

GOVERNMENT REGIONAL OFFICERS' HOUSING

Government Housing Air Conditioning Policy

October 2001



Government of **Western Australia**
Department of **Housing**

Policy Number	
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1. INTRODUCTION

1.1 OVERVIEW

The Government Housing Air Conditioning policy is determined by the Government (Cabinet), on advice of the Minister for Housing and the Department of Housing.

The concept of providing air conditioning to accommodation and the provision of air conditioning subsidies is based on the *Relative Strain Index (RSI)* with this index being prepared and provided by the Bureau of Meteorology. The index takes account of various climatic conditions and the effect of those conditions on the human body. Details of *the Relative Strain Index* are attached.

It should be noted that average readings for temperature and humidity, which form part of the *Relative Strain Index*, do not vary significantly from year to year. Readings from most towns now extend over several decades, producing a reliable average for individual towns. A map showing the current 50 day RSI line and the 22 day RSI line is attached.

Enquires by government employees concerning air conditioning policy are to be directed to the relevant employing department or agency. Where an employing department or agency requires clarification of policy, the enquiry is to be directed to:-

The Director
Government Regional Officers' Housing
99 Plain Street
East Perth W A 6004

1.2 PURPOSE OF THIS DOCUMENT

This document is written with the aim of providing clear policies and procedures for Department of Housing officers to ensure effective management and consistent implementation of Government Housing Air Conditioning policy.

1.3 SCOPE

This document is written for use by Department of Housing officers, client agencies and GROH occupants.

1.4 RELEVANT LEGISLATION AND REFERENCES

- ◆ Government Employees Housing Act 1964
- ◆ Residential Tenancies Act 1987
- ◆ Department of Housing Customer Service Charter

1.5 DOCUMENT CONTROL

This document is published on the Government Regional Officers' Housing Internet site at www.groh.wa.gov.au

The original version of the document for the purposes of amendments and updates is held by GROH and is stored on the Department of Housing Corporate Data System in the Business Services Section of GROH under CURRENT POLICIES.

Responsibility for the document lies with the Director, Government Regional Officers' Housing.

1.6 DOCUMENT REVIEW

This document may be amended from time to time prior to the next review (see 1.7 Document History).

1.7 FULL DOCUMENT HISTORY

ISSUE	DATE	REASON	POLICY AUTHOR	OFFICERS TITLE	DATE LOADED ON Internet
1	October 2001	Reformatted policy	Andrew Smith	Policy and Projects Officer	
2	January 2004	Changes to format	Lisbet Schäfers	Projects and Policy Officer	
3	August 2006	Policy amended to reflect the change to the Government Employees' Housing Authority by the Machinery of Government (Miscellaneous Amendments) Act 2006	Lisbet Schäfers	Projects and Policy Officer	
4	April 2008	Policy amended to reflect update to cost per unit of electricity	Danielle Faulkner	Coordinator Policy and Projects	
5	October 2009	Policy Reformatted	Danielle Faulkner	Coordinator Policy and Projects	October 2009

1.8 DEFINITION OF TERMS (Glossary)

TERM / ACRONYM	MEANING
GROH	Government Regional Officers' Housing
RSI	Relative Strain Index

2. PROVISION OF AIR CONDITIONING

POLICY :	PRACTICES / PROCEDURES
<ul style="list-style-type: none"> Government employee accommodation located in towns situated north of the 26° south latitude and in southern remote area communities are generally fully air conditioned with either ducted refrigerated air conditioning or with wall-mounted refrigerated room air conditioners. Exceptions may apply in some remote localities and combinations of air conditioning types may apply in some accommodation. 	<p>2.1 In the north of the State, older three and four bedroom accommodation may not have air conditioning in the third and fourth bedroom. Air conditioning is only provided to those rooms on demand, where the room is to be used by the occupant or the occupant's family for sleeping purposes.</p> <p>2.2 Accommodation south of the 26° south latitude but north of the fifty (50) day RSI line, where the RSI criteria is for both day and night, ducted refrigerated air conditioning is also provided.</p> <p>2.3 Prior to April 1997, accommodation south of the 26° south latitude but north of the fifty (50) day RSI line where the RSI criteria was only for daytime, a refrigerated room air conditioner was provided to the living area only. Also prior to 1997, accommodation in areas south of the 50-day RSI line was not provided with any air conditioning.</p> <p>2.4 In April 1997, Cabinet approved an amendment to the policy by which accommodation south of the 50 day RSI line and north of the 22 day RSI line is to be provided with ducted evaporative air conditioning by 1 December 1997. Towns in this category are listed in Schedule 1.</p> <p>2.5 Accommodation in those towns that were previously provided with only a reverse cycle refrigerated room air conditioner were provided with ducted evaporated air conditioning to the whole house by 1 December 1997. The existing refrigerated air conditioner will remain in the accommodation until it</p>

POLICY :	PRACTICES / PROCEDURES
	becomes unserviceable, when it will be removed and not replaced.

3. AIR CONDITIONING SUBSIDIES

POLICY :	PRACTICES / PROCEDURES
<ul style="list-style-type: none"> • Government employees located in towns situated north of the 26° south latitude are, subject to meeting certain criteria, eligible to claim a subsidy in relation to electricity charges associated with operating air conditioning units in their residence –refer Schedule 2. <p>Employees located in towns south of the 26° south latitude and north of the 50 day RSI line are also, subject to meeting certain criteria, eligible to claim a subsidy in relation to electricity charges associated with operating refrigerated air conditioning units in their residence -refer Schedule 3.</p> <p>Subsidies are not paid where the accommodation is provided with evaporative air conditioning.</p> <p>Subsidies were last reviewed and adjusted in 1994 and took into account of variations in the average readings for all towns throughout the State.</p>	<p>3.1 Subsidy payments are limited to the total amount of the electricity account of the maximum level of the subsidy; whichever is the lesser amount.</p> <p>3.2 Eligible sole government employees may claim a subsidy providing the employee is not living with parents or some other person currently receiving a subsidy from any source - either government or private industry. A proportional subsidy can be claimed where the eligible sole person is sharing accommodation.</p> <p>3.3 Shift workers who are government employees and who occupy houses with individual room air conditioning units (window or wall mounted) are able to claim an additional subsidy where the shift necessitates working any hours between 11 :00 pm and 7:00 am. The subsidy is calculated at a flat rate of eight (8) units of electricity per night shift worked per approved subsidy month (daytime criteria).</p> <p>3.4 Subsidies can be claimed regardless of whether the government employee is accommodated in government or</p>

POLICY :	PRACTICES / PROCEDURES
	<p>privately owned/rented accommodation.</p> <p>3.5 Stockpiling of unused units during the subsidy period is not permitted.</p> <p>3.6 Part time government employees are eligible for pro rata subsidies from the air conditioning season. A part time employee is defined as an employee who works less than the prescribed hours of a full time employee.</p> <p>3.7 Government employees proceeding on parental leave are eligible for an air conditioning subsidy. The subsidy is calculated as if the employee is at work.</p> <p>3.8 Where the electricity is provided by the private generation of power, a subsidy can be claimed at the rate which would be paid had the power been provided by an external source.</p> <p>3.9 Subsidy payments do not apply where the government employee's spouse, de facto or partner is in receipt of a subsidy from his or her employer, unless the employer is the government, in which case only one partner is eligible to claim the subsidy.</p>

4. SUBSIDY LEVEL

POLICY :	PRACTICES / PROCEDURES
<ul style="list-style-type: none"> The attached Schedules list the towns where a subsidy is 	<p>4.1 Houses with Ducted or Split Air Conditioning Systems.</p>

POLICY :	PRACTICES / PROCEDURES
<p>applicable and also the period during which air conditioning subsidies can be claimed. Varying subsidies apply depending on the type of accommodation and the particular type of air conditioning system servicing the accommodation.</p> <p>Subsidies are not paid where the accommodation is provided with evaporative air conditioning (see list of towns in Schedule 1).</p>	<ul style="list-style-type: none"> (a) The maximum subsidy which can be claimed for houses with ducted or split systems is 1600 units of electricity per approved month. (b) Where the subsidy only applies for day or night criteria, then the subsidy is only 800 units per approved month. <p>4.2 Houses with Individual Room Air Conditioning Units.</p> <ul style="list-style-type: none"> (a) Where an air conditioning unit is provided for night time cooling of the main bedroom, the maximum subsidy which can be claimed is 480 units of electricity per approved month. (b) Where an air conditioning unit is provided for daytime cooling of the living room / kitchen area, the maximum subsidy which can be claimed is 640 units of electricity per approved month to make allowance for the larger sized air conditioning unit servicing the living area. (c) Where additional air conditioners are provided in either the second, third or fourth bedrooms, an additional maximum subsidy of 480 units of electricity per approved month can be claimed, but only where those bedrooms are normally in use. The subsidy is NOT applicable for each bedroom - 480 units is the maximum which can be claimed for all bedrooms beyond the first bedroom. (d) The maximum subsidy which can be claimed for houses with individual room air conditioning units is 1600 units of electricity per approved subsidy month. <p>4.3 Mining Company/Leased/Purchased Housing.</p>

POLICY :	PRACTICES / PROCEDURES
	<ul style="list-style-type: none"> (a) Subsidy arrangements differ for government employees occupying non- standard, fully air conditioned houses leased from mining companies, private individuals or purchased from the private sector. (b) The employing department / agency meets the actual cost of operating the air conditioning units during the approved subsidy months and the employee is required to make a weekly contribution over the full year. In general terms, the arrangement is designed to place employees in non- standard accommodation on par with those in standard Government Employees' Housing Authority accommodation. (c) The contribution for government employees occupying non-standard accommodation leased from a mining company, privately leased or housing purchased from the private sector varies from time to time as the cost of electricity varies. <p>4.4 Apartments/Units.</p> <ul style="list-style-type: none"> (a) The maximum subsidy which can be claimed for apartment/units with a ducted or split air conditioning system is 1200 units of electricity per approved month where the subsidy is provided for both day and night cooling. When the subsidy only applies for day or night criteria, then the subsidy is only 600 units per approved month. <p>4.5 Caravans.</p>

POLICY :	PRACTICES / PROCEDURES
	<p>Government employees residing in caravans fitted with air conditioning who pay either directly or indirectly for power utilised for air conditioning, are eligible to claim subsidies up to a maximum indicated below:</p> <p>(a) One air conditioning unit installed</p> <p>The scale of subsidies shall be as follows:</p> <p>(i) Air conditioning unit capacity 1.5kw (2.0 hp) or more 640 units of electricity per approved month</p> <p>(ii) Air conditioning unit capacity 1.1kw (1 ½ –1 ¾ hp) 480 units of electricity per approved month</p> <p>(iii) Air conditioning unit capacity 0.75kw (1 -1 ¼ hp) 320 units of electricity per approved month</p> <p>(iv) Air conditioning unit capacity of 0.56kw (3/4 hp) 240 units of electricity per approved month</p> <p>(v) Air conditioning unit capacity of 0.375 kw (1/2 hp) 140 units of electricity per approved month</p> <p>(b) More than one air conditioning unit installed</p> <p>In the event that more than one air conditioning unit is installed, the subsidy which can be claimed is to be based on the scale as per (a) above, but the combination of the subsidy is not to exceed 640 units, i.e.</p>

POLICY :	PRACTICES / PROCEDURES
	<p>(i) 1 x 0.560kw unit =240 units per approved month 1 x 0.375kw unit =140 units per approved month Total subsidy = 380 units per approved month</p> <p>(ii) 1 x 1.100kw unit = 480 units per approved month 1 x 0.56kw unit = 240 units per approved month Total subsidy not to exceed 640 units per approved month</p>

5. METHOD OF CALCULATION

POLICY :	PRACTICES / PROCEDURES
<ul style="list-style-type: none"> The subsidy is to be calculated on the cost per unit of electricity and is to be apportioned according to the number of approved days within the period covered by the electricity account. 	<p>5.1 The amount of subsidy paid is not to exceed the total amount paid for electricity during the period. For part time employees, the subsidy should not exceed the percentage of the electricity account multiplied by the percentage of hours worked, i.e. if the employee is 0.5 then the subsidy should not exceed 50% of the electricity account.</p> <p>5.2 Government employees residing in caravans fitted with air conditioners will be subsidised in accordance with item 4.5.</p>

EXAMPLES

The examples on the following pages illustrate the method of subsidy calculation based on a ducted house in Karratha using the following criteria:

Day October to April 800 units of electricity per approved month
Night November to April 800 units of electricity per approved month

***Please Note:**

When calculating the subsidy, use the cost per unit of electricity provided on the electricity account (including Goods and Services Tax). Advice regarding the current cost per unit of electricity can be accessed via the Synergy website:

http://www.synergy.net.au/Residential_Segment/Electricity_Connections/Prices_and_Fees.html

Example 1

The period of the electricity account is 11 September to 10 November.

The cost of the electricity used for this period is \$180.00.

The cost per unit of electricity is 13.94 cents (advice from Synergy in April 2008 was that the unit rate is 13.94¢ inclusive of GST. Thus this is the figure used for the purposes of the below calculations)

Calculation:

September	not an approved month	nil
October	800 units @ 13.94 cents/unit	\$111.52
November	<u>1600 units @ 13.94 x 10 days</u>	<u>\$ 74.34</u>
	30 days	\$185.86

The subsidy payable for the approved period 1 October to 10 November is \$180.00, as this is the lesser amount when comparing the above calculation to the electricity account.

Example 2

The period of the electricity account is 11 November to 10 January.

The cost of the electricity used for this period is \$270.00.

The cost per unit of electricity is 13.94 cents (April 2008)

Calculation:

November	<u>1600 units @ 13.94 x 20 days</u> 30 days	\$148.69
December	1600 units @ 13.94	\$223.04
January	<u>1600 units @ 13.94 x 10 days</u> 31 days	<u>\$ 71.94</u> \$443.67

The subsidy payable for the approved period 11 November to the 10 January is \$270.00 as this is the lesser amount when comparing the above calculation to the electricity account.

Example 3

The employee is part time, working 50% of the prescribed hours of a full time employee.

The period of the electricity account is 11 November to 10 January.

The cost of electricity used for this period is \$270.00 (50% = \$135).

The cost per unit of electricity is 13.94 cents (April 2008).

Calculation:

November	<u>1600 units @ 13.94 x 20 days x 50%</u>	<u>\$ 74.34</u>
	30 days	
December	1600 units @ 13.94 x 50%	\$111.52
January	<u>1600 units @ 13.94 x 10 days x 50%</u>	<u>\$ 35.97</u>
	31 days	\$221.83

The subsidy payable for the approved period 11 November to 10 January is \$135.00, as this is the lesser amount when comparing the above calculation to 50% of the electricity account.

SCHEDULE 1

TOWNS WITHIN THE 22 TO 50 DAY RELATIVE STRAIN INDEX AREA

PROVIDED WITH DUCTED EVAPORATIVE AIR CONDITIONING (No subsidy is provided for towns listed in this Schedule)

Babakin	Meckering
Badgingarra	Merredin
Beverley	Miling
Bindoon	Moora
Binnu *	Moorine Rock
Bodallin	Mt Walker
Bolgart	Mukinbudin
Brookton	Muntadgin
Bruce Rock	Narembeen
Calingiri	New Norcia
Coolgardie	Norseman
Coomberdale	Northam
Corrigin	Northampton
Cunderdin	Nungarin
Dandaragan	Pingaring
Doodlakine	Pingelly
Dowerin	Quairading
Ejanding	Southern Cross
Ghooli	Toodyay
Gillingarra	Trayning
Gingin	Varley
Goomalling	Watheroo
Hyden	Westonia
Kalbarri **	Wongan Hills
Kalgoorlie/Boulder	Wooroloo
Kambalda	Wundowie
Kellerberrin	Wyalkatchem
Kondinin	Yealering
Kulin	Yerecoin
Marvel Loch	York

* Refrigerated air conditioning units have been provided in Binnu because the water quality was unsuitable for the effective operation of ducted air conditioners.

SCHEDULE 2

SUBSIDY SCHEDULE

TOWNS NORTH OF 26° SOUTH LATITUDE

TOWN	NIGHT CRITERIA		DAY CRITERIA	
	Months	Period	Months	Period
Balgo	6	Oct-Mar	6	Oct-Mar
Bayulu	6	Oct-Mar	8	Sep-Apr
Broome	7	Oct-Apr	7	Oct-Apr
Burringurrah	4	Dec-Mar	5	Nov-Mar
Camballin	7	Oct-Apr	8	Sep-Apr
Cape Range NP	4	Dec-Mar	4	Dec-Mar
Carnarvon	3	Jan-Mar	2	Jan-Feb
Cherrabun	6	Oct-Mar	8	Sep-Apr
Dampier	6	Nov-Apr	7	Oct-Apr
Dawul	6	Oct-Mar	8	Sep-Apr
Denham	3	Jan-Mar	2	Jan-Feb
Derby	7	Oct-Apr	9	Sep-May
Exmouth	4	Dec-Mar	6	Nov-Apr
Fitzroy Crossing	6	Oct-Mar	8	Sep-Apr
Gascoyne Junction	4	Dec-Mar	5	Nov-Mar
Glenhill	6	Oct-Mar	8	Sep-Apr
Halls Creek	6	Oct-Mar	7	Oct-Apr
Jigalong	6	Nov-Apr	5	Nov-Mar
Karijini NP	6	Nov-Apr	7	Oct-Apr
Karratha	6	Nov-Apr	7	Oct-Apr
Kiwirrkurra	2	Jan-Feb	3	Dec-Feb
Kununurra	7	Sep-Mar	9	Sep-May
Kalumburu	7	Oct-Apr	10	Aug-May
La Grange	7	Oct-Apr	7	Oct-Apr
Lake Argyle	6	Oct-Mar	9	Sep-May
Lombadina	7	Oct-Apr	7	Oct-Apr
Marble Bar	5	Nov-Mar	7	Oct-Apr
Millstream	6	Nov-Apr	7	Oct-Apr
Muludja	6	Oct-Mar	8	Sep-Apr
Newman	7	Oct-Apr	5	Nov-Mar
Nullagine	5	Nov-Mar	7	Oct-Apr
One Arm Point	7	Oct-Apr	7	Oct-Apr
Onslow	4	Dec-Mar	6	Nov-Apr
Oombulgurri	9	Sep-May	10	Aug-May
Pannawonica	7	Oct-Apr	7	Oct-Apr
Paraburdoo	7	Oct-Apr	7	Oct-Apr
Port Hedland	6	Nov-Apr	7	Oct-Apr
Roebourne	6	Nov-Apr	7	Oct-Apr

South Hedland	6	Nov-Apr	7	Oct-Apr
Strelley River	6	Nov-Apr	7	Oct-Apr
Tjukurla	2	Jan-Feb	3	Dec-Feb
Tom Price	7	Oct-Apr	7	Oct-Apr
Useless Loop	3	Jan-Mar	2	Jan-Feb
Wananami	6	Oct-Mar	8	Sep-Apr
Wangkatjungka	6	Oct-Mar	8	Sep-Apr
Warakurna	2	Jan-Feb	3	Dec-Feb
Wanarn	2	Jan-Feb	3	Dec-Feb
Wickham	6	Nov-Apr	7	Oct-Apr
Wittenoom	6	Nov-Apr	5	Nov-Mar
Wyndham	9	Sep-May	10	Aug-May
Yandeyarra	6	Nov-Apr	7	Oct-Apr
Yule River	6	Nov-Apr	7	Oct-Apr

SCHEDULE 3

SUBSIDY SCHEDULE

**TOWNS SOUTH OF 26° SOUTH LATITUDE AND
NORTH OF 50 DAY RELATIVE STRAIN INDEX LINE**

(Applies to refrigerated air conditioning units only)

TOWN	NIGHT CRITERIA		DAY CRITERIA	
	Months	Period	Months	Period
Blackstone	2	Jan-Feb	3	Dec-Feb
Cue	2	Jan-Feb	4	Dec-Mar
Jameson	2	Jan-Feb	3	Dec-Feb
Laverton	2	Jan-Feb	2	Jan-Feb
Leinster	2	Jan-Feb	2	Jan-Feb
Leonora	2	Jan-Feb	3	Jan-Mar
Meekatharra	3	Dec-Feb	4	Dec-Mar
Menzies	2	Jan-Feb	2	Jan-Feb
Mount Magnet	2	Jan-Feb	4	Dec-Mar
Mount Margaret	2	Jan-Feb	2	Jan-Feb
Sandstone	2	Jan-Feb	3	Dec-Feb
Tjirrkarli	2	Jan-Feb	3	Dec-Feb
Warburton	2	Jan-Feb	3	Dec-Feb
Wiluna	3	Dec-Feb	4	Dec-Mar
Wingelina	2	Jan-Feb	3	Dec-Feb
Yalgoo	2	Jan-Feb	4	Dec-Mar

SCHEDULE 4

SUBSIDY SCHEDULE

TOWNS SOUTH OF 26° SOUTH LATITUDE AND NORTH OF 50 DAY RELATIVE STRAIN INDEX LINE

(APPLIES TO FULLY DUCTED EVAPORATIVE UNITS ONLY)

TOWN	NIGHT CRITERIA		DAY CRITERIA	
	Months	Period	Months	Period
Ballidu	-	-	3	Dec-Feb
Beacon	-	-	3	Dec-Feb
Bencubbin	-	-	3	Dec-Feb
Buntine	-	-	3	Dec-Feb
Cadoux	-	-	3	Dec-Feb
Carnamah	-	-	3	Dec-Feb
Coorow	-	-	3	Dec-Feb
Dalwallinu	-	-	3	Dec-Feb
Eneabba	-	-	2	Jan-Feb
Gabbin	-	-	3	Dec-Feb
Kalannie	-	-	3	Dec-Feb
Koorda	-	-	3	Dec-Feb
Latham	-	-	3	Dec-Feb
Migenew	-	-	3	Dec-Feb
Morawa	-	-	3	Dec-Feb
Mullewa	-	-	3	Dec-Feb
Perenjori	-	-	3	Dec-Feb
Pithara	-	-	3	Dec-Feb
Three Springs	-	-	3	Dec-Feb
Wubin	-	-	3	Dec-Feb
Yuna	-	-	4	Dec-Mar

CLIMATIC DISCOMFORT INDEXES

(Information source: Bureau of Meteorology)

The climatic variables determining physical discomfort are primarily air temperature, vapour pressure and wind. The complete assessment of physical discomfort also requires analyses of such parameters as thermal conductivity of clothing, vapour pressure at the skin and the metabolic heat rate arising from activity of the human body.

Defining criteria of discomfort is difficult because personal reactions to the weather differ greatly according to a number of variables including health, age, clothing, occupation and acclimatisation (Ashton 1964). However, climatic strain has been measured experimentally and discomfort indexes based on the average response of subjects under specified conditions have been derived. Two discomfort indexes have been in use viz.

- (i) effective temperature, and
- (ii) relative strain index.

(i) **Effective Temperature**

The effective temperature with respect to any environmental combination of temperature, humidity and wind is defined as the temperature of still, saturated air in which a normally clothed sedentary worker would feel the same level of comfort or discomfort.

Environmental studies carried out at the research laboratories of the American Society of Heating, Refrigerating and Air Conditioning Engineers established values of effective temperature corresponding to various combinations of temperature, humidity and air movement. The results were published as a series of research reports commencing in 1923, and have been widely used to measure climatic discomfort (see 1960 report of the Society).

(ii) **Relative Strain Index (RSI)**

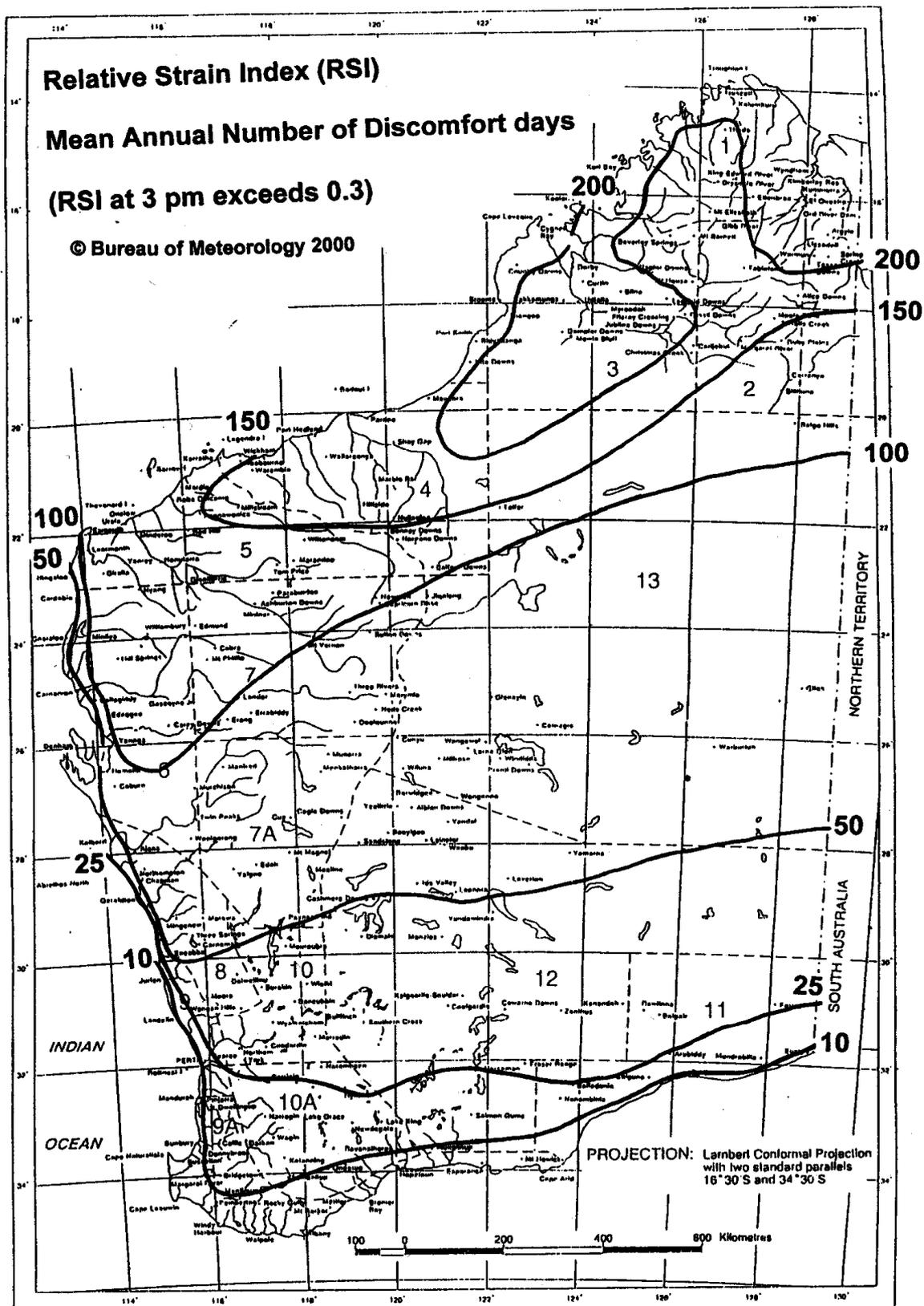
Effective temperature is a useful index but its application is limited because available criteria relate only to indoor workers in sedentary occupations. Furthermore, at lower air temperatures the effective temperature gives excessive weight to humidity.

The relative strain index derived by Lee and Henschel (1963) has been applied in Australia to measure heat discomfort (Hounam, 1969, Gaffney 1973). The results obtained with Australian data are useful for purposes of comparison.

In addition to temperature, humidity and air movement, the relative strain index has facilities for incorporation of metabolic heat rate, net radiation and insulation of clothing. It has the advantage of being applicable to manual workers under shelter and expending energy at various metabolic heat rates.

From data available the only logical factor to be used for a determining criteria is the "Heat Discomfort Chart" published by the Bureau of Meteorology. *

This map indicates days of discomfort zones throughout Western Australia and Australia. The days of discomfort are calculated through a Relative Strain Index formula. Discomfort is experienced when the RSI exceeds 0.3 at 3:00 pm under standard conditions, i.e. indoors, manual activities, light clothing and air movement at 60 metres per minutes.



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