

UK, USA, Australia The Infrastructure Report Cards



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What do they mean and are they effective?
How do they compare, in quality of infrastructure,
in reporting style and information, in credibility?

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the major grades, with examples of innovative additions

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Reporting on the Report Cards

The Institution of Civil Engineers in the UK produces “the State of the Nation” on an annual basis, assessing the state of the UK’s infrastructure. The American Society of Civil Engineers has produced a series of such assessments, the latest being 2003. The Institution of Engineers, Australia produced its first report in 1998, one in 2000, and another in 2001. In Australia, as in the USA, report cards are also produced for individual states.

What are the results?

The latest report grades are produced in this SAM issue for all three countries. The UK reports on 7 infrastructure groups (and 2 aggregates) which range from a D to a B- , the USA study on 12 groups, which range from a D- to a C+ and the Australian study on 13 Groups, from a D- to a B.

What do they mean?

In most cases, it is very hard to tell because no detailed methodology is provided and the criteria by which infrastructure is classed as an A+ or a D- is not set out in the reports.

The exception is the Australian Report Card which does provide the criteria although not the detailed method by which the assessments are carried out. The Australian Report Card is also different in the use of “Alliance” partners to produce the information reported and in the detail provided.

To get behind the kindergarten scores of C+ or D- to see what is causing the problem—and therefore to consider solutions—is not readily possible in either the UK or the USA reports. The ‘full reports’ of both of these studies are at a maximum 13 pp. However the Australian report is a healthy 120pp and contains a wealth of interesting detail worth reading.

Are they effective?

Difficult to say. Like a battleship, infrastructure condition is slow to turn around. The UK reports at least two areas that are starting to improve, but the USA report is uniformly negative.

Tom Pinzone, reporting for GHD on the Australian Report Card, takes a somewhat pessimistic attitude.

“As you can see, the grades are generally mediocre with a couple of Bs, but mainly Cs and Ds. A pretty poor result over all. But who really cares? Not many of the general public, certainly not the media. Most owners and operators do, and if they can avoid the politics, I think some Governments actually do care. The challenge is to motivate Australia to improve its grades, to do better.

The Report Card aims to bring home the message that infrastructure is critical to every Australian and shouldn’t be neglected. It seeks to:

- Be a point of reference;
- Be seen as a credible, independent assessment;
- Raise awareness and generate debate on the level of infrastructure provision, and
- Recommend actions to be implemented which lead to best practice.

The purpose for each report card is given in the following pages. I leave it to the reader to assess the level of effectiveness.

UK—The State of the Nation, 2003

an assessment of the state of the UK's infrastructure

Produced by the Institution of Civil Engineers and prepared by its members. Summary (8pp) and full report (13pp) available on line and further information available via email to the Institution.

Stated purpose: 'The State of the Nation report is compiled each year by a panel of ICE experts to stimulate debate and to highlight the actions that we believe need to be taken to improve the state of the nation's infrastructure.'

Grading The grading is *an assessment of the performance over the previous 12 months*. The overall grade is an average of all grades.

Each category is also given a grade for "sustainability", a measure of how well we are meeting the needs of today without compromising those of tomorrow.

The change arrow shows whether the situation is improving, staying the same or getting worse – in comparison to the grades given in 2002.

The grades can be interpreted as follows: **A = Good; B = Fair; C= Average; D= Poor; E= Bad.**

Criteria for Grading – not presented

Style of report. Brief, restrained, with equal emphasis on improvements and on problem areas, all from the perspective of service delivery and a focus on management solutions that the ICE would like the Government to encourage. Money hardly gets a mention! No reference to total investment requirements.

State of the Nation, 2003			
	Grade– Assessment over previous 12 months	Is the situation getting worse ↓? Staying the same → or getting better ↑?	Sustainability—How well we are meeting today's needs without compromising tomorrow's
Water & Flood Management	B-	New category	B-
Water & Wastewater	B+	↑	B
Flood Management	C+	↑	C+
Energy	D+	↓	C-
Integrated Transport	D+	New category	D
Rail	D	↓	D
Roads	D	→	D
Waste	D	→	C
Urban Regeneration and Design	D	↓	c
Overall	D+	↓	C

To access a clickable list of all web references in this issue
simply enter 'SAM123' in the keyword search on the
Resource page of www.amqi.com

Worth noting

- Brief, useful summaries of key infrastructure issues with an emphasis on management rather than funding solutions
- Moderate language and a positive tone—decision-makers are not being bludgeoned!

Example: Water and Wastewater B+ and rising

“For the tenth year in succession drinking water quality in England and Wales has improved, rising to 99% compliance. All water companies made satisfactory progress on improvements to treatment processes. Over 200 new or enhanced water treatment works were completed in 2001/02. The mains renovation programme, primarily to renovate iron mains that cause water discoloration is progressing with, on average, 4000 km being renovated each year and a planned completion date of 2010.

On the supply front, one third of the water companies report deficits, but not at a critical level. However, the Sustainable Communities Plan is likely to cause resource pressures in the South East. It is symptomatic of a lack of joined-up Government thinking that proposals to build an extra 200,000 houses not only failed to take account of water requirements, but also the time it takes to develop new sources of supply.

What we want to see happen

- Water companies are currently being bought and sold by banks for cash flow reasons, rather than a strategic desire to be utility companies. Government has to reconsider structural rationalisation of the sector.
- Infrastructure condition and performance in Scotland and Northern Ireland should continue to be brought to the same standards and efficiencies as in England and Wales. Plans for self-funding for water service provision in Northern Ireland should continue to be progressed as a priority.
- Not all water companies understand enough about the state of their assets. Only 265km of sewers in England and Wales out of a total length of over 300,000 km were rehabilitated in 2001/02. This is not enough.”

Example: Energy D+ and falling

“This country has been largely self sufficient in electricity generation for the past 100 years. This is about to change dramatically. Currently our generation mix for electricity is approximately 32% coal, 23% nuclear, 38% gas, 4% oil and 3% others and renewables. Coal will disappear shortly after 2016 due to emission constraints and only one nuclear station will continue beyond 2020. The generation shortfall (80% of current capacity) will be taken up by gas, 90% of which will be delivered to this country through a very small number of pipelines, initially from Norway, but later from West Africa, the Middle East and former Soviet Republics. If future gas supplies were interrupted, this country would have major difficulty in keeping the lights on.

Read this for a masterful example of British understatement

What we want to see happen

- To secure the UK's supply we want to see fuel diversity with all options being considered.
- The debate centres on electricity generation and supply but this accounts for only 20% of energy usage. We want to see the other 80% (equally divided between transport energy and gas/oil heating) receiving much more attention.
- Civil Engineers can help to make coal, gas and oil-fired stations more acceptable but the public must accept that nuclear power will have to be a part of a truly sustainable solution. The nuclear option must be kept open and the public's concerns over waste and safety addressed.
- Infrastructure investment is required to transport electricity generated in the renewable-energy rich north and west to the centres of use in the south. ”

USA - Report Card for America's Infrastructure - 2003 Progress Report

Produced by the American Society of Civil Engineers and prepared by its members with an advisory panel of academics and consultants

Availability Summary (1pp) and Full Progress Report (7pp) are available on line, as are expansions for each of the infrastructure groups (about 24 pp in all) I was not able to find a reference for further information.

Stated purpose: 'In our role as stewards of the infrastructure, the American Society of Civil Engineers developed its first Report Card for America's Infrastructure in 1998. At the time, we were prompted by the ten-year anniversary of an infrastructure report card released in 1988 by the National Council on Public Works Improvements. That council was a special presidential commission appointed to evaluate the state of the infrastructure and to recommend needed improvements.' From press conference at the time of the release of the 2003 progress report.

Style of Report: Predominantly one of concern for falling standards and an inability to keep pace with growth. No reference to improvements anywhere. Recommendations focused on funding issues. No recommendations for management actions.

Findings (see chart opposite)

Explanation of Grading:

"Each category was evaluated on the basis of condition and performance, capacity vs. need, and funding vs. need. Assessments do not include security enhancements as no authoritative data is available." No criteria is readily available to say what scores an A or a D.

Example: Water

While drinking water quality remains good, the infrastructure of the nation's 54,000 drinking water systems is aging rapidly. Federal funding remains flat, while the infrastructure needs continue to increase. There is an annual shortfall of \$11 billion needed to replace or rehabilitate facilities that are nearing the end of their useful life and to comply with federal water regulations.

The forecast for our nation's drinking water systems indicates a downward slope. Drinking water received a D on the 2001 Report Card, yet the situation continues to worsen as aging systems - some developed more than a century ago - continue to service our ever-growing population.

FEDERAL ACTION NEEDED: Reauthorization of the Safe Drinking Water Act at \$25 billion over a five-year period would go a long way toward improving our nation's water infrastructure.

2003 Progress Report		
	2001 Grade	2003 Trends
Roads	D+	↓
Bridges	C	→
Transit	C-	↓
Aviation	D	→
Schools	D-	→
Drinking Water	D	↓
Waste Water	D	↓
Dams	D	↓
Solid Waste	C+	→
Hazardous Waste	D+	→
Navigable Waterways	D+	↓
Energy	D+	↓
Total Investment Needs \$1.6 Trillion (over the next 5 years) Overall Grade D+		

Worth noting

- For each of the twelve infrastructure groups there is an online expansion of about two pages, including all of the references used to come to the conclusions (*unfortunately not footnoted so that it is a matter of reading all of them!*)
- The references are mostly documented government reports
- The focus of all of the recommendations is funding and there are numerous different funding methods suggested
- Compare the style of reporting with that of the UK report
-

Example: Energy D+ and falling

Over the last two decades, transmission investment has decreased by \$115 million a year, dropping from \$5 billion annually in 1975 to \$2 billion in 2000. The electric transmission line grid capacity has not been upgraded to meet growth demands.

In August 2003, millions of Americans and Canadians were left without electricity. Two years after the nation's energy infrastructure received a D+, the nation experienced an electrical system failure that not only left tens of millions in the dark, but also brought other infrastructure areas to a halt. Transit in New York City was stopped in its tracks leaving millions stranded and access to drinking water in Cleveland was interrupted.

Since 1990, actual capacity has increased by only about 7,000 megawatts (MW) per year, an annual shortfall of 30%. More than 10,000 MW of capacity will have to be added each year until 2008 to keep up with the 1.8% annual growth in demand. The U.S. energy transmission infrastructure relies on older technology, raising questions of long-term reliability.

Proposals to build more generators and adding transmission lines are often met with serious obstacles, including voter opposition. The Department of Energy estimates that consumers will pay up to \$50 billion in higher electric bills to modernize the U.S. power grid. Still, government has been slow to adopt regulations to improve transmission capacity.

FEDERAL ACTION NEEDED: Investments in the transmission grid have diminished significantly in recent years. Investment barriers include lack of regional integrated planning, difficulty in siting new transmission lines, and uncertainty regarding investment risks and returns. The Federal Energy Regulatory Commission (FERC) has called for the development of five Regional Transmission Organizations (RTOs). These RTOs, when implemented, will be used to better determine weaknesses in the transmission grid and allow better regional planning. The RTOs will ultimately be responsible for the efficient managed growth of the regional transmission system.

Australia—2001 Australian Infrastructure Report Card

Produced by the Australian Infrastructure Report Card Alliance (see below report card findings) and project managed by the Institution of Engineers, Australia, with Consultants, GHD.

Availability There seems to be no summary as such, although a 12 page summary was issued to members by the Institution of Engineers, Australia. The full report (120pp) is available from its own website, together with the 2000 and 1998 report cards. Detailed State reports are now becoming available.

Stated Purpose “The Australian Infrastructure *Report Card* Alliance comprises the major infrastructure users, owners, operators, investors, industry groups and other stakeholders within Australia. The Alliance formed to oversee an independent review of the state of Australia’s infrastructure from economic, social and environmental perspectives.”

Style of the Report

Findings: (see chart opposite)

Explanation of Grading: (The only one of the report cards to produce detail of its grading methodology, and the only one to explicitly include the level of asset management in their assessment)

Published Rating Review Criteria

A Very Good Infrastructure is fit for its current and anticipated purpose in terms of infrastructure condition, committed investment, regulatory regime and planning processes.

B Good Minor changes required in one or more of the infrastructure condition, committed investment, regulatory regime and planning processes to enable infrastructure to be fit for its current and anticipated purpose.

C Adequate Major changes required in one or more of the infrastructure condition, committed investment, regulatory regime and planning processes to enable infrastructure to be fit for its current and anticipated purpose.

D Poor Critical changes required in one or more of the infrastructure condition, committed investment, regulatory regime and planning processes to enable infrastructure to be fit for its current and anticipated purpose.

F Inadequate Totally inadequate for current and future needs.

2001 Australian Infrastructure Report Card

Electricity	B-
Airports	B
Gas	C
Roads (National)	C
Telecommunications	B
Roads (State)	C-
Rail	D-
Roads (Local)	D
Ports	B
Potable Water	C
Irrigation	D-
Stormwater	D
Wastewater	C-

Alliance Partners

Association of Australian Ports and Marine Authorities
 Australasian Railway Association
 Australian Automobile Association
 Australian Business Foundation
 Australian Business Limited
 Australian Council for Infrastructure Development
 Australian Council of Social Service
 Australian Electrical and Electronic Manufacturers' Association
 Australian Gas Association
 Australian Local Government Association
 Australian Pipeline Industry Association
 Australian Telecommunications Users Group
 Australian Trucking Association
 Australian Water Association
 Business Council of Australia
 Electricity Supply Association of Australia
 Institute of Public Works Engineering Australia
 The Institution of Engineers Australia
 National Infrastructure & Engineering Forum

Worth noting

- Report scores are higher than for the UK or USA
- Report scores are higher for infrastructure privately provided
- Report summaries comment on asset management only for publicly provided infrastructure not for infrastructure privately provided.
- There is extensive documentation backup but a lot of it is anecdotal, e.g. newspaper coverage, as compared with the USA use of government reports.
- Style of reporting— advocacy or industry lobby approach (compare the more measured tone of the UK report card and the alarmist tone of the USA report card)
- No easy to find summaries (except the one page report card itself)
- Most recommendations fall into three broad categories—funding, regulation and the need for inter-government co-operation

(Note, the extensive reporting in the Australian Infrastructure Report Card does not permit simple comparisons of energy and water to contrast with that of the USA and the UK reports, so I have selected elements that are innovative to the Australian Report Card—such as the rating approach and issues with regulation.)

Rating

“The majority of infrastructure assets in Australia have been rated as no higher than adequate. The low rating reflects maintenance deficiencies, environmental concerns and problems with future replacement.”

[While one can recognise the need for government policies and commitment in areas of regulation and environmental sustainability, it is doubtful whether lack of such policies and commitment can reasonably be translated into an assessment of poor infrastructure. In the absence of such policies, upgrading the infrastructure may, in fact, have little impact. So we need to exercise great caution in interpreting the report card grades.]

Regulation

“... in the telecommunications sector, disputes about access prices are reported to have carried on for years. With airports, there has been considerable dispute and uncertainty as to which services provided by the airport are regulated, and which are not, which in turn has affected airport owner’s capacity to set prices. Another example of a regulation adversely affecting infrastructure investment is the recent Australian Taxation Office’s considerations to extend effective life regimes. This would increase the depreciation period for some new infrastructure, particularly gas pipelines, from 15-20 years to 50 years. (Australian Financial Review 8 June 2001)

[There is no discussion of whether this merely removes an inappropriate prior ‘incentive to investment’]

The involvement of industry in the Infrastructure Report Cards is an innovative move that has a lot of potential, but may require special interpretation (see ‘Worth Noting’ above).

World Watch

New Zealand has just let a series of 3 contracts for its own approach to a national infrastructure audit. Unlike the UK, USA, and Australian models, the contract has been let to a management consultancy firm, with, as a New Zealand colleague put it, “nary an Engineer in sight”.
SAM will report on the outcomes in due course