the future welfare of people and the planet". So it's immediately obvious that planning regulations have to deal with sustainability on a broad front, and inevitably over time, they will do so more and more.

#### 2.0 SEPPs and sustainability ratings

A Nationwide House Energy Rating Scheme was promoted and developed with Federal funding from 1993, in perhaps a belated response to the 1970's energy crisis. It took till 1998 for the NSW *Sustainable Energy Development Authority* (SEDA) to adopt an **Energy Smart Homes Policy**, and six or seven years thereafter to

coopted approximately 70% of NSW Councils to require NatHERS Ratings, addressing heating and cooling energy use in dwellings. But in the meantime, many Councils implemented wider ranging Sustainable Development DCPs, taking the policy much closer to where it was intended.

The real impetus became visible as the State government began to step in, originally with a tentative similar policy for commercial building types, then with much firmer SEPPs aimed at the residential sector. First came the 'Amenity' and 'Resource, energy and water efficiency' provisions of SEPP65, and in 2004 SEPP BASIX, a multi-index rating tool that for the moment deals only with energy efficiency and water conservation.

In a NEERG Seminar exactly five years ago in 2005, when asked to speak about exactly the same topics, I was rash enough to predict that the narrow scope of BASIX could be expected to widen, when the State Government authorities could figure out how to measure some of the other sustainability variables. Similarly rash, I pointed for a clue to what those variables of sustainability, able to be regulated by planning, might be, to the next rating tool to be 'commercialised' – by what had by then become the Department of Energy, Utilities and Sustainability (DEUS).

That tool, or scheme, is NABERS, the National Australian Built Environment Rating System. It is not intended to be a replacement for other ratings systems that focus on the design stage of projects. Rather, NABERS rates a building on the basis of its measured operational impacts, and the intention is that NABERS can be used in a mutually supportive way with other rating systems currently in the market. NABERS is a performance-based rating system for existing buildings. NABERS rates a building on the basis of its measured operational impacts on the environment, and provides a simple indication of how well you are managing these environmental impacts compared with your peers and neighbours. NABERS now incorporates the Australian Building Greenhouse Rating (ABGR), which has been re-named **NABERS Energy for offices**.

NABERS sets out to measure:

- Energy use and greenhouse emissions
- Water use
- Stormwater runoff
- Stormwater pollution
- Sewage outfall volume
- Transport
- Landscape diversity
- Toxic materials
- Waste
- Indoor air quality
- Occupant satisfaction

It is safe to say NABERS is definitely in the market place, becoming increasingly influential with respect to various building types, most especially commercial office buildings, as an alternative to the property industry's own GreenStar rating schemes.

Unfortunately, the NABERS tool for residential construction has not yet reached a similar status. The NABERS HOME Rating does not currently apply to apartments, or other dwellings where services (such as pools, gyms, underground car parks) are shared or utilities are not separately metered. There are plans to include these housing types in the future. And even in its current limited mode, the NABERS HOME Rating rates the energy and water use of Australian homes from 0 to 5 stars, with 2.5 stars reflecting average performance, and 5 stars representing an outstanding home – confusingly, because AccuRate energy ratings required under the BCA have long moved to a 10-Star scale. Finally, as the NABERS web site states: "In-home energy and water audit professionals and ratings themselves are not presently accredited through NABERS. Accreditation is currently offered through the NABERS program for commercial buildings only." In other words, the potentially wider scope

of sustainability assessment, to which NABERS aspires, is definitely not yet part of mandatory compliance regimes for dwellings in NSW.

### 3.0 BASIX

To return to regulation and compliance: anyone at a NEERG Seminar would be familiar with the fact that under the New South Wales planning regime, SEPP BASIX requires an online certificate to be issued for any residential development approval. Most participants would also be familiar with the general scope of compliance required under BASIX. But it is worth emphasising both the application and limitations of that assessment.

BASIX exclusively regulates minimum requirements for savings in the use of potable water, overall energy performance, and likely thermal comfort in as far as it is affected by building design and building fabric choices:

- In these three areas, *BASIX explicitly proscribes the application of any other controls*, including other SEPPs, LEPs or a DCPs. This is a fairly important aspect of the SEPP, which still seems to escape the notice of many parties, and has both advantages and disadvantages for both applicants and approval authorities.
- On the other hand, as previously mentioned, the scope of BASIX does *not* extend into other important areas of sustainability. Some, such as the *management of construction waste, pollution, or disaster management*, are regulated, but remain the province of a variety (indeed a plethora) of other controls. *Embodied energy, indoor air quality*, and the *choice of materials* (on various criteria of sustainable extraction, manufacture and management) at present do not fall under mandatory regulation for residential construction.

BASIX assessments have been required for all dwelling types, since alterations and additions were included some years ago. In July 2007, the construction cost threshold for alterations and additions was revised to \$50,000, which effectively means that very little new residential construction escapes its provisions.

#### 3.1 2nd generation Thermal Simulation Software Impacts

The greatest recent impact within BASIX has been the upgrade to the **Thermal Comfort Index**. The BASIX Thermal Comfort Index has now incorporated '2nd generation' thermal simulation tools such as AccuRate and BERS Pro. The AccuRate software was in use by some assessors as part of a year-long trial, after which the upgrade has been more generally rolled out. There has been some impact from the removal of NatHERS, and the former versions of BERS and First Rate from the Simulation method. As the Department stated on the BASIX website:

*It is expected that dwellings that may pass the current NatHERS stringency may not pass the final AccuRate stringency and vice versa as the superior thermal modelling in 2nd generation tools may place different weightings on the design elements of individual dwellings.*

Of particular interest is that AccuRate makes considerably more allowance for the effect of natural ventilation in extending thermal comfort conditions during warm weather. As a matter of practical procedure, the adoption of AccuRate means that the somewhat complicated definitions for characterising cross ventilation formerly spelt out in the BASIX protocols have disappeared. This is a good thing, in as much as they had also been inappropriately referenced by some Council officers as prescriptive definitions applied to SEPP65 cross ventilation compliance.

Some practitioners will also be familiar with the so-called **DIY method** of thermal comfort evaluation typically used for smaller single dwellings, or of may have used the formerly optional **Rapid** method. Rapid was made available prior to the introduction of DIY and is now considered to be superseded by DIY, as DIY has improved orientation sensitivity and more flexibility, yet is relatively quick to complete. As part of the upgrade to the thermal comfort index, DIY has had some improvements to the shading options, and more windows are available. However, the scoring in DIY does not appear to have been better aligned with the Simulation method, as the

necessary analysis and peer review appears to have fallen victim to a lack of resources in the relevant NSW government department.

Nevertheless, it seems that the Department remains committed to the availability of the DIY method. This seems not only a matter of cost and convenience for some applicants, but also to preserve the opportunity to treat favourably some kinds of dwelling designs that might be unreasonably excluded, were BASIX to rely exclusively on the simulation method. While the DIY method is really only of any use to the designer of a relatively simple individual dwelling, its application has arguably come into much sharper focus in the context of the more recent general changes in the New South Wales planning regime, when applied to complying development.

### 3.2 What of other trends in achieving compliance under BASIX?

Given that **thermal comfort** has to achieve a pass before the online BASIX calculator allows one to proceed to an overall energy point score, it has been interesting to observe the outcomes of the *simulated heating and cooling energy loads*. It is now well-known that few large individual dwellings will have difficulty passing the thermal comfort index under AccuRate. This is a function of the way that heating and cooling energy loads are normalised for dwelling area, and is considered by many to be defeating policy aims relating to energy conservation. Recent discussion of the fallout from the Federal Government's insulation stimulus package has underscored this issue. The Department's own 05-08 Building Sustainability Index Single Dwelling Outcomes report (now curiously unavailable on its web site) implicitly concedes that individual household energy use has continued to grow. This is in spite of the fact that under BASIX one should not escape so lightly, because ultimately the dwelling area is taken into account in calculating the complying total energy performance.

It is perhaps too early to report on recent changes to the BCA, requiring increased stringency in the building fabric performance of dwellings, and colloquially referred to as a move to so-called '6-Star' ratings. In the NSW context this is doubly complicated, as BASIX remains the relevant NSW variation of the BCA. On the one hand, BASIX does not return Star ratings, but MJ/m<sup>2</sup> energy loads, and treats the heating and cooling loads as independent 'caps' for compliance. On the other hand, relying on the same Outcomes report, it would seem that to date under BASIX NSW individual dwellings have *on average* complied with the equivalent of approximately 4.8 star performance. I suggest this might be a predictor of considerable difficulty for some dwellings to achieve the much higher new BCA standards, when BASIX energy caps are eventually, and inevitably revised.

Relating specifically to apartments, an observable trend has been the vital role of **internal thermal mass**. This impacts markedly on the choice of materials for ceilings and internal partitions. Where designs incorporate false ceilings throughout living areas, the effect is to 'decouple' what would otherwise be a thermally massive concrete ceiling slab. If in addition internal partitions substitute framed and sheeted construction for the more traditional rendered blockwork, some apartments may be struggling to achieve thermal comfort compliance.

Because of the relatively high glazing areas of Sydney apartments, adding wall insulation often has little effect on the ratings, and assessors are rather quick to advise **glazing substitutions**. Again, this may be a good thing, in as much as it encourages the local glass industry to make available specialised glazing systems at more affordable prices. Much more generally, it reflects the continuing poor understanding of the adverse effect of overglazing on the likely thermal performance of dwellings. I have also noted that some developers show little, if any inhibition in accepting quite arbitrary glazing substitution, simply to obtain the BASIX certificate for planning approval. Especially where developments are then on-sold, there appears to be a growing expectation that the eventual builder and certifier will be able to delete most such expensive specialised glazing systems from the building as constructed. Beyond becoming aware of the phenomenon, I am unable to report whether appropriate redesign is taking place before construction certificate stage, or whether Council officers should be concerned about the role of certifiers in ensuring that BASIX undertakings are actually delivered.

### 2.3 On-site generation of power.

To achieve *overall energy compliance for a multiunit development*, it is now apparent that a fairly standard set of provisions must be considered. These include efficiencies in common area lighting, parking ventilation, and the



choice of mechanical equipment generally. More radical initiatives include potential substitution of **photovoltaics** or **cogeneration** for part of the projected electrical load.

Notwithstanding the obvious impact of gross feed-in tariffs and a favourable rebate scheme on uptake of PV for individual dwellings, PV panels are still fairly rare on apartment blocks. Experience to date has been that cogeneration is helpful when nothing else seems to work to reduce the energy score, but is limited by the ability to make sensible use of the heat component. As esoteric solutions – such as using absorption chillers for central air-conditioning – are unlikely in most situations, the practical determinant appears to be whether there is a heated swimming pool in the development. It has also come to my attention that the consideration of cogeneration has been limited by the available gas supply. In brief, while cogeneration equipment is becoming more readily available in a greater range of capacities, it remains an option mainly for large developments.

### 3.4 Grey water and black water.

Theoretically, on-site treatment of waste water would contribute significantly to any potential water score in BASIX. The cost of duplicate reticulation is relatively small. Again notwithstanding the commercialisation of a number of , risk factors remain with the future operation of any small treatment systems owned by the body corporate. At the moment, it would appear that reliability of operation and minimising public health risk are both best achieved at the district scale, rather than the scale of individual apartment buildings.

Taken overall, BASIX is rapidly becoming accepted as a notable achievement in planning regulations, both in Australia and internationally. It is clear that in its nature as a broad approach to sustainability assessment it will most likely be adopted eventually as the preferred framework in most Australian jurisdictions. In the local context of a poor response by the New South Wales government to climate change, BASIX is touted as its most effective and enduring initiative. If only for those reasons, everyone involved in residential development in New South Wales can safely assume that BASIX will certainly not be weakened, and that when eventually proper resources are dedicated to the Department of Planning Sustainability Unit, the scope of the SEPP will inevitably be extended.

## 4.0 Beyond BASIX

The Australian Green Building Council has expanded its range of voluntary rating tools to include GreenStar Residential. So far, this multi-factor scoring system has found little application in the face of the rigorous, if narrower mandatory compliance requirements – except typically as a reference by individuals trying to argue exemplary commitment to sustainability initiatives.

Though one should not dismiss altruistic motives, this would typically be in the expectation that Council will apply its DCP in the discretionary manner for which DCPs are proper only intended. Typically, an applicant may wish for an exercise of some latitude in the application of control relating perhaps to a heritage item, or to the overall development potential of the site expressed through height controls or FSR.

So far, it has been difficult to draw any systematic conclusions as to the likely success of such initiatives. In the one case where I was personally involved in the Court's determination of such an application, the applicant's consultants attempted to establish by relatively sophisticated analysis the benefits of trade-offs between very substantial investment in on-site renewable and alternative energy generation, and other factors such as embodied energy. In that particular case (*Lane Cove Council ats Fite and Lowes, LEC 10881 of 2007*), the Court found no basis to give additional weight to such an approach.

On the other hand, both councils and applicants should pay close attention to the stated commitment of the Land and Environment Court of New South Wales to provide leadership in relation to sustainability issues. The current Chief Judge of the Court has gone out of his way to give prominence to determinations which apply the core precautionary principle, and has taken several opportunities outside the Court to exhaustively explain the legal basis for such a commitment. Though hardly easy-going for those of us who are not lawyers, I would strongly recommend reading of *Leadership by the Courts in Achieving Sustainability*, a paper delivered by Justice Brian J

Preston at the Resource Management Law Association of New Zealand Conference "Capital Leadership - In the National Interest?" 1-3 October 2009 Wellington, New Zealand, and available on the Court's website at [http://www.lawlink.nsw.gov.au/lawlink/lec/ll\\_lec.nsf/vwFiles/Paper\\_1Oct09\\_PrestonCJ\\_Sustainability.pdf/\\$file/Paper\\_1Oct09\\_PrestonCJ\\_Sustainability.pdf](http://www.lawlink.nsw.gov.au/lawlink/lec/ll_lec.nsf/vwFiles/Paper_1Oct09_PrestonCJ_Sustainability.pdf/$file/Paper_1Oct09_PrestonCJ_Sustainability.pdf)

Finally, I would like to place the likely regulation of sustainability in the residential sector, into some wider context and timeframe. This is necessarily speculative.

Given the potential gravity of resource impacts and climate change, Australian initiatives in regulating the greater sustainability of building, and residential development in particular, have been excruciatingly slow. The explanations for this are complex. They have a great deal to do with successful resistance by the development lobby, as well as pragmatic – some would say cynical – political leadership, with all change being characterised as too fast for adoption by industry, and too often misrepresented as economically damaging.

Notwithstanding some historically world leading initiatives in this area, Australia has now fallen far behind Europe, and arguably even much of the United States. Where we are debating the achievability of an incremental improvement in energy efficiency, Britain has committed to achieving zero net energy consumption for new homes by 2016, and despite widespread doubt and criticism, has implemented the first two yearly steps in increasing stringency of regulations towards that end.

*The speed with which extremely stringent regulations are being successfully adopted overseas will place an inevitable pressure for accelerating the adoption of similar measures in Australia.* To ease our concern about economic impacts, it may be worth pointing out the outlook of the European building industry: the necessary retrofitting of the majority of the existing housing stock – to satisfy the mandated energy efficiency upgrades on change of ownership or tenancy – is recognised to significantly stimulate spending in the building sector into the foreseeable future.

In my view, the much more serious implication of probable acceleration of uptake in mandated sustainability measures, is the lag in knowledge and skills amongst the relevant professionals in the first place, and the corresponding lack of appropriate skills in the building industry itself.