	lydro) 1984	. 1	985	1986	198	27 1	988	1989	1990	1	Average
No. 1	1304	ŧ I.	ສວວ 1	1360	100		0	1909	0	,	
No. 2	0		2	0	(		0	0	0	}	0.36
110. 2	U		L	. 0	(	,	V	U	Ū		
Los Chillos	(Hydro)										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	Averag
No. 1	1.0	0	0	6.0	0	0	0	7.0	0	0)	2.65
No. 2	2. 1	0	0	6.0	0	0	0	3. 0	0	0 }	۷. ۷۵
Nayon (Hydi	ro)									-	
,	1983	198	4 19	85	1986	1987	1988	1989	1990	)	Averag
No. 1	1.8	2.		. 9	3. 0	3.8	3. 5	2. 4	4. 9		
No. 2	1.9	1.		. 9	3. 2	4. 2	3. 1	2. 3		5 }	3.13
01 /15.		•							-		
Cumbaya (Hy	1983	198	A 10	85	1986	1987	1988	1989	1990	3	Averag
No. 1	3.3	3.		. 2	3.6	4. 1	5.3	4. 1			AYGI AY
No. 2	1.9	3. 2.		. 5	4. 3	4.7	3. 4	3. 2	5. 9		
No. 2 No. 3	2.8	2.		. 0	3.0	3.0	3. 2	3. 0	5. (	>	3.84
No. 3	1.9			. 0 . 9	4. 9	6.2	4. 0	3. 6	5. 3	- 1	
EMELEC											
Estero Sala		4000	1000					1000	1000	1000	
100		1982	1983	1984		1986	1987	1988	1989	1990	
	0.9	6.5	0.8	1.9	0.3	1.7	19.7	14. 2	0	5.6	5.10
Steam	0.3										
Steam Gas Turbi	ine									00.5	
Steam Gas Turbi No. 1	ine 32. 0	0	0		5. 7	14.3	0	0	0	30.7	) 40 70
Steam Gas Turbi No. 1 No. 2	32. 0 0. 3	0	54.5	-	••			0	28.5		10.73
Steam Gas Turbi No. 1 No. 2 No. 3	32. 0 0. 3 0. 3	0 3. 6	54. 5 0	0	0	 7.8	- 15. 4	0 -	28.5	43. 0 -	} 10. 73
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5	32. 0 0. 3 0. 3 0. 9	0 3.6 0	54. 5 0 0	- 0 0	0 3.6	7.8 0	- 15. 4 0	0 - 5. 43	28. 5 - 9. 80	43. 0 - 6 0	}
Steam Gas Turbi No. 1 No. 2 No. 3	32. 0 0. 3 0. 3	0 3. 6	54. 5 0	0	0	 7.8	- 15. 4	0 -	28.5	43. 0 -	} 10. 73 } 8. 05
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5	32. 0 0. 3 0. 3 0. 9	0 3.6 0	54. 5 0 0	- 0 0	0 3.6	7.8 0	- 15. 4 0	0 - 5. 43	28. 5 - 9. 80	43. 0 - 6 0	}
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5 No. 6	32. 0 0. 3 0. 3 0. 9	0 3.6 0	54. 5 0 0	- 0 0	0 3.6 0	7.8 0 0	- 15. 4 0	0 - 5. 43	28. 5 - 9. 80	43. 0 - 6 0	} 8.05
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5 No. 6	32. 0 0. 3 0. 3 0. 9 1. 9	0 3.6 0 0	54. 5 0 0 0	0 0	0 3.6 0	7.8 0 0	15. 4 0 0	0 - 5. 43 0. 16	28. 5 - 9. 86 0	43. 0 - 3 0 0 1990 37. 8	} 8.05 Averag
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5 No. 6  Guayaquil Steam	32. 0 0. 3 0. 3 0. 9 1. 9	0 3.6 0 0	54. 5 0 0 0	0 0 0 0	0 3.6 0 1985 24.0	7.8 0 0 1986 37.2	15. 4 0 0	0 - 5. 43 0. 16	28. 5 - 9. 86 0	43. 0 - 6 0 0	} 8.05
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5 No. 6 Guayaquil Steam No. 1	32. 0 0. 3 0. 3 0. 9 1. 9	0 3.6 0 0 1982 53.2	54. 5 0 0 0 1983 18. 2	0 0 0 0	0 3.6 0 1985 24.0 19.6	7.8 0 0 1986 37.2	15. 4 0 0 1987 22. 4	0 - 5. 43 0. 16 1988 36. 4	28. 5 - 9. 86 0 1989 36. 4	43. 0 -3 0 0 1990 37. 8 27. 6 6. 6	} 8.05 Averag } 30.30
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5 No. 6  Guayaquil Steam No. 1 No. 2	32. 0 0. 3 0. 3 0. 9 1. 9	0 3.6 0 0 1982 53.2 27.3	54. 5 0 0 0 1983 18. 2 18. 5	0 0 0 0 1984 29. 8 11. 9	0 3.6 0 1985 24.0 19.6 4.4	7.8 0 0 1986 37.2 24.9	15. 4 0 0 1987 22. 4 21. 2	0 - 5. 43 0. 16 1988 36. 4 32. 2	28. 5 - 9. 86 0 1989 36. 4 34. 7	43. 0 - 3 0 0 1990 37. 8 27. 6	} 8.05 Average } 30.30
Steam Gas Turbi No. 1 No. 2 No. 3 No. 5 No. 6  Guayaquil Steam No. 1 No. 2 No. 3	32. 0 0. 3 0. 3 0. 9 1. 9 1981 62. 5 30. 1 5. 2 7. 2	0 3.6 0 0 1982 53.2 27.3 8.8	54. 5 0 0 0 1983 18. 2 18. 5 8. 0	0 0 0 1984 29.8 11.9 3.0	0 3.6 0 1985 24.0 19.6 4.4	7.8 0 0 1986 37.2 24.9 6.4	15. 4 0 0 1987 22. 4 21. 2 5. 2	0 - 5. 43 0. 16 1988 36. 4 32. 2 5. 2	28. 5 9. 86 0 1989 36. 4 34. 7 5. 0	43. 0 -3 0 0 1990 37. 8 27. 6 6. 6	} 8.05 Average } 30.30

#### A-4-2 Formulation of Data for Creation of Demand Variation Distribution

The creation of demand variation distribution caused by factors other than temperature change is implemented by the interconnected power system reliability analysis program (REPORT).

The actual data of maximum power demand (MW) and the projected values of maximum power demand (MW) are used as input data, and the data for creation of demand variation distribution caused by factors other than temperature change.

#### (1) Calculation Procedure

(a) The power demand deviation (from projected value) is calculated for the year and month of calculation from the actual data of maximum power demand and the projected values of maximum power demand.

#### Power Demand Deviation

- = [Actual data of maximum power demand (MW) Projected value of maximum power demand (MW)] / Projected value of maximum power demand x 100 (%)
- (b) The standard deviation is calculated from the power demand deviation and the average value.

```
Average value = [Sum of power demand deviations] /
Number of data (1)
```

```
Standard deviation = \{\text{Sum of (demand deviation - average})}^2 / \text{Number of data}^{1/2} (%)
```

(c) The average value and the standard deviation thereby calculated are multiplied by the maximum power (MW) to convert the unit to MW, and then used as the input data of REPORT.

## (2) Description of Input Data

## (a) Description of Input Data

Table A-4-7 Description of Input Data

No.	Variable	Type	Unit	Description
1	С			Description of format of No. 2 data
2	SYSTEM	11		Number of systems (maximum 4)
3	C			Description of format of No. 4 data
4	REAL	12		Number of years of real data (maximum 50)
5	C			Description of format of No. 6 data
6 -	CODE	Ç8		Name of systems
7	C			Description of format of No. 8 data
8	YEAR	14		Year of real data of maximum demand
9	С			Description of format of No. 10 data
10	RDATA	F8	MW	Real data of maximum demand
11	С			Description of format of No. 12 data
12	PROG	12		Number of years of programmed data (maximum 50)
13	С			Description of format of No. 14 data
14	CODE	C8		System name
15	С			Description of format of No. 16 data
16	YEAR	14		Year of programmed data of maximum demand
17	С			Description of format of No. 18 data
18	PDATA	F8	MW	Programmed data of maximum demand
19	С			Description of format of No. 20 data
20	NMONTH	12		Number of months for calculation (maximum 12)
21	С			Description of format of No. 22 data
22	МН	12		Month for calculation

No.

Variable name: The name of input data variable

<sup>:</sup> Input data number. Must consistent with the number of input format.

Type

: The input data type and maximum digits.

Type C :

Character

Floating point decimal

integer

Maximum digits:

The maximum digits if the number of

following C, F or I.

: Input data unit

Description : Input data description

#### (b) Input Data Format

In the table of input data format, the data are entered to the hatched area.

The data input is flushed to left they are characters (C), or flushed to right if they are floating decimals (F) or integers (I).

Table A-4-8 Input Data Format

<u> </u>	Ι.	<del>~~~~~~</del>			<del></del>			····					<del></del>		<del></del>			<del></del>			·····	
_ დ	-	-	-	-	-	-	-	-	-	-	-	-	_	-	-	Ţ -	Ι.	-	-	-		-
∞- '~-	]	-	] -	1 <u>-</u>	] [	] ]	-	-	_	_	:	1 -		] :	-	] -	] -		] -	] _	-	-
ဟ_	-	-	_	_	] -	1 -	_		-	-	_	] -	]	] :			] [		_	]	-	-
. 4. .c.	-	-	-	-	] -	] .	_	-	] -	-	_	_	-	-	-	-	-	_	-	-	₩ H	
2,3	-	-	_	-	-	]	-	-	-	_	] -	_	] [	] [	-	-	] _	] [	] _	_	-	  -
<b></b> €	-				-	-	-	-	_			-	-	-		<u> </u>	_	· -		-	-	-
(၄) (၁)	-		-	_	-	-	B A R		A T A		-	-	_	-	A R		Ţ		-	-	¥ H	
∞° 1	_	-		-	_	-	22°		D A		_	-	] _	] [	G27 >√		D, A,		-	_	-	ļ
တ	-	_	]	] _	} -	] -			2		-	] -	] -	} :			n		-	_	_	] -
4. RQ_	-		_	_	] _	] -	] -	-	-		-	] _	] -	] [	-	-	-		~	-	MH	
ω <sub>_</sub>	] [	_	_	] [	-	] [	-	-	] _			-	-	] ]	] -	] ]	-		_	-	_	-
·	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	LI	-	-	_		-
ທິ	-	-	-	ļ	-	_	A R		TA		-	_	_	-	8		DATA		-		::: ::::	
~1	-	_	-		_		₩ ₩		J.A		_	-	_	-	Y. B.		Y		-	-	-	-
ဖ	-	-		-	-	-	_		2		-	-	-	}	_		L.		-	} -	-	-
4. C.	-	] -	-	] -	] -	] -	] -	] -	-		-	-	-	] : ]	] -	] -	] -		-	] _	W H	
ري دي	[ ]	_	-	_	-	_	] _	-	-		-	-	_	-	-	] [	] [		_	-	-	  -
<b>⊢</b>	~		-			_		_	-	_	-	-			<u> </u>	_	-	-			L -	_
40 40	_	-	-	_	-	-	A R		RDATA		-	-	-	-	A R		T		-	-	×	
∞ -√	_	-	_	_	_	-	M		A C		-	_	_	-	(£1)  ≻-`		P, D, A		-	_	]	_
ဖ	_	_		_	_	-	-		2		-	_	-	-	_	-	□_		-	_		-
4 5		-	_	-	-	-	-	-	-				-	-	-	-	-		-		E	
ςς_ 	_	_	-	_	-	-	-	-	-		-	_	-	] -	-	-	-		_	_	-	_
ωο_ 11_			_					_	-	-		_				-	-	-	-			-
ຕ	-		-		-	-	B A R		(—,		-	-	-	-	A A		Ē.		-	٠	Ή	
-2	_	_	_	] -	] _	_	<u>~</u> —		RDAT		~-	_		_	>- (E)		D A		_	_	_	_
ص آئ	_	-		-		_	-	_	~_		-	-	_	_	-	_	ርፈ_		- -	_	===	-
₩.	_	-	-	-	_		_	_	-			_	-	_	-	_	_		-		×	
ري س	-					-	_	_	-			-	-	-		_	-		-		_	-
20°						-		~		-					-04		A	-			- EE	
_ တ_	-				-	-	<-		TA			_	-		ω <u></u>		A T		_		*	
∞_	-	~	-	-	_	-	Ņ_ ⊞_		ΔĀ		-	-		-	<b>≻</b> _		<u> </u>			-		
ന ന	-	_	-	-	_		-	_	Ω±			_		-		_	러_		_	-	===	
3.4	-	-	_		_	-	-		_		-	-	_	_		_	-		_	-	<b>=</b>	
~~	-		-	-	_	-	-		_		-	-	_	-	_				-		-	_
(0)							<u> </u>		H		<u>ن</u>						Н		Н		_H	
7. 8.9	€~	_	A_		-			-	N.	- -	R O					_	T_	_	N T		<b>Z</b>	
	SO_		ω <u>-</u>	-					$\circ$		P.		_		-	-	$\Box$	-	C		-	_
	S. Y		_	-	<u>m</u> .				≋	_			8		-	-	×	_	NM	-		-
دی_ م	-	-	_	-	0			-	-		-	-	ົວ			-		_	-	-	_	
~~	-	-		-	O.	¥:::::::11. 		-		1	-	-	_			-		_				-
r-1	ت		ပ		ပ		ບົ	<u> </u>	<b>ပ</b> ်		Ċ:		ت		၁		ာ	<del>-</del>	J.		ပ	
Š.		2	က	4	വ	တ	7	œ	ග	10	11	12	<u> </u>	4	13	16	17	82	13	8	21	প্র
														Ĺ								

# (3) Calculation Example

# (a) Input Data Example

C SYSTEM					
C REAL					
C CODE					
NORTH C	YEAR	YEAR	YEAR	YEAR	YEAR
с монтн	1981 RDATA	1982 RDATA	1983 RDATA	1984 RDATA	1985 RDATA
1 2	241.8 240.3	257.8 259.6	273.9 276.4	294.6 301.7	317.2 326.3
2 3 4	239.2 241.9	271.5 264.3	278.9 284.4	300.8 299.4	328.4 323.8
5:	241.2	262.8	287.3	303.9	326.0
6 7	248.0 247.3	268.0 265.0	293.8 283.0	301.4 298.9	325.0 327.6
8 9	238.5 246.4	257.8 263.6	280.8 277.8	298.0 305.8	329.1 321.0
10 11	251.4 254.3	268.6 272.9	287.8 292.7	308.3 316.9	341.1 342.7
C 12	258.0 YEAR	279.7 YEAR	300.2 YEAR	316.0 YEAR	345.3 YEAR
•	1986	1987	1988	1989	1990
C MONTH	RDATA 314.4	RDATA 336.8	RDATA 399.5	RDATA 393.9	RDATA 408.9
1 2 3 4	321.3 315.7	344.0 377.6	377.9 377.8	393.3 390.4	412.1 421.9
4 5	314.0 318.6	344.8 341.9	382.6 378.1	400.2 408.1	413.8 424.6
6 7	326.8 321.9	353.7 346.2	378.4 380.9	401.1 404.5	430.5 428.9
8 9	313.8 315.5	347.9 363.5	370.5 374.7	389.7 400.8	416.4 434.0
10	333.0	369.2	390.6	416.7	439, 5
11 12	342.6 340.3	386.3 385.4	393,4 396.3	423.0 422.5	463.2 464.2
С	YEAR 1991				
C MONTH	RDATA 450.6				
2 3 4	442.9 446.0				
4	451.5 462.7				
5 6	463.9	\$			
7 8	463.8 460.8				
9 10	458.6 438.6				•
11 12	493.1 491.4				
C CODE SOUTH		•			
C	YEAR 1981	YEAR 1982	YEAR 1983	YEAR 1984	YEAR 1985
C MONTH	RDATA 386.8	RDATA 424.2	RDATA 446.2	RDATA 459.1	RDATA 465.3
	388.1	427.6	434.7	443.3	474.6
2 3 4	391.4 391.0	424.5 437.1	439.2 435.0	437.6 451.5	476.7 475.9
5	390.4	440.8	452.4	439.1	479.2

```
447.3
448.0
438.7
433.8
421.0
432.4
442.5
YEAR
                                                   430.0
418.7
423.5
435.3
446.9
466.5
477.6
YEAR
                              376.5
374.5
390.4
                                                                                            438.0
                                                                                                                478.7
                  6789
                                                                                           426.0
426.3
430.2
                                                                                                                492.0
492.3
                                                                                                                488.4
                               402.6
                                                                                           451.8
447.9
472.9
YEAR
1989
                                                                                                                480.3
                1Ô
                               404.2
                                                                                                                492.6
505.9
                11
                               408.0
                               444.7
                                                                                                                  YEAR
1990
                                YEAR
C
                                                     1987
                                                                         1988
                                1986
                                                                                            RDATA
570.9
                                                                                                                RDATA
                                                                       RDATA
C
          MONTH
                               RDATA
                                                   RDATA
                                                                                                                644.0
                               454.9
                                                   507.4
                                                                        588.8
                  1234
                                                                       557.8
556.0
570.2
567.3
559.1
542.6
                                                   503.7
500.4
514.2
524.6
                                                                                                                627.2
650.2
                               470.8
468.5
                                                                                            557.5
                                                                                            568.6
                                                                                           577.4
582.4
561.9
559.7
565.1
                                                                                                                636.6
                               474.4
475.3
                                                                                                                630.4
                                                                                                                626.0
                                                   514.2
512.0
                               461.8
                                                                                                                623.5
                               461.9
                                                                                                                621.0
634.8
                                                                       539.7
557.2
558.2
                  8
                               458.5
                                                   516.9
                              472.6
475.3
491.8
525.1
YEAR
                9
10
                                                                                            596.0
                                                   531.9
                                                                                                                636.9
658.5
                                                                                            606.4
                                                   532.7
                                                                        562.2
594.1
                                                   554.9
                                                                                            8.803
                11
                                                                                            630.6
                                                                                                                 700.2
                12
¢
                                 1991
C
          MONTH
                               RDATA
                               682.1
677.3
                  23
                               678.0
                              678.0
696.9
712.0
697.3
684.8
687.6
695.5
703.2
752.7
749.5
                  45
                  6789
                 10
                11
                12
¢
            PROG
                18
C CODE
NORTH
                              YEAR
1986
PDATA
                                                     YEAR
                                                                         YEAR
                                                                                              YEAR
                                                                                                                  YEAR
C
                                                   YEAR
1987
PDATA
365.3
373.8
374.1
374.5
367.8
377.2
                                                                       1988
PDATA
385.4
389.3
393.7
392.0
391.4
392.6
                                                                                           1989
PDATA
                                                                                                                  1990
                                                                                                                PDATA
C
          MONTH
                                                                                           396.8
406.4
403.9
407.3
411.0
413.0
                                                                                                                400.0
                               370.9
                   123
                               358.6
372.4
355.8
372.7
                                                                                                                412.8
                                                                                                                413.7
415.3
425.4
                                                                                                                428.1
                  67
                               370.5
                                                                                            406.1
                                                                                                                418.1
412.7
                               365.0
                                                    363.6
                                                                        391.7
                               366.6
355.7
379.6
371.5
                                                   364.8
377.1
                                                                        387.4
                                                                                            396.0
                  8
                                                                                            393.8
                  õ
                                                                        386.3
                                                                                                                421.4
                                                   384.5
393.7
395.1
YEAR
1992
                                                                                            412.1
422.0
                10
                                                                        408.6
                                                                                                                437.8
                                                                       415.8
418.8
YEAR
                                                                                                                450.5
                 11
                                                                                            428.0
YEAR
                                                                                                                450.6
YEAR
                 12
                               370.8
                                 YEAR
C
                                                                         1993
                                                                                              1994
                                                                                                                  1995
                                 1991
                                                                       PDATA
                                                                                            PDATA
                                                                                                                PDATA
          MONTH
                                                   PDATA
C
                               PDATA
                                                                                            535.9
528.5
                                                                                                                560.3
552.6
563.7
                                                                        508.4
                               447.4
430.9
                                                   497.9
516.5
                  123
                                                                        501.4
                                                                                            539.1
                               438.3
```

```
538.9
543.6
536.3
535.6
529.2
548.9
558.2
                                                                                                               563.4
568.4
560.7
                                                   470.7
483.3
484.3
                                                                       511.2
515.7
508.8
                              446.6
439.5
443.5
442.7
437.0
447.7
462.3
460.3
467.5
YEAR
                  4.567
                                                                       508.1
502.0
520.7
                                                                                                               560.0
                                                   480.6
                  89
                                                   487.2
                                                                                                               553.3
                                                   491.4
                                                                                                               573.9
                                                                                                               583.7
598.2
                10
11
12
                                                                       529.5
542.7
                                                  526.9
535.3
YEAR
1997
PDATA
                                                                      558.7
YEAR
1998
PDATA
645.1
                                                                                                               615.8
YEAR
                                                                                           588.9
                                                                                             YEAR
C
                                                                                             1999
                                                                                                                 2000
                                1996
                                                                                           PDATA
680.2
670.9
684.3
                                                                                                               PDATA
709.1
699.3
713.4
Ć
          HTNOM
                               PDATA
                                                   612.7
                               582.9
                  123456789
                                                   604.2
                               574.9
                                                                       636.3
                               586.4
                                                   616.4
                                                                       649.0
                              586.1
591.3
583.3
582.5
575.6
597.0
                                                  616.0
621.5
613.1
612.3
604.9
                                                                       648.7
                                                                                           684.0
                                                                                                               713.0
                                                                       654.5
                                                                                           690.1
                                                                                                               719.3
                                                                       645.6
644.8
637.0
                                                                                           680.7
679.9
                                                                                                               709.6
708.7
                                                                                           671.7
696.7
708.5
                                                                                                               700.2
726.3
738.6
                                                                       660.8
                              607.1
622.3
                                                  638.1
654.1
673.3
                                                                       672.0
                10
                11
12
                                                                                           726.2
747.5
                                                                                                               757.0
779.2
                                                                       688.8
                              640.6
                                                                       709.0
                                YEAR
                                                    YEAR
                                                                         YEAR
C
                              2001
PDATA
                                                    2002
                                                                         2003
                                                  PDATA
803.4
792.4
                                                                      PDATA
843.9
832.3
C
          MONTH
                              762.9
752.4
767.5
                  12345
                                                   808.3
                                                                       849.0
                              767.1
773.9
763.5
                                                   807.9
815.1
804.0
                                                                       848.5
                                                                       856.1
                                                                       844.6
843.5
                  67
89
                              762.4
753.3
                                                   803.0
                                                   793.4
                                                                       833.3
                              781.4
                                                   823.0
                                                                       864.4
                              794.6
814.4
                                                   836.9
857.8
                10
                                                                       879.0
                                                                       901.0
927.4
                11
12
                                                   883.0
                              838.4
C CODE
    SOUTH
                                                                                          YEAR
1989
PDATA
575.1
C
                                                                                                                 YEAR
                                YEAR
                                                                         YEAR
                                                    YEAR
                                                                                                               1990
PDATA
629.9
628.4
                                                                       1988
PDATA
                                                     1987
                                1986
¢
          MONTH
                              PDATA
                                                   PDATA
                              536.8
525.5
                                                   550.3
                                                                        568.1
                  123
                                                                       574.6
                                                                                           576.1
                                                   547.4
                                                                                                               637.7
638.9
                              552.5
537.4
                                                                                           588.2
587.5
586.5
                                                   554.4
                                                                       579.6
                                                                       584.0
587.2
580.2
558.1
564.5
                                                   558.6
                  4567
                              556.2
523.6
523.7
535.7
533.0
541.7
                                                   564.4
                                                                                                               631.6
                                                   564.4
548.5
537.7
541.9
552.0
555.0
565.7
593.9
                                                                                           578.6
                                                                                           562.0
574.3
585.5
                                                                                                               607.8
                  8
                                                                                                               615.5
                                                                       574.5
584.1
594.2
627.8
YEAR
                                                                                                               616.4
                  9
                                                                                           599.8
607.5
638.8
YEAR
                                                                                                               634.5
                10
                                                                                                               640.4
679.9
YEAR
                              533.5
572.2
                11
                 12
                                YEAR
                                                     YEAR
C
                                 1991
                                                     1992
                                                                         1993
                                                                                             1994
                                                                                                                  1995
Ċ
          MONTH
                               PDATA
                                                   PDATA
                                                                       PDATA
                                                                                           PDATA
                                                                                                               PDATA
                              677.3
659.0
                                                   759.4
780.7
                                                                       803.6
792.5
                                                                                           858.0
                                                                                                               904.0
                  123
                                                                                           846.2
                                                                                                               891.6
                                                   759.5
                                                                        808.5
                                                                                           863.2
                                                                                                               909.5
                               666.4
```

```
808.0
815.2
804.2
803.2
793.5
                                                                                                                                                     862.7
870.4
858.6
857.5
847.2
                                                                                                                                                                                      909.0
917.1
904.7
903.5
892.6
925.9
941.6
965.1
993.4
YEAR
                                                689.5
676.3
666.7
                                                                                  746.8
757.4
747.2
737.1
729.2
755.0
760.1
807.2
837.1
YEAR
1997
PDATA
                              456789
                                                 653.6
651.9
                                                 679.0
672.4
702.6
713.2
YEAR
                                                                                                                                                     878.8
893.7
916.0
942.9
YEAR
                                                                                                                    823.1
                                                                                                                   837.1
858.0
883.1
                          10
                          11
                                                                                                                       YEAR
C
                                                 YEAR
1996
PDATA
953.3
940.2
959.1
958.6
967.1
954.1
952.8
                                                                                                                       1998
                                                                                                                                                         1999
                                                                                                                                                                                          2000
                                                                                                                PDATA
1059.8
1045.1
1066.2
                                                                                                                                                                                       PDATA
                                                                                                                                                      PDATA
Ĉ
                HTNOM
                                                                                                                                                  1114.1
1098.8
1120.9
1120.2
1130.2
                                                                                                                                                                                    1144.1
                                                                              1007.3
993.5
1013.4
1012.9
1021.9
1008.1
1006.8
994.7
1031.8
1049.3
1075.4
1107.0
YEAR
                              123456789
                                                                                                                                                                                   1128.4
1151.0
1150.4
1160.7
                                                                                                                1065.6
1075.0
                                                                                                                1060.6
1059.2
1046.5
1085.5
1103.9
                                                                                                                                                   1115.0
                                                                                                                                                                                    1145.0
                                                                                                                                                  1113.5
1100.1
1141.2
1160.5
1189.5
                                                                                                                                                                                   1143.5
1129.7
                                             941.3
976.5
993.0
1017.7
1047.6
YEAR
                                                                                                                                                                                   1171.9
1191.7
1221.5
1257.4
                          10
11
12
                                                                                                                 1131.4
                                                                                                                1164.6
YEAR
2003
                                                                                                                                                   1224.4
C
                                              2001
PDATA
1233.5
1216.6
1241.0
                                                                               2002
PDATA
1303.2
1285.2
1311.1
                                                                                                                2003
PDATA
1377.4
1358.4
1385.7
1385.0
1397.3
1378.4
1376.6
¢
                HTHOM
                              123
                                              1240.4
1251.4
1234.5
                                                                                1310.3
1322.0
                                                                                1304.2
1302.5
                              ة
7
                                              1218.1
1263.5
                              8
                                                                                1286.8
                                                                                                                 1360.1
                                                                               1334.8
1357.4
1391.3
1432.1
                                                                                                                 1410.8
                                             1284.9
1317.0
1355.6
                                                                                                                1434.7
1470.5
1513.7
                          10
                           11
                           12
C
             HTROMN
                                                                                                             МН
6
                                                                                                                              MH
7
                                                                                                                                                                МН
                                                                                                                                                                                MH
                                                                                                                                                                                                MH
                                                                                                                                               MH
                                           МН
                                                           MH
                                                                            MH
                                                                                             MH
C
                                                                                                                                                  8
                                                                                                                                                                                 10
                                                                                                                                                                                                 11
                                                                                                5
                                                               3
                                                                                4
```

MH

12

# (b). Calculation Example of Power Demand Deviation

	;	M n h i	Mary B. D. D.	23 To 1
D.+-		Max PowerDemand	Max. Power Domand Rejected dista(MW)	Power Perwerd Dovintion (%)
Data	No1	Actual data (MV)	Mojected time (mit)	Deviation (%)
	1	314.400	370.900	-15.23322
	. 3	321.300	358.600 372.400	-10.40157 -15.22555
	4	315.700 314.000	355.800	-11.74818
	5	318.600	372.700	-14.51566
	6	326.800	370.500	-11.79485
	7	321.900	365.000	-11.80824
•	8 9	313.800 315.500	366-600 355-700	-14.40263 -11.30164
	10	333.000	379.600	-12.27610
	11	342.600	371.500	-7.77925
	12	340.300	370.800	-8.22545
13	13 14	336.800 344.000	365.300 373.800	-7.80180 -7.97219
	15	377.600	374.100	0.93558
	16	344.800	374.500	+7.93056
	17	341.900	367.800	-7.04191
	18	353.700	377.200	-6.23012 -4.78552
	19 20	346.200 347.900	363.600 364.800	-4.63271
	21	363.500	377.100	-3.60649
	22	369.200	384.500	-3.97921
`	23	386.300	393.700	-1.87958
	24 25	385.400 399.500	395.100 385.400	-2.45512 3.65856
	26	377.900	389.300	-2.92837
	27	377.800	393.700	-4.03858
	28	382.600	392.000	-2.39793
	29	378.100	391.400	-3.39801
	30 31	378,400 380,900	392.600 391.700	-3.61696 -2.75722
	32	370.500	387.400	-4.36239
	33	374.700	386.300	-3.00287
	34	390.600	408.600	-4.40528
	35 36	393.400 396.300	415.800 418.800	-5.38724 -5.37249
	37	393.900	396.800	-0.73088
	38	393.300	406.400	-3.22339
	39	390.400	403.900	-3.34241
	40 41	400.200 408.100	407.300 411.000	-1.74321 -0.70557
	42	401.100	413.000	-2.88133
	43	404.500	406.100	-0.39402
	44	389.700	396.000	-1.59092
	45 46	400.800 416.700	393.800 412.100	1.77755 1.11620
	47	423.000	422.000	0.23697
	48	422.500	428.000	-1.28505
	49	408.900	400.000	2.22497
	5 Q	412.100	412.800	-0.16956
	51 52	421.900 413.800	413.700 415.300	1.98210 -0.36118
	53	424.600	425.400	-0.18801
	54	430.500	428.100	0.56059
	55	428.900	418.100	2.58307
	56 57	416.400 434.000	412.700 421.400	0.89652 2.99006
	58	439.500	437.800	0.38829
	59	463.200	450.500	2.81908
	60	464.200	450.600	3.01816
	61 62	450.600 442.900	447,400 430,900	0.71527 2.78487
	63	446.000	438.300	1.75678
	64	451.500	446.600	1.09716
	65	462.700	439,500	5.27871
	66 67	463.900 443.000	443.500 442.700	4.59975 4.76623
	67 68	463.800 460.800	437.000	5.44623
	69	458.600	447.700	2.43470
	70	438.600	462.300	-5.12653
	71	493.100	460.300 467.500	7.12579 5.11228
	72	491.400	4071300	44660

Number of data is 72 which is calculated multiplying 6 (Number of years, 1985-1991) by 12 (Number of months).

#### (c) Result Example of Output

• SYSTEM CODE : NORTH

• STANDARD DEVIATION : 5.40943 (%)

• AVERAGE VALUE : -2.77960 (%)

If the maximum demand is 496 (mw), Input data to report will be as follows;

Average value =  $-2.77960/100 \times 496 = -13.79 \text{ (MW)}$ 

Standard deviation =  $5.40943/100 \times 496 = 26.83 \text{ (MW)}$ 

#### A-4-3 Formulation of Inflow Diversity Distribution

The inflow diversity distribution is formulated by using the input data of daily inflow  $\{m^3/s\}$  and power to inflow ratio  $\{kW/(m^3/s)\}$ .

#### (1) Calculation Procedure

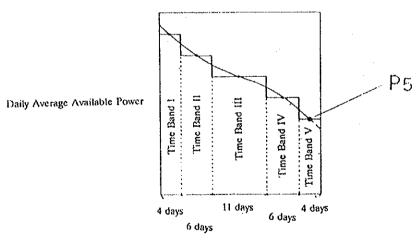
(a) The daily average available power P[kW] is calculated from the daily inflow  $[m^3/s]$  and the power to discharge ratio  $[kW/(m^3/s)]$ .

$$P = \frac{W \times R}{1000}$$

W; Daily Inflow

R; Power to Discharge Ratio

(b) Arrange the data of the daily average available power [P] in the decreasing order of [P], as below.



Number of Days of Occurrence

(c) Calculate ΔP, the difference between the daily average available power P and the average available power P5, which is the median of Time Band V. Seek the number of occurrence of ΔP. Divide this number by the number of days of a month (31), to convert the number to the probability.

## (2) Calculation Example

Assume that we have a hydroelectric power station A, having a power to discharge ratio of 1291  $\{kW/(m^3/s)\}$ . The daily inflow data of this power station is given in Table A-4-9.

Table A-4-9 Data of Daily Inflow

Year	1990	1991	1992
Day	Dail	ly Inflow	[m <sup>3</sup> /s]
1	71	92	52
2	60	80	63
3	68	75	63
4	85	75	66
5	76	87	59
6	64	78	61
. 7	62	66	59
8	56	62	61
9	54	57	62
10	48	66	59
11	52	62	60
12	52	57	68
13	47	53	70
14	57	68	60
15	48	70	57
16	68.	59	54
17.	168	57	50
18	105	60	62
19	96	58	42
20	76	58	61
21	94	65	60
22	72	59	65
23	68	57	64
24	72	57	78
25	92	57	94
26	64	59	83
27	68	59	70
28	. 59	61	66
29	60	56	52
30	61	56	47
31	71	65	47

The result of the calculation of the daily average available power, calculated from daily inflow and power to discharge ratio, is given in Table A-4-10.

Table A-4-10 Calculation Result of Daily Average Available Power

Day         Average Available Power [MW]           1         92         119         67           2         77         103         81           3         88         97         81           4         110         97         85           5         98         112         76           6         83         101         79           7         80         85         76           8         72         80         79           9         70         74         80           10         62         85         76           11         67         80         77           12         67         74         88           13         61         68         90           14         74         88         77           15         62         90         74           16         88         76         70           17         217         74         65           18         136         77         80           19         124         75         54           20         98         75         <	Year	1990	1991	1992
1         92         119         67           2         77         103         81           3         88         97         81           4         110         97         85           5         98         112         76           6         83         101         79           7         80         85         76           8         72         80         79           9         70         74         80           10         62         85         76           11         67         80         77           12         67         74         88           13         61         68         90           14         74         88         77           15         62         90         74           16         88         76         70           17         217         74         65           18         136         77         80           19         124         75         54           20         98         75         79           21         121         84<			L	
2       77       103       81         3       88       97       81         4       110       97       85         5       98       112       76         6       83       101       79         7       80       85       76         8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24		<del></del>	····	<del></del>
3       88       97       81         4       110       97       85         5       98       112       76         6       83       101       79         7       80       85       76         8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25				
4       110       97       85         5       98       112       76         6       83       101       79         7       80       85       76         8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26	<del>}</del>			
5       98       112       76         6       83       101       79         7       80       85       76         8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       107         27	3	. 88	97	81
6       83       101       79         7       80       85       76         8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       107         27       88       76       90         28	4	110	97	85
7       80       85       76         8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       90         28       76       79       85         29       77       72       67         30	5	98	112	76
8       72       80       79         9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       90         28       76       79       85         29       77       72       67         30       79       72       61	6	83	101	79
9       70       74       80         10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       90         28       76       79       85         29       77       72       67         30       79       72       61	7	80	85	76
10       62       85       76         11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       107         27       88       76       90         28       76       79       85         29       77       72       67         30       79       72       61	8	72	80	79
11       67       80       77         12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       90         28       76       79       85         29       77       72       67         30       79       72       61	9	70	74	80
12       67       74       88         13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       107         27       88       76       90         28       76       79       85         29       77       72       67         30       79       72       61	10	62	85	76
13       61       68       90         14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       90         28       76       79       85         29       77       72       67         30       79       72       61	11	67	80	. 77
14       74       88       77         15       62       90       74         16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       90         28       76       79       85         29       77       72       67         30       79       72       61	12	67	74	88
15     62     90     74       16     88     76     70       17     217     74     65       18     136     77     80       19     124     75     54       20     98     75     79       21     121     84     77       22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     90       28     76     79     85       29     77     72     67       30     79     72     61	13	61	68	90
16       88       76       70         17       217       74       65         18       136       77       80         19       124       75       54         20       98       75       79         21       121       84       77         22       93       76       84         23       88       74       83         24       93       74       101         25       119       74       108         26       83       76       107         27       88       76       90         28       76       79       85         29       77       72       67         30       79       72       61	14	74	88	77
17     217     74     65       18     136     77     80       19     124     75     54       20     98     75     79       21     121     84     77       22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	15	62	90	74
18     136     77     80       19     124     75     54       20     98     75     79       21     121     84     77       22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	16	88	76	70
19     124     75     54       20     98     75     79       21     121     84     77       22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	17	217	74	65
20     98     75     79       21     121     84     77       22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	18	136	77	80
21     121     84     77       22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	19	124	75	54
22     93     76     84       23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	20	98	75	79
23     88     74     83       24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	21	121	84	77
24     93     74     101       25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	22	93	76	84
25     119     74     108       26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	23	88	74	83
26     83     76     107       27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	24	93	74	101
27     88     76     90       28     76     79     85       29     77     72     67       30     79     72     61	25	119	74	108
28     76     79     85       29     77     72     67       30     79     72     61	26	83	76	107
29     77     72     67       30     79     72     61	27	88	76	90
30 79 72 61	28	76	79	85
30 79 72 61	29	77	72	67
	30	79	72	61
	31	92	84	

The result of the calculation of the total of daily average available power of each day, which has been re-arranged in the order of decreasing magnitude, is given in Table A-4-11.

Table A-4-11 Total of Daily Average Available Power

	Ave	rage Available Power [MW]
Day	Total	Re-Arranged in Decreasing Order
1	278	356
2	261	301
3	266	293
4	292	292
5	286	286
6	263	282
7	241	278
8	231	268
9	224	266
10	223	266
11	224	263
1.2	229	261
13	219	254
14	239	253
15	226	253
16	234	252
17	356	245
18	293	241
.19	253	240
20	252	239
21	282	237
22	253	234
23	245	231
24	268	229
25	301	226
26	266	224
27	254	224
28	240	223
29	216	219
30	212	216
31	237	212

From the result of re-arranging the average available power of each day in the decreasing order, the average available power at the median of Time Band V is:

Average available power at median of Time Band V = (219+216)/2 = 217.5

The calculation of the difference between the average available power of each day and the average available power at the median of Time Band V is given in Table A-4-12.

Table A-4-12 Difference between Average Available Power of Each Day and Average Available Power at Median of Time Band V

Day	Difference between Average Available Power of Each Day and Average Available Power at Median of Time Band V (MW)
1	138.5
2	83.5
3	75.5
4	74.5
5	68.5
6-	64.5
7	60.5
8	50.5
9	48.5
10	48.5
11	45.5
12	43.5
13	36.5
14	35.5
15	35.5
16	34.5
17	27.5
18	23.5
19	22.5
20	21.5
21	19.5
22	16.5
23	13.5
24	11.5
25	8.5
26	6.5
27	6.5
28	5,5
29	1.5
30	-1.5
31	-5.5

The number of occurrence of a certain value of the difference between the average available power of each day and the average available power at the median of Time Band V is counted. This number is divided by the number of days in a month, or 31. This probability is the inflow diversity distribution.

An inflow diversity distribution is given in Table A-4-13.

Table A-4-13 Inflow Diversity Distribution

No.	MW	Number of Occurrence	Probability
1	138.5	1	0.03226
2	83.5	1	0.03226
3	75.5	1	0.03226
4	74.5	1	0.03226
5	68.5	1	0.03226
6	64.5	1	0.03226
7	60.5	1	0.03226
8	50.5	1	0.03226
9	48.5	2	0.06452
10	45.5	1	0.03226
11	43.5	1	0.03226
12	36.5	1.	0.03226
13	35.5	2	0.06452
14	34.5	1	0.03226
15	27.5	1	0.03226
16	23.5	1	0.03226
17	22.5	1	0.03226
18	21.5	1	0.03226
19	19.5	1	0.03226
20	16.5	1	0.03226
21	13.5	1	0.03226
22	11.5	1	0.03226
23	8.5	1	0.03226
24	6.5	2	0.06452
25	5.5	1	0.03226
26	1.5	1	0.03226
27	-1.5	1	0.03226
28	-5.5	1	0.03226

#### (3) Input Data and Output

#### (a) Description of Input Data

Table A-4-14 Description of Input Data

No.	Variable	Туре	Unit	Description
1	С			Description of format of No. 2 data.
2	NPS	12		Number of power stations (maximum 5)
3	C			Description of format of No. 4 data.
4	PSNAME	C8	1	Power station name.
	EWR	F8	kW/(m <sup>3</sup> /s)	Power to discharge ratio.
5	C			Description of format of No. 6 data.
6	NÝEAR	12		Number of years of data (maximum 20).
7	C	1		Description of format of No. 8 data.
8	YEAR	14		Number of years of data.
9	c			Description of format of No. 10 data.
10	VOLUME	F8	m <sup>3</sup> /s	Daily inflow.
11	C.			Description of format of No. 12 data.
12	NCASE	- 12		Number of calculation cases.
13	C			Description of format of No. 14 data.
14	CASENA	C78	1	Name of calculation case.
15	С			Description of format of No. 16 data.
16	PSNAME	C8		Name of power stations for which data are
			İ	integrated.
				(The number of PSNAME must be equal to NPS of No.
			•	2.)
	1	í	I .	i e

No.: Input data number. Must consistent with the number of input format. Variable name: The name of input data variable.

Type: The input data type and maximum digits.

Type

C: character
F: floating point decimal

1: integer

Maximum digits: The maximum digits if the number following C, F or I.

Unit: Input data unit.

Description: Input data description.

#### (b) Input Data Format

In the table of input data format, the data are entered to the hatched area.

The data input is flushed to left they are characters (C), or flushed to right if they are floating decimals (F) or integers (I).

Table A-4-15 Input Data Format

Г								J
		2		4.	ഹ		ı	
	12345678901234	5678901	234567890	1234567890	1234567890	1234567890	1234567890	
	- S	- - - -	- - - - -			-		
		-		And the second and th				
	PSNA			-	-	-		
	-		-			-	-	
l	C NYEAR	-		-				7-7-2 <b>-1-1-1</b> -1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
				1 1 1				
	3	YEAR	YEAR	YEAR	YEAR	YEAR	-	
	3	V D L U.M.E	VOLUME	8 W N 1 D A	VOLUME VOLUME	3 M O T O A		
]				_				
	C NCASE					1	-	
	- - - - - - - - - - - - - - - - - - -						-	
	CCASENA	 - - -	- - - - -	-			-	
! I								
	C PSNAME	PSNAME	PSNAME	PSNAME	PSNAME			
	-	-						
								ļ

# (C) Examples for Input Data

1 PAG	T DATA *	* INPU						
+7	+60	+50	+40	+30	+20	+10		
							_	
						NPS	С	
						2	_	2
				•	EWR	PSNAME	¢	- 3
		•			3528.	PISAYAMB	_	4
	•					NYEAR	С	5
			\15 A	VC.4.0	5 L	14	_	6
	YEAR	YEAR	YEAR	YEAR	YEAR		C	7
	1983	1982	1981	1980	1979	-	С	8
	VOLUME	VOLUME	VOLUME	VOLUME 1.70	VOLUME	· <u>1</u>	•	10
	4.58	2.42	2.17	and the second s	9.68			
	2.85	2.73	2.41	1.81	5.51	. 2		11
	4.05	3.53	1.19	3.55	6.40	3		12
	2.97	5.37	3.30	3.80	4.88	4		13
	3.90	4.10	3.34	2.50	5.36	5		14
	4.67	5.24	4.14	3.48	14.71	6		15
	3.27	4.58	0.52	1.24	17.42	7		16
	2.68	2.91	1.96	1.22	14.71	8		17
	2.38	2.48	2.22	3.92	11.22	9		18
	2.40	2.50	2.55	5.29	6.34	10		19
•	2,50	0.00	2.92	1.92	5.50	11		20
	1.97	0.48	13.19	1.99	4.73	12		21
	2.99	1.96	13.19	4.45	3.51	13		22
	1.72	4.66	4.77	2.62	2.36	14		23
	2.60	3.08	2.77	1.89	4.45	15		24
	4,35	2.80	5.10	1.96	3.66	16		25
	4.70	5.78	4.42	2.50	4.32	17		26
	4.82	5.94	4.87	1.63	1.11	18		27
1	0.83	7.91	0.27	2.57	6.95	19		28
	4.12	8.57	2.13	4.11	2.64	20		29
	10.40	8.08	2.57	2.29	1.67	21		30
	3.61	6.61	5,32	4.32	4.54	22		31
	2.99	5.69	4.37	1.64	2.36	. 23		32
	2.92	3.54	4.15	3.21	3.18	24		33
•	2.20	4.94	5.07	2.29	2.32	25		34
	2.23 2.87	2.54 5.55	2.82 2.82	1.19 2.43	0.14	26 27		35
		7.85	2.96	1.81	4.22 1.09	28		36 37
	4.87 2.23	7.48	4.12	1.93	1.09	. 29		38
	3.69	4.52	4.56	1.93	2.10	30		39
	3.82	3.49	4.66	1.31	7.62	31		37 40
	YEAR	YEAR	YEAR	YEAR	YEAR	31	_	41
	1988	1987	1986	1985	1984		~	42
		VOLUME	VOLUME	VOLUME	VOLUME		,	43
	VOLUME 4.22	3.51	1.87	0.95	5.56	1	-	43 44
	7.69	7.32	1.04	0.90	5.28	5		45
	3.17	3.58	1.80	2.69	4:07	3		46
	3.06	6.51	2.87	1.37	3.80	4		40 47
	2.73	5.06	3.61	1.47	3.12	5		48
	3.30	2.85	4.99	2.34	2.82	6		49
	4.53	3.61	3.95	1.03	2.83	7		50
	44,55	3.01	3.73	. 4.03	£103	•		J.

					* INPU	T DATA *	2 PAGE
-	+	10+20		+40	+50	+60	+70
51	8	2.70	1.76	4.74	3.33	4.60	
52	9	2.01	6.66	14.33	2.23	1.66	
53	10	2.18	2.03	15.33	1.50	2.10	
54	11	2.54	5.72	13.78	3.81	2.45	
55	12	2.18	0.16	7.80	2.33	2.73	
56	13	2.20	1.46	5.31	3.65	2.07	
57	14	2.23	1.88	4.31	10.39	3.38	
58	15	1.78	0.57	3.16	7.29	4.75	
59	16	1.60	2.32	5.03	5.49	3.72	
60	17	1.80	1.79	3.91	2.66	5.90	
61	18	5.44	0.77	2,82	2.34	6.94	
62	19	10.83	0.59	3.50	2.42	5.70	
63	20	6,58	2.39	4.70	9.99	3.23	
64	21	7.59	1.43	20.82	25.18	3,08	
65	22	5.63	0.15	23.07	15.42	3.16	
66	23	4.71	3.78	24.14	12.35	0.83	
67	24	3.71	1.23	11.98	9.80	2.72	
68	25	3,37	1.39	7.04	6.91	1.75	
69	26	5.26	1.89	6.64	5.60	2.95	
70	27	4.90	2.54	4.25	4.17	2.84	
71	28	5.10	3.30	3.50	3.80	2.08	
72	29	5.61	5.25	4.31	3.02	3.89	
73	30	4.69	2.81	3.58	4.30	2.84	
74	31	3.55	2.43	3.33	12.46	2.84	
			YEAR	YEAR	YEAR	YEAR	
75 C		YEAR	1990	1991	1992	FLAR	
76		1989	AOL NAC	VOLUME	VOLUME	VOLUME	
77 C		VOLUME			2.87	VOCONC	
7B	1	5.74	3.52 0.75	2.71 5.71	4.08		
79	2	1.00			2.47		
80	3	6.16	4.25	2.93			
81	4	4.16	3.63	3.59	2.51		
82	5	3.02	2.98	2.75	1.49		
83	6	2.88	2.89	1.36	1.72		
84	7	2.05	2.26	3.28	0.66		
85	8	1.35	2.62	1.97	2.04		
86	. 9	1.73	2.60	1.46	1.21		
87	10	2.39	1.00	1.90	1.25		
88	11	2.20	0.40	2.36	2.39		
89	12	2,29	0.55	1.14	1.87		
90	13	1.86	0.09	0.79	1.02		
91	14	1.52	3.71	0.46	1.54		
92	15	5.62	0.82	0.85	1.69		
93	16	1.25	1.97	1.64	1.23		
94	17	2.10	12.40	0.64	1.91		
95	18	0.81	9.54	0.67	1.78		
96	19	2.80	9.63	1.37	1.41		
97	20	2.91	7.79	1.84	0.72		
98	21	0.72	6.81	1.92	0.90		
99	22	1.35	5.30	6.18	1.99		
100	23	0.56	3.85	2.03	3.54		

A-4-29

---+---10----+---20----+---30----+---50----+---50----+---70

#### ■ INPUT DATA ■ 3 PAGE

	,-	+10	+20	+30		+50	+60+70
101		24	0.56	3.82	0.87	2.60	
102		25	1.48	3.66	1.82	5.42	
103		26	2.32	4.19	1.04	4.23	•
104		27	4.03	4.04	2.09	3.69	
105		28	0.34	2.29	1.19	7.47	
106		29	0.92	3.53	3.28	2.78	
			4.97	3.33	1.47	1.90	
107		30	1 28	4.46	1.36	2.42	
108	_	31	EWR	4.40	1.50	2	
109	C	PSNAME					•
110	_	AGOYAN	1291.	•			•
111	C	NYEAR		•			-
:12	_	3,		14 m 6 m	215.15	VEAD	VCAD
113	Ç		YEAR	YEAR	YEAR	YEAR	YEAR
114			1990	1991	1992		
115	¢		VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
116		1	71.00	92.00	52.00		
117		2	60.00	80.00	63.00		
118		3	68.00	75.00	63.00		
119		4	85.00	75.00	66.00		
120		5 .	76.00	87.00	59.00		
121		6	64.00	78.00	61.00		
122		7	62.00	66.00	59.00		
123		8	.56.00	62.00	61.00		
124		9	54.00	57.00	62.00	•	
125		10	48.00	66.00	59.00		•
126		11	52.00	62.00	60.00	•	
127		12	52.00	57.00	68.00		•
128		13	47.00	53.00	70.00		•
:29		14	57.00	68.00	60.00		
:30		15	48.00	70.00	57.00		
131		16	68.00	59.00	54.00		
132		17	168.00	57.00	50.00		
133		18	105.00	60.00	62.00		
134		19	96.00	58.00	42.00		
135		50	76.00	58.00	61.00		•
136		21	94.00	65.00	60.00		
137		22	72.00	59.00	65.00		
138		23	68.00	57.00	64.00		
139		24	72.00	57.00	78.00		
140		25	92.00	57.00	84.00		
141		26	64.00	59.00	83.00		
142		27	68.00	59.00	70.00		
		28	59.00	61.00	66.00		
143		26 29	60.00	56.00	52.00		•
		30	61.00	56.00	47.00		•
145			71.00	65.00	47.00		
146	_	31 Heace	71.00	03.00	47100		
147							
148		3					
149	Ç		CAVAMBO				
150		CASE-1 PI	VOPALAC	_			

#### \* INPUT DATA \* 4 PAGE

	, <b></b> .	+10-	+20	+30	+40	+50+70
151	С	PSNAME	PSNAME	PSNAME	PSNAME	PSNAME
152		PISAYAMB				
153	C	CASENA				
154		CASE-2 AG	OYAN			
155	C	PSNAME	PSNAME	PSNAME	PSNAME	PSNAME
156		AGOYAN				
157	C	CASENA				
158		CASE-3 PI	SAYAMBO & A	AGOYAN		
159	С	PSNAME	PSNAME	PSNAME	PSNAME	PSNAME
160		PISAYAMB	AGOYAN			

## (d) Examples for Output

#### CASE-1 PISAYAMBO

NO.	MW	FREQUENCY	PROBABILITY
1	181.00	1	0.03226
2	156.00	1	0.03226
3	107.00	1	0:03226
4	67.00	1	0.03226
5	52.00	1	0.03226
6	51.00	i	0.03226
7	48.00	1	0.03225
8	46.00	1	0.03226
9	43.00	1	0.03226
10	40.00	1	0.03226
11	33.00	i	0.03226
12	32.00	i	0.03226
13	31.00	1	0.03226
14	29.00	1	0.03226
15	28.00	1	0.03226
16	25.00	1	0.03226
17	24.00	3	0.09677
18	21.00	2	0.06452
19	20.00	1	0.03226
20	16.00	2	0.06452
21	12.00	1	0.03226
22	10.00	1	0.03226
23	9.00	1	0.03226
24	6.00	· 1	0.03226
25	2.00	1	0.03226
26	-2.00	1	0.03226
27	-3.00	1	0.03226

#### CASE-2 AGOYAN

			·
NO.	MW	FREQUENCY	PROBABILITY
1	138.50	1	0.03226
5	83.50	1	0.03226
3	75.50	1	0.03226
4	74.50	1	0.03226
5	68.50	1	0.03226
6	64.50	1	0.03226
7	60.50	1	0.03226
8	50.50	1	0.03226
9	48.50	2	0.06452
10	45.50	1	0.03226
11	43.50	1	0.03226
12	36.50	1	0.03226
13	35.50	2	0.06452
14	34.50	1	0.03226
15	27.50	1	0.03226
16	23.50	í	0.03226
17	22.50	1	0.03226
18	21.50	1	0.03226
19	19.50	1	0.03226
20	16.50	1	0.03226
21	13.50	1	0.03226
22	11.50	1	0.03226
23	8.50	1	0.03226
24	6.50	2	0.06452
25	5.50	1	0.03226
26	1.50	1	0.03226
27	-1.50	1	0.03226
28	-5.50	1	0.03226

CASE-3 PISAYAMBO & AGOYAN

NO.	· MW	FREQUENCY	PROBABILITY
1	235.00	1	0.03226
2	181.00	· 1	0.03226
3	171.00	1	0.03226
4	124.00	. 1	0.03226
5	97.00	2	0.06452
6	91.00	1	0.03226
7	89.00	1	0.03226
8	87.00	1	0.03226
ò	82.00	1	0.03226
10	80.00	1	0.03226
1.2	76.00	1	0.03226
12	70.00	1	0.03226
13	63.00	1	0.03226
14	57.00	1	0.03226
15	55.00	1	0.03226
16	54.00	1	0.03226
17	44.00	2	0.06452
18	40.00	1	0.03226
19	28.00	1	0.03226
20	24.00	· 1	0.03226
21	21.00	1	0.03226
22	17.00	1	0.03226
23	16.00	2	0.06452
24	7.00	1	0.03226
25	4.00	1	0.03226
26	0.0	2	0.06452
27	-5.00	1	0.03226

## A-4-4 Output Data of Computer

\*

\*

RELIABILITY EVALUATION PROGRAM FOR INTERCONNECTED POWER SYSTEMS

\*

( REPORT )

PRESENTED BY KCC

CALCULATION DATE 11/18/1993

LOLP OF SNI, AS OF DECEMBER, 1991

11/18/19/3  C CARLO OF SNI, AS OF DECEMBER, 1971  C GRID  C NASWK ANSWK ANSW ANSWK ANSW ANSWK AN	m 4. m 9	C DATE	C DATE						
C	4.10.0	11/18	11993						
COLP OF SNI, AS OF DECEMBER, 1991   CANSMIX ANSMIX ANSMI	\$ 5								
C ICALCU IPSING IPPULT O	Ÿ	COLP	OF SNI,	AS OF		991			
C ICACU IPSING IDMULT  ** ANSWK ANSWK ANSWK ANSWK ANSWK ANSWK ANSWK  ** ASEGEIN SING!  C TITLE  ECUADOR DECEMBER 1991  C TIME  ECUADOR DECEMBER 1991  C TIME			110						
C ICALCU IPSING IDMULT  ANSWE O.5  END OF "ANSWK" DATA  AREND  BABGGIN SINGL  ECUADOR DECEMBER 1991  C CODEO  LAWF  C LAWF  C LAWF  C LAWF  C LAWF  C CODE  C LAWF  C LAWF  C LAWF  C LAWF  C CODE  C LAWF  C LODE  C LAWF  C CODE  C LAWF  C CODE  C LAWF  C	^		Ŋ						
## END OF "ANSMK ANSMK DATA ## END OF "ANSMK" DATA 8.88EGIN SING! C CODEO. RELOCK NOOTH C RANGEL HEIJIT DELTXX LTYP C RANGEL HEIJIT DELTXX LNMW LNMW LNMW NOOTH C LHMW LNMW LNMW LNMW LNMW LNMW LNMW C LHMW LNMW DATA C CODE. ## END OF "LNMW" DATA C CODE C INDEX1 C CODE C INDEX2 C CODE C INDEX3 C CODE C CODE C INDEX3 C CODE C	æ		007	IPSING	IPMULT				
C	Ç.		.0	٥	Ö				
# END OF "ANSWK" DATA  & REUD  & REGIN SINGL  C TITLE  C TITLE  C CODE O  RANGEL HEIJIT DELTXX LTYP  C CODE O  RANGEL HEIJIT DELTXX LTYP  C LWW  LUMW LNMW LNMW LNMW LNWW  1 LNWW LNMW DATA  C LWW  C	0.1		XWS	ANSMK	ANSMK	ANSWA	ANSMK	ANSMK	ANSWK
# END OF "ANSMK" DATA  ARENO  C TITLE  CLUMOR DICEMBER 1991  C CODE  TOWATH  C LHWW  C LWW  C LWC  C L	11	·	٥.5						
##END ##END ##END ##END ##END ##ENDOR DECEMBER 1991 C CODE	2	*.	SNO NO						
### BEGIN SINGL C TITLE C TITLE C TITLE C CODE	M	RREND							
C CODE LIMM LINMW DATA  C LINDEXI SOLO 520.9 520.3 525.2 531.7 531.7 520.0 520.0 520.9 500.3 488.5 513.3 504.7 520.0 520	4	NEGEGER							
C CODE	Š								
C CODEO KBLOCK  NORTH 1  C RANGEL HEIJIT DELTXX LTYP  50. 20. 20. 50. P  1 LIMW LNMW LNMW LNMW LNMW LNMW LNMW LNMW LN	7.0	ECUADO	OR DUCE	MBER 1991					
NORTH	17			KBLOCK					
C RANCEL HEIJIT DELTXX LTYP 50. 20. 50. P 50. 20. 50. P 50. 20. 50. P 60. LNMH LNMM LNMM LNMM LNMM LNMM 536.0 520.9 531.7 529.5 513.3 697.1 530.6 536.0 520.9 531.7 529.5 531.7 520.0 520.9 520.3 488.5 531.7 531.7 C CODE 1 TKW CN CN CN CO IPOBI C CODE 1 TKW CN CN CN CO CODE CUNBAYA 4.4125 4. 3.84 0 CUNBAYA 4.4125 2. 0.36 0 CUNBAYA 1.425 4. 3.84 0 CUNBAYA 1.425 2. 0.36 0 CUNBAYA 1.425 2. 0.36 0 CUNBAYA 1.425 2. 0.36 0 CUNBAYA 1.425 4. 3.84 0 CUNBAYA 1.425 4. 3.84 0 CUNBAYA 1.425 4. 3.84 0 CUNBAYA 1.425 6. 3.45 0 CUNBAYA 1.445 6. 3.	8	NORTH		÷					
C LMWF S0. 20. 50. P  1	6		38.	HEIJIT	DELTXX	۵ ۲			
C LMWF  1 LNMW LNMW LNMW LNMW LNMW LNMW LNMW LNMW	00		. 05	. 00	C	. a			
C LUMW LNMW LNMW LNMW LNMW LNMW LNMW LNMW LN	, ,		. ii			<b>L</b>			
C LEMMW LNMW LNMW LNMW LNMW LNMW LNMW LNMW S36.0 520.9 531.7 529.5 513.3 520.7 520.9 520.9 520.9 520.3 525.2 531.7 520.7 520.0 520.0 520.3 525.2 531.7 520.7 520.0	4 6				•				
## CODE TEMM LNMW LNMW LNMW LNMW LNMW LNMW LNMW LN	3 1	÷	r-t						
## S26.0 520.9 531.7 529.5 513.3 497.1 530.6 530.6 530.0 520.3 526.2 531.7 531.7 520.9 520.3 400.5 513.3 504.7 520.9 500.3 400.5 513.3 504.7 50.0 50.0 50.0 50.0 50.0 50.0 50.0 50	1		3	LNMW	LNAE	MWN'	LNME	L'NME	LNMK
\$30.6 \$36.0 \$26.3 \$25.2 \$31.7 \$31.7 \$31.7 \$20.9 \$20.9 \$50.3 \$484.5 \$13.3 \$504.7 \$20.9 \$50.9 \$60.3 \$484.5 \$13.3 \$504.7 \$20.9 \$50.9 \$60.3 \$484.5 \$13.3 \$504.7 \$20.9 \$20.9 \$60.3 \$484.5 \$13.3 \$504.7 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20.14 \$20.0 \$2. \$20	22	236	0.	520.9	531.7	529.5	513.3	497.1	526.3
# 520.9 520.9 500.3 488.5 513.3 504.7  # END OF "LNMW" DATA  C CODE  AGOVAN  TRIV C CODE  TRIV C LOS  SANTA RO 15.00  10.080  SANTA RO 15.00  10.080  SANTA RO 15.00  TRIV C LOS  TRIV C LO	23	53(	9.0	536.0	526.3	525.2	531.7	531.7	527.4
C CODE.  AGOTAN 78.00 2. 0.14 0. CN CO COMB.  AGOTAN 78.00 2. 0.14 0. CN COMB.  CCONBAYA 4.4125 4. 3.84 0. CMLOS 0.42 0.36 0. CMLOS 0.42 0. CMLOS 0.43 0. CMLOS 0. CM	20	520		520.9	500.3	488.5	513.3	504.7	497.1
C CODE AGOVAN AG	27	#	SNO	i o					
C CODE TKW CN 0 1760  AGOYAN 78.00 2. 0.14  FISAYAMB 32.70 2. 0.66  CUNBAYA 4.4125 4. 3.484  NAYON 7.00 2. 3.13  PASOCHOA 1.125 2. 0.36  CHILLOS 0.430 2. 2.65  OTHERS H 1.620 18. 3.84  * END OF "CODE TKW CN 0 IPOBI" DATA  C CODE TKW CN 0 IPOBI" DATA  C CODE TKW CN 0 IPOBI DATA  C SANTA RO 15.00 3. 20.23  SANTA RO 15.00 3. 20.23  SANTA RO 15.00 2. 17.54  S.R BURK 5.00 2. 17.54  S.R BURK 5.00 2. 17.54  S.R BURK 1.00 2. 17.54  S.R BURK 5.00 2. 17.54	33		1X1						
C CODE. TKW CN 0 1908 ASSYAN 78.00 2. 0.14 ASSYAN 78.00 2. 0.14 CUNSAYAM 32.70 2. 0.66 CUNSAYAN 1.125 2. 0.36 PASOCHOA 1.125 2. 0.36 CHILLOS 0.430 2. 2.65 CHILLOS 0.430 2. 2.65 CHILLOS 0.430 2. 2.65 CHILLOS 0.430 2. 2.65 CHILLOS 0.430 1.026   S TKM CN 0 IPOBI* DATA C INDEX2 C CODE ESMERALD 125.00 1. 0.80 SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 CODE TKW CN 0 IPOBI* DATA C INDEX3 LOVAR LOAV 3 26.83 -13.79	62		er!						
AGCYAN AGCYAN AGCYAN ACACUMBAYA A.4125 CUNBAYA A.4125 A.41	o M			TKW	Š	ø	IPOBI		
FISAYAMB 32.70   2. 0.66	er Bi	AGOYAN	״	78.00	2	0.14	Ó		
CUMBAYA 4.4125 4. 3.84  NAYON 7.00 2. 3.13  NAYON 1.125 2. 0.36  CHILLOS 0.450 2. 2.65  OTHERS H 1.620 18. 3.84  * INDEX2 2. CODE TKW CN 0 IPOBI* DATA  C CODE	65 84	PISAY	4M8	32.70		99.0	0		
PASOCHOA 1.125 2. 0.36 CHILLOS 0.430 2. 2.65 CHILLOS 0.430 2. 6.65 CTHERS H 1.620 18. 3.84  * END OF "CODE TKW CN O IPOBI" DATA C INDEX2 C CODE ESMERALD 125.00 1. 0.80 SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 17.54 S.R DIRS 1.64 5. 20.23 S.R DUK 5.00E TKW CN O IPOBI" DATA C INDEX3 LOVAR LOAV 3 26.83 -13.79	8) 8)	CUNBA	4	4.4125	7	3.84	0		
PASOCHOA 1.125 2. 0.36 CHILLOS 0.430 2. 2.65 OTHERS H 1.62d 18. 3.84  * END OF "CODE TKW CN 0 IPOBI" DATA C CODE ESMERALD 125.00 1. 0.80 SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 17.54 S.R BUNK 5.00E TKW CN 0 IPOBI" DATA C INDEX3 LOVAR LOAV 3 26.83 -13.79	Š	NAYON		7.00	ć.	3.13	0		
CHILLOS 0.430 2. 2.65  ** END OF "CODE TKW CN 0 IPOBI" DATA  C CODE TKW CN 0 IPOBI" DATA  S.R DIFS 1.64 5. 20.23  S.R DIFS 1.64 C.05 TKW CN 0 IPOBI" DATA  T. S.R DIFS 1.64 5. 20.23  S.R DIFS 1.64 5. 20.	es N	PASOCH	404	1.125	Ŋ	0.36	٥		
* END OF "CODE TKW CN Q IPOBI" DATA C INDEX2 C CODE TKW CN Q IPOBI" DATA C CODE TKW CN Q IPOBI" DATA C CODE TKW CN Q IPOBI SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 20.23 S.R BUNK 5.00E TKW CN Q IPOBI" DATA C INDEX3 LOVAR LOAV 3 26.93 -13.79	98	CHILLO	SC	0.430	2.	2,65	٥		
* END OF "CODE TKW CN 0 IPOBI* DATA  C CODE ESMERALD 125.00 1. 0.80 SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R DIFS 1.64 5. 20.23 S.R BUNK 5.00 2. 17.54  * END OF "CODE TKW CN 0 IPOBI" DATA C INDEX3 LOVAR LOAV 3 26.93 -13.79	37	OTHERS	ľ	1.620	18.	3.84	0		
C CODE TKW CN G IPOB SANTA RO 15.00 3. 20.23 CUANGOPO 4.05 6. 17.54 S.R BURK 5.00 2 17.54 C.M S.R BURK 5.00	33	*	FND	OF "CODE	S O				
C CODE TKW CN G IPOB ESMERALD 125.00 1. 0.80 SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R BURK 5.00 2. 17.54 S.R BURK 5.00 2. 17.54 KW CN G IPOBL" DATA C INDEX3 LOVAR LOAV 2. 17.54 S.20.23 S.6.93 -13.79	6		2X2	-		٠			
C CODE TKW CN G IPOB ESMERALD 125.00 1. 0.80 SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R BUNK 5.0 2. 17.54  * END OF "CODE TKW CN G IPOBL" DATA C INDEX3 LOVAR LOAV 3 26.83 -13.79	ò		8						
ESMERALD 125.00 1. 0.80  SANTA RO 15.00 3. 20.23  GUANGOPO 4.05 6. 17.54  S.R DIFS 1.64 5. 20.23  S.R BUNK 5.00 2. 17.54  * END OF "CODE TKW CN Q IPOBL" DATA  C INDEX3 LOVAR LOAV  3 26.83 -13.79	4.1			3 3 1	Ö	G	IPOSI		
SANTA RO 15.00 3. 20.23 GUANGOPO 4.05 6. 17.54 S.R DIFS 1.64 5. 20.23 S.R BUNK 5.00 2. 17.54  * END OF "CODE TKW CN Q IPOBL" DATA C INDEX3 LOVAR LOAV 3 26.93 -13.79	Ş	ESMER4	٩٢٥	125.00	7	0.80	0		
GUANGOPO 4.05 6. 17.54  S.R DIES 1.64 5. 20.23  S.R BUNK 5.00 2. 17.54  * END OF "CODE TKW CN Q IPOBI" DATA  C INDEX3 LOVAR LOAV  3 26.83 -13.79	my	SANTA	80	15.00	m	20.23	0		
S.R BUNK 5.00 2. 17.54  * END OF "CODE TKW CN Q IPOBI" DATA  C INDEX3 LOVAR LOAV  3 26.83 -13.79	44	GUANG	040	4.05	, 9	17.54	·		
S.R BUNK 5.00 2. 17.54  * END OF "CODE TKW CN @ IPOBI" DATA  C INDEX3 LOVAR LOAV  3 26.83 -13.79	ñ	S.R D.	IFS	1.64	'n	20.23	o		
* END OF "CODE TKW CN Q IPOBI" DATA C INDEX3 LOVAR LOAV 3 26.83 -13.79	94	S.R.B.	NX	00.8		17.54	o c		
C INDEX3 LOVAR LOAV 3 26.83 -13.79	1.3		END	OF "CODE	TKE CN	,	•		
3 26.83	8		P) XII	LOVAR	LOAV				
1000	¢		, M	, AC.	-12.70				
			,	0.0	* * * * * * * * * * * * * * * * * * * *				

A-4-35

1.00000

\*\*\* UNIT DATA OF GRID NORTH \*\*\*

нүрко	CODE	3	UNIT	F 0.8	CODE	I.	UNIT	۳ د د
	AGOYAN	78.00	8	0.1	PISAYAMB	32.70	2	0.7
	CUMBAYA	4.41	4	3.8	NAYON	7.00	۲,	3.
	PASOCHOA	1.13	5	7.0	CHILLOS	0.43	6	5.6
	OTHERS H	1.62	18.	ε) (i)				
					TOTAL	285.32	32.	
THERMAL	CODE	3	UNIT	FOR	CODE	3	LIND	A OR
	ESMERALD	125.00	ä	9	0.8 SANTA RC	15.00	'n	20.5
	GUANGOPO	4.05	٠,	17.5	S.R DIES	1.64	'n	20.2
٠	S.R BUNK	2.00	€.	17.5				
					TOTAL	212.50	17.	
			HYDR	0+THER	HYDRO+THERMAL TOTAL	497.82	.64	

\*\*\* LOAD DATA OF GRID NORTH \*\*\*

HICMW) WKDAYS(DAY) 20. 536.

\*\*\* RELIABILITY OF SINGLE GRID NORTH \*\*\*

DIFF.COEF.	-0.017279	-0.017279	-0.001000	
RESERVE MARGIN W) (%)	26.48	27.56	25.43	-7.12
RESERVE (MW)	141.92	147.70	136.32	-38.18
LOLP	0.787876	0.40000	1.078846	*19.791108

\*\*\* UNIT DATA OF GRID SOUTH \*\*\*

F 0 X	ω 60		я 8	8.	6.2	ν. 	10.7	17.5		
とはなっ	•	11.	FIND	<del>.</del>	٥,	vi	7	10.	4.7	58.
3	75.5	465.74	3	20.00	9.50	31.60	20.00	3.14	390.60	856.34
CODE	5. 1.9 OTHERS H	TOTAL	CODE	ESTERO G	GUA V #2	GUA: VAP	ESTERO E	S.R BUNK	TOTAL	HYDRO+THERMAL TOTAL
FOR	1.9		FOR	5.0	30.3	14.0	e0	20.2		O+THER
TIND	٥.		UNIT	6,	<u>ن</u> ،	<b></b>	ij	23.		HYDR
3	67.70		X	70.00	4.70	12.00	15.00	1.40		
CODE	PAUTE		CODE	ESTERO V	GUA V #1	GUA GAS	ESTERO E	S.R DIES		
MYDRO			THERMAL							

\*\*\* LOAD DATA OF GRID SOUTH \*\*\*

H1(MK) WKDAYS(DAY)

20. 804.

#	
SOUTH	
GRID	
SINGLE	
6	
RELIABILITY	
#	

LOLP ALOLY SACKED	RESERVE MARGIN	MARGIN	DIFF.COEF.
7 H 1 M 0 W 7 K 7 K 7 K 7 K 7 K 7 K 7 K 7 K 7 K 7	**************************************	3	CWRYTH NOW TROOT CAS
0.500000	198.35	24.67	-0.009177
0.370240	215.59	26.82	-0.005501
0.30000	230.84	28.71	-0,003235
*10.132179	52.34	6.51	

1.1 LCUADOR DICIMBUR 1991

	Σ	н,	•		RMMIN	ć,	0	0
	RAND				Ï	( MM )	536.0	904.0
	RULE	RATAL			BLOCK		. <del></del>	<b>-</b>
\TA **	LOLP(D/M)	005.0		٠	RMINIT	( <b>XX</b> )	50.0	120.0
** MONTE CARLO DA	SAMPLE	0005	ATAC CTOS **		NO. GRID	NAME	1 NORTH	2 SOUTH
	** MONTE CARLO DATA **	(M/Q)	(D/M) RULE Soo RATAL	(D/M) RULE 500 RATAL	(D/M) RULE SOO RATAL	(D/M) RULE RANDOS SOO RATAL MINIT BLOCK H1	SOO RATAL 1 SOO RATAL 1 MINIT BLOCK H1 RI (MW) (MW)	SOO RATAL 1 SOO RATAL 1 MINIT BLOCK H1 R1 (MM) (MW) SSOO 1 536.0

KOIF

RINIA

\*\* BRANCH DATA \*\*
NB BRANCH CODE NF

1->F (MW)

NB BRANCH CODE NF NF->T (MW) (MW) (MW) 1 LINE NORTH (1) SOUTH (2) 900.0 900.0

ECUADOR DECEMBER 1991 /27

外号
GRID
INTERCONNECTED
P
RELIABILITY
* * *

#  -	<b>ω</b>			-
RESERVE	VE MARGIN (MM)	(ME)	46.39	125.04
	•	(%)	8.65	15.55
11 . p	200		0.47449	0.46583
11 }	1000		0.50825	0.44180
μ ⊢	1500		0.50673	0.47721
# E	2000		0.49392	0.46277
11.	2500		0.51412	0.51235
;; :-	3000		0.50930	0.52034
u  -	3500		0.52667	0.52073
# 	4.000		0.51501	0.51398
# 	4.500		0.51693	0.50330
II.	2000		0.49945	0.49766
OLP (	LOLP(DAY/MONTH)	_	0.49945	0.49766

ECUADOR DECEMBER 1991 / - 8

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

RINIT	Ħ		X H H	**
Ş	н		RMMEN (X)	00
RANDOM			H1 (MM)	536.0
RULE	RATAL		вгоск	ਜ ਜ
LOLP(D/M)	0.0		RMINIT (MM)	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
SAMPLE	0005	** GRID DATA **	NO. GRID NAME	1 NORTH 2 SOUTH

1->F (MW) 900.0

F->4 (MM) 900.00

CAP (ME)

۲ Z

u, Z

\*\* SRANCH DATA \*\*
MB BRANCH CODE
2 LINE NO

NORTH ( 1) SOUTH ( 2)

ECUADOR DECEMBER 1991 7-9

*
GRID
INTERCONNECTED
ķ
RELIABILITY
# #

														1.06(%)
SOUTH	52.34	6.51	5.13827	5.22245	5.15423	5.01941	5.00274	4.99431	4.94252	4.93148	4.92031	4.90487	4.90487	(ME)
NORTH	-38.18	-7.12	10.01636	10.22468	10.20075	10.17308	10.14246	10.12077	10.06771	10.08694	10.03529	10.06598	10.06598	14.16(MW)
	RESERVE MARGIN (MW)	(%)	200	1000	1550	2,000	2500	3000	3500	4000	4500	2000	COLP(DAY/MONTH)	RESERVE MARGIN
H	RESERVI		# ⊢	i F	E E	)i	ii H	= LI	n H	# 1	_ = TI	n L	LOLP(D.	TOTAL

RELIABILITY EVALUATION PROGRAM FOR INTERCONNECTED POWER SYSTEMS
( REPORT )

PRESENTED BY KCC

CALCULATION DATE 11/19/1993

LOLP OF SNI, AS OF DECEMBER, 1998

	RECEIP CONTR						
O	11/19/1993						
	TITLE						
C	LOLP OF SNI	AS OF	DECEMBER	1998			
	2						
Ç	ICALCU	SNISGI	IPMULT				
	0	,0	٥				
Ç	ANSWK	ANSMK	ANSWK	ANSWK	ANSWK	ANSWA	ANSWK
	5.0	7.0	<u>٠</u> ٥				
*	CXD	OF "ANSMK"	" DATA				
	RREND	:					
α.	e)						
J	٦ ٦						
(	α O	DECEMBER 1998					
	0.000	KGLUCK.					
	HENON						
O	RANGEL	HEIGIL	DELTXX	LTYP			
	50.	20.	50.	Œ.			
O	LNWF						
	-						
O	M₩N 1	LNAW	3 2 2	3E2J	LNME	LNMW	LNMM
	753.0	731.9	747.0	743.9	721.2	4.869	739.5
	745.5	753.0	739.4	737.8	747.0	747.0	740.9
	731.8	731.8	702.8	686.3	721.1	709.0	498.4
*	END	OF "LNMW"	ω	•	t	•	
O	INDEX1						
	<b>#</b>						
O	CODE	TX.	Z O	o	IPOBI		
	AGOYAN	78.00	2	0.154	0		
	PISAYAMB	32.70	73	0.726	0		
	CUMBAYA	4.4125	4.	4.221	0		
	NAYON	7.00	8	3.437	٥		
	PASOCHOA	1.125	2.	0.396	0		
	CHILLOS	0.430	2	2.915	c		
	OTHERS H	1.620	00 11	4.221	0		
*	END	OF "CODE	TKW CN 0	100			
Ç	INDEX2						
O	CODE	3X.	Ö	σ	IPOGI		
		125.00		88.0			
	SANTA RO	15.00	m	22,25			
	GUANGOPO	4.05	\$	19.29	c		
	S.R DIES	2.20		22.25			
	S.R BUNK	1.64	ហ	19,29	00		
	SR.REDIE	1.73		22.25	, c		
	SR. REBUN	3.76		10.20	· c		
	CZL	Ç	TKW CK G TDORT		>		
*	OZ I	5	3 ≥3 ××	THOSE DAIA			

----+---10----+---20----+---30----+40---+50----+---50----+---50----+---70

0/11/41/10/05/11/4/1/06/11/4/11/4						8T 8T 8T			SPROB BPROB BPROB					LTYP	a.		LNMS LNMS LNMS	1223.1 1184.9 1148.2 1214.7	1211.4 1224.8 1226.3 1214.7					IBOSI	2.06		0.50	4.22 0	IPOBI" DATA			IPOBI	0.53 0	O+88	6.82 0	5.61 0	8.85	11.80 0	22.25 0					14.00 0			
	-21.40	LTAV	0.0			) G		DATA	89208		" DATA			DELTXX	50.		LNMS	1224.8	1214.7	1154.9	DATA			S	5.	'n	2.	٠,	TKW CN O IP			Š	2.		۶.	:	1.	<b>.</b>	17.		20.	'n	'n	. 0			
7	39.62	LTVAR	0.0	IHO	I	18		0F '8T"	BPRCB		OF "BPROB"	KBLOCK	+4	HEXOIT	20.		CZXE	1201.5	1238.0	1201.5	OF "LNEW"			3 ¥ ⊢	87.70	91.88	43.00	4.54	3000 F 0			3 3 4	20.00	20.00	9.50	31.60	15.00	20.00	1.34	2.85	1.84	3.00	 37.00	16.00	16.00 78.00	37.00 16.00 78.00	37.00 16.00 78.00 117.50
*	m	INDEX4	7	INDEXS	v	เล	0.0	CNE	89808	1.00000	QN.	CODEO	SOUTH	RANGEL	50.	LYNE	 3WK	1238.0	1223.1	1201.5	GND	INDEXI	***	CODE	PAUTEAB	PAUTE C	DAU-PERI	OTHERS H	GNO	INDEX2	82	2000		ESTERO G	2# A V09	GUA: VAP	ESTERO E	ESTERO E	S.R DIES	S.R BUNK	SR.REDIE	SR. REBUN	 ELECOUIL	ELECOUIL	ELECOUIL ELECOUIT GAS-93	ELECOUIL ELECOUIT GAS-93 GAS-94	ELECGOIL ELECGOIT GAS-93 GAS-94 VAPOR-95
i		52 C		57 O	in Li	56	57	¥ 22	29 C	09	61.*	U	63	64 C	59	O 99	O ES	69	20	7.1	* 22	73 C	7.4	75 C	92	7.7	3.6	7.0	åο *	81 C		ಲ ೯೪	34	35	86	87	99	633	90	16	26	2.6	. 1/6	. 46 95	. 76 56		

C INDEX4 LTAVA LTAVA  C INDEX4 LTAVA LTAVA  C INDEX5 LTA  S HO	C INDEXS C INDEXS C INDEXS C INDEXS S S S S S S S S S S S S S S S S S S S	66.31. LTVAR LTVAR OF BTT BPROB OF GROUP OF GROUP OF GROUP OF SPROB OF RAPRO OF RAPRO	25. ATA O O STA ATA ATA ATA ATA ATA ATA ATA ATA ATA	BPROB RANGEM 10.	BPROB NI NI T T T T T T T T T T T T T T T T T	8 87 80 BT	8 0 8 H
C INDEXA LTAAR LTAAV C INDEXS 1HO	C INDEXA  C INDEXA  C INDEXA  C INDEXA  B	LTVAR O.0 O.0 O.0 O.0 OF "BT" BPROB OF "BPRO OF GROUP O.5 TOL2 TOL2 NHINDO	A ATA BP	BPROB BT RANGEM 10.	BPROB INT I T I T I T I T I T I T I T I T I T	8 BPR OB	9 8
### BT	C INDEXS C INDEXS C INDEXS C BPROB E	OF "BT" BPROB OF "BPRO OF "BPRO OF "BPRO OF "BPRO OF "BPROB OF "BP	ATA BP	BPROB RANTYP 10.	BPROB RNINT T SAMP	8 08 08 08 08 08 08 08 08 08 08 08 08 08	g 2
C INDEXS IND  BIT BT BT BT BT BT BT BT  0.0  END OF "BT" DATA  BEROB BRROB BRROB BRROB BRROB BRROB  1.00000  ** END OF "BT" DATA  ** END OF "BTROB" DATA  ** END OF "BRROB" DATA  ** END OF "CODE TO	C INDEXS  SECOND  SECUND  SECUND  SECUND  C TITLE  C TITLE  C TITLE  C TABLE  C TOLI  C CODE	THD H H H BF BT" BPROB OF "BPRO OF GROUP OF GROUP OF GROUP LOLP COLS TOLS TOLS TOLS TOLS TOLS TOLS TOLS T	ATA DA LA RA	BPROB BPROB RANGEM 10.	BPROB BT NINT T	8 0 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	χ α
### BI	S S S S S S S S S S S S S S S S S S S	BT BT BT BPRO OF "BPRO OF GROUP OF GROUP OF GROUP GOLD OF STOLE TOLE TOLE TOLE TOLE TOLE TOLE TOLE	ATA BA RA AT RA ATA ATA ATA ATA ATA ATA ATA A	BPROB RANGEM 10.	BPROB NINT CSAMP	8 PR Q B T	g 8
## 6.00 ## 6.0	81	OF "BT" BPRO OF "BPRO OF GROUP OF GROUP O.5 TOL2 ANINDO	ATA BP BA TA ATA ATA ATA ATA ATA ATA ATA ATA A	BPROB RNITYP 1 10.	BPROB NINT CSAMP	8 P R Q B	60 84
## END OF "BIT" DATA ## END OF "BPROB BPROB BPROB BPROB BPROB BPROB ## EREND ## END OF "BPROB" DATA ## END OF "CODES PROB" ## END OF "CODES PROB" ## END OF "CODES PROB" ## END OF "CODES TWILLE RANGE! RANGE2 ## END OF "CODES TWILLE RANGE! RANGE? ## END OF "CODES TROM TO CAP PETHY PITHY ## END OF "CODES FROM TO CAP PETHY PITHY ## END OF "CODES FROM TO CAP PETHY PITHY" ## END OF "CODES FROM TO CAP PETHY PITHY PITHY" ## END OF "CODES FROM TO CAP PETHY PITHY PITHY" ## END OF "CODES FROM TO CAP PETHY PITHY PI	A SERVED RESERVED RES	OF "BT" BPRO OF "BPRO OF GROUP OF GROUP O.5 TOL2 ANINDO	A T T B B B B B B B B B B B B B B B B B	BPROB RNITYP 1 10.	BPROB RNINT CSAMP	8 P P P P P P P P P P P P P P P P P P P	8 8
# END OF "BIT" DATA  C BROOD BAROB BPROB BPROB BPROB BPROB  1.00000  * END OF "BPROB" DATA  ** END OF "CODES FROM TO CAP PFIMX PTEMX" DATA  ** BPROB  ** B	# 88PROB # 1.00000 # 1.000000 # 88BEGIN GR # 88EB CIN GR C TITLE C TINE C TOLIO C CODE B C CODE B C CODE C CODE C CODE C C CODE C C C C C C C C C C C C C C C C C C C	OF "BPROB OF "BPRO OF GROUP LOLP LOLP TOLS TOLS TOLS TOLS TOLS TOLS TOLS TOLS	ATA PABP PATA DATA PATA PATA PATA PATA PATA PAT	BPROB RNTYP 1 10.	BPROB RNINT CSAMP	8 8 0 8 0 8 0 8 0 8 0 8 0 8 0 8 0 8 0 8	<b>6</b>
### SOUTH SO	SABREGIN GRANGE C INTIFE ECUADOR C INTIFE E ECUADOR C INTIFE E EUDE E E E E E E E E E E E E E E E E	EMBER 199 COT GROUP COT GROUP COLP TOL2 3. NHINDO	P P P P P P P P P P P P P P P P P P P	BPROB RANGEM 10.	BPROB RNINT LSAMP	8 P R O B	8 8
### SPROB BPROB BP	# # # # # # # # # # # # # # # # # # #	BPROB OF "BPRO OF GROUP OF GROUP O.5 TOL2 NHINDO	P DATA O	BPROB RNITYP 1 10.	RNINT CSAMP	80 80 80 80 80 80 80 80 80 80 80 80 80 8	& & & & & & & & & & & & & & & & & & &
1.00000  \$28EGIN GROUP  * END OF GROUP DATA  \$28EGIN GROUP  * SEED  C ISAMPL  C ISAMPL  C INCL   1.00000 8.88EGIN GR 8.88EGIN GR 8.80EGIN MU C TITLE C TOLIO C TOLIO C CODES	OF "BPRO OF GROUP COLP O.5 TOL2 3. NHINDO	DATA IR	RNTYP 1 10.	RNINT T A A			
## END OF "BPROB" DATA ##END ##END OF GROUP DATA ##END #### ##END ##END ##### ##########	# # # # # # # # # # # # # # # # # # #	OF "BPRO OF GROUP LOLP O.5 TOL2 3. NHINDO	A TRA RA MTI O	RNTYP 1 10.	RAINT 1 1 1		
### SOURCE SECOND DATA ### SEND ### SOURCE SEND DATA ### SOURCE SEND DATA ### SOURCE SEND DATA ### SOURCE S	**SEBEGIN GR **SEBEGIN GR **SEBEGIN MU C TITLE ECUADOR C ISAMPL SOOG C ISAMPL SOOG C CODES C CODES C CODES C CODES C CODES C CODES C CODES	OF GROUP EMBER 199 LOLP 0.5 TOL2 3. NHINDO	DATA RA RTI O	RANGEM	RAINT 1 A MP		
## END OF GROUP DATA ##END OF GROUP DATA ##END OF GROUP DATA ##END OF GROUP DATA ##EU LOLP IRULE RNTYP RNINT C TITLE	** ** ** ** ** ** ** ** ** ** ** ** **	OF GROUP EMBER 199 LOLP 0.5 TOL2 3. NHINDO	DATA IR RA ITM	RANGEM	RAINT T T T T T T T T T T T T T T T T T T T		
## END OF GROUP DATA ##END #################################	# ##END ##EN	OF GROUP CMBER 199 COLP COLP COLS 3. NHINDO	DATA IR RA ITM	RNTYP 1 10.	RNINT 1 SAMP		
RABEDD REDGETN MULTI C TITLE C TITLE C COADOR DECEMBER 1998 C TOL1 TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900. * CODEX DIV DIV DIV DIV DIV-1 0.0 0.0 1 100. DIV-2 0.0 1 100. * CODEG TM IRESER KDIF RANGE1 RANGE1 NORTH END OF "CODEG TM IRESER KDIF RANGE1 RANGE2" D ** CODEG TM IRAXO C IRELAX NHINDO ITMAXO CODEG IRELAX NHINDO CODEG ITMAXO	RABERD REDEGIN MU C TITLE C ISAMPL C ISAMPL C IRELAX C CODES C CODEX C C C C C C C C C C C C C C C C C C C	EMBER 199 LOLP TOLE 3. NHINDO	IR RA MIT	RNTYP 1 1 10.	RNINT 1 USAMP		
C TITLE  C CUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNTYP RNINT  S000 0.5 RATAL 1  S000 0.5 RATAL 1  C TOLL TOL2 19.0 10.0  C CODES FROM TO CAP PFTMX DATA  C CODEX DIV DIV DIV DIV  DIV-1 0.0  DIV-2 0.0  * END OF "CODES FROM TO CAP PFTMX DATA  C CODES DIV DIV DIV DIV  DIV-1 0.0  DIV-2 0.0  * END OF "CODES FROM TO CAP PFTMX DATA  C CODES THE RESER KDIF RANGE! RANGE  * OO T 1 10.0  SOUTH 100.0  SOUTH 100.0  * OO T 1 10.0  SOUTH 100.0  * SOUTH 100.0  * OO T 1 10.0  * OO	C TITLE ECUADOR C ISAMPL SOOG C TOLI SOOG C CODEB LINE C CODES C CODES C CODES C CODEG C C C CODEG C C C C C C C C C C C C C C C C C C C	EMBER 1999 LOLP 0.5 TOL2 3. NHINDO	RA RA WITH	RNTYP 1 1 10.	RNINT 1 USAMP		
C TITLE  C LOLP IRULE RNTYP RNINT  S000 0.5 RATAL 1  S000 0.5 RATAL 1  S000 0.5 RATAL 1  C TOL1 TOL2 H RANGEM JSAMP 3. 3.3 10. 10  C TRELAX NHINDO ITMAXO  C CODEB FROM TO CAP PFTMX DATA  C CODEX DIV DIV DIV DIV DIV DIV  DIV-1 0.0  DIV-2 0.0  * END OF "CODEX DIV" DATA  C CODEG TM IRESER KDIF RANGE1 RANGE1  NORTH 100. 0 1 10.  SOUTH 200. 0 1 10.  C ITLE  ECUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  SOO 0.5 RATAL 1  SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT  C ISAMPL LOLP RNITAXO 10.  C IRELAX NHINDO ITHAXO 900. 900.  LINE NORTH SOUTH 900. 900.	C TITLE SAMPL SAMP	EMBER 199 LOLP 0.5 TOL2 3. NHINDO	AA MTH	RNTYP 1 1 10.	RAINT 1 1 SAMP		
C INTLE  C ISAMPL  C ISAMPL  C ISAMPL  C ISAMPL  C TOL1  SOOD  C TOL2  3.3  3.3  10.  10.  10.  C CODEB  FROM  FROM  C CODEB  FROM  FOOD	C CODES C CODES C CODES C CODES C CODES C CODES C CODEX C CODEX C CODEX C CODEX C CODEX C CODEC	SEMBER 1999 0.5 TOL2 3. NHINDO	RA RA MITH	RNTYP 1 1 10.	RNINT 1 USAMP		
C	ECCADOR C ISAMPL C TOUS C CODEB C CODEX C CODEC	SEMBER 1999 LOLP 0.5 TOL2 3. NHINDO	A A M	RANGEM	RAINT 1 1 1 1 1 1 1		
C ISAMPL LOLP IRULE RNTYP RNINT  S000 0.5 RATAL 1 1 1  C TOL1 TOL2 H RANGEM JSAMP 3. 3.3 10. 10  C IRELAX NHINDO ITMAXO  LINE NORTH SOUTH 900. 900.  * END OF "CODE FROM TO CAP PFTMX DATA  C CODEX DIV DIV DIV DIV DIV DIV  DIV-1 0.0  DIV-2 0.0  * END OF "CODEX DIV" DATA  C CODEG TM IRESER KDIF RANGE1 RANGE1 RANGE1  * SOUTH 200. 0 1 10.  * SOUTH 200. 0 1 10.  * SOUTH 200. 0 1 10.  * SEBESIN MULTI  C ITILE  ECUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNTYP RNINT  500 0.5 RATAL 1  500 0.5 RATAL 1  C ISAMPL LOLP IRULE RNTYP RNINT  500 0.5 RATAL 1  C TOLL TOLL 1 TOLL 1  C OODER TOLL 1  C OOD	C ISAMPL S000 C 7011 30. C 1RELAX C C00EB LINE R C00EX DIV-1 DIV-2 C C00EG	200 N N N N N N N N N N N N N N N N N N	R R F H	RANGEM	RAINT 1 USAMP		
C TOL1 TOL2 H RANGEM JSAMP 30. 3.3 10. 10  INCODES FROM 1 31  C CODES FROM 1 31  C CODES FROM 1 00.0 900. 900.  * END OF "CODES FROM TO CAP PFTMX" DATA 900.  * END OF "CODES FROM TO CAP PFTMX" DATA 900. 900.  * END OF "CODES FROM TO CAP PFTMX" DATA 900. 900.  * END OF "CODES FROM TO CAP PFTMX" DATA 100. 900. 100. 900. 100. 900. 100. 900. 100. 900. 100. 900. 9	S000 C TOL1 30. C CODE8 C CODE8 C CODEX DIV-1 DIV-2 C CODEC	200 M	A F	1 RANGEM 10.	1 USAMP		
C TOLI TOL2 H RANGEM JSAMP  30. 3.3 10. 10  C CODEB FROM 1 31  C CODEB FROM TO CAP PFTMX  LINE NORTH SOUTH 900. 900.  * END OF "CODEB FROM TO CAP PFTMX DITAX" DATA  C CODEX DIV DIV DIV DIV  DIV-1 0.0 0.0 DIV  DIV-2 0.0 1 100.  * END OF "CODEX DIV" DATA  C CODEG TM IRESER KDIF RANGE! RANGE! RANGE  * CODEG TM IRESER KDIF RANGE! RANGE?  * ECUADOR DECEMBER 1998  C TITLE  ECUADOR DECEMBER 1998  C TSAMPL LOLP IRULE RNITYP RNINT  500 0.5 RATAL 1  C TSAMPL TOL2 1 10. 10. 10. 10. 10. 10. 10. 10. 10. 1	C TOL1 30. C TRELAX 0 C CODEB 1 LINE C CODEX D D1V-1 D D1V-2 C CODEG	ND 0	H = X	RANGEM 10.	JSAMP		
C TRELAX NHINDO ITMAXO C CODEB C FROM T 31 C CODEB FROM T 0 CAP PFTMX LINE NORTH SOUTH 900. 900.  * END OF "CODES FROM TO CAP PFTMX" DATA DIV-1 0.0 DIV-2 0.0 * END OF "CODEX DIV" DATA C CODES * END OF "CODEX DIV" DATA C CODEG * NORTH 100. 0 1 10. * SOUTH C CODEG * FROM * TO * CAP * PFTMX * DATA * TO * CAP * CODEG * CODEG * CODEG * CODEG * CODEG * FROM * TO * CAP	C CODEB C CODEB C CODES C CODEX C CODEX DIV-1 DIV-2 C CODEG	1 + O H	H Z	10.	-		
C TRELAX NHINDO ITMAXO  C CODEB FROM TO 31  C CODEB FROM TO CAP PFTMX  LINE NORTH SOUTH 900. 900.  * END OF "CODEB FROM TO CAP PFTMX DATA  C CODEX DIV DIV DIV DIV DIV  DIV-1 0.0  * END OF "CODEX DIV" DATA  C CODEG TM IRESER KDIF RANGE1 RANGE2 ROUTH  C LITLE  E CUADOR DECEMBER 1998  C TOLL TOLE TRULE RNTYP RNINT  C TRELAX NHINDO ITMAXO  1 1 10.  8.886GIN MULTI  C IRELAX NHINDO ITMAXO  C OODEB FROM TO CAP PFTMX PFFMX  10 10 10.  10 10.	C CODES  C CODES  C CODES  C CODEX  DIV-1  DIV-2  C CODEG	. O	H H	•	•		
C IRELAX NHINDO ITMAXO C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.  * END OF "CODEB FROM TO CAP PFTMX" DATA C CODEX DIV DIV DIV DIV-1 0.0 0.0 0.0 0.1 100.  * CODEG TM IRESER KDIF RANGE! RANGE! RANGE! RANGE! RANGE! RANGE! RANGE! RANGE RAN	C CODES C CODES C CODEX C CODEX DIV-1 DIV-2 C CODEG	0 m·	T T M A		2		
C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.  * END OF "CODEB FROM TO CAP PFTMX DATA C CODEX DIV DIV DIV DIV-1 0.0  DIV-2 0.0  * END OF "CODEX DIV" DATA C CODEG  * MORTH 100. 0  SOUTH 200. 1  * A END OF "CODEG TM IRESER KDIF RANGE! RANGE? DASABEGIN MULT! C IITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNITYP RNINT SOO0 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT SOO 0.5 RATAL 1  C ISAMPL LOLP IRULE RNITYP RNINT SOO 0.5 RATAL 1  C ODEB FROM TO CAP PFTMX DATA  C ODEB FROM TO CAP PFTMX DATA  * END OF "CODEB FROM TO CAP PFTMX DATA	c cobes Line EN c cobex DIV-1 DIV-2 c cobes	'हर्न ·					
C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.  * END CF "CODEB FROM TO CAP PFTMX DATA C CODEX DIV	C CODEB LINE C CODEX C CODEX DIV-1 DIV-2 C CODEG		ĵ.				
LINE NORTH SOUTH 900. 900.  E END OF "CODEB FROM TO CAP PFTMX PTFMX" DATA  C CODEX  DIV-1  O.0  E END OF "CODEX DIV" DATA  C CODEG  MORTH  100.  SOUTH  100.  A BEEND  END OF "CODEG TM IRESER KDIF RANGE1 RANGE2" DASEND  E CUADOR DECEMBER 1998  C ITLE  E CLADOR DECEMBER 1998  C IRELAX  NHINDO ITMAXO  C IRELAX  NHINDO ITMAXO  C ODEB  FROM TO CAP PFTMX PTFMX DATA  10  10  10  10  10  10  10  10  10  1	LINE C CODEX C CODEX DIV-1 DIV-2 C CODEG			CAP	PFTMX	PTFMX	
CODEX DIV DIV DIV DIV DIV-1 0.0 DIV-1 0.0 DIV DIV DIV DIV DIV-2 0.0 DIV-2 0.	C CODEX EN ELN ELN DIV-1 DIV-2 EN C CODEG		SOUTH	.006	900.	900	
C CODEX DIV DIV DIV DIV DIV DIV-1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	C CODEX DIV-1 blv-2 c CODEG	P					
DIV-1  DIV-2  DIV-2  CODEG  TM IRESER KDIF RANGE1 RR  CODEG TM IRESER KDIF RANGE1 RR  SOUTH  100.  8.250.  8.250.  1 10.  1 10.  1 10.  1 10.  8.250.  8.250.  CITLE  CUADOR DECEMBER 1998  CITLE  CODEB FROM  1 1 1  1 20.  1 3.3  10.  10.  10.  10.  10.  10.  10.	DIV-1 DIV-2 C CODEG	ΔĬO					
* END OF "CODEX DIV" DATA  C CODEG  ** END OF "CODEG TW IRESER KDIF RANGE1 R  ** END OF "CODEG TW IRESER KDIF RANGE1 RANGE2" D  ** SOUTH 100. 0 1 100.  ** A END OF "CODEG TW IRESER KDIF RANGE1 RANGE2" D  ** SEGEIN MULTI  C IILLE  C CUADOR DECEMBER 1998  C CLADOR DECEMBER 1998  C CODEB  C TOLL TOLE  SO. 0.5 RATAL  1 1 1  C TOLL TOLE  30. 3.3 10. 10  C TRELAX NHINDO ITMAXO  C OODEB  FROM TO CAP PFTMX DIFMX" DATA  ** END OF "CODEB FROM TO CAP PFTMX PIFMX" DATA	biv-2 * EN						
CODEG TH IRESER KDIF RANGE! R NORTH 100. 0 1 100. 0 1 100. 0 1 100. 0 1 100. 0 1 100. 0 1 100. 0 1 100. 0 1 100. 0 1 100. 0 0 1 100. 0 0.0 0.	* EN CODEG						
C CODEG TM IRESER KDIF RANGE1 RR NORTH 100. 0 1 10. 10. 8. 10. 10. 0 1 10. 10. 0 1 10. 10. 0 1 10. 10.	c copes	li C					
** CODES   THESER NOIT NANGEL NO	ı	5				1	
* SOUTH 100. 0 1 10.  SOUTH 200. 0 1 10.  ** END OF "CODEG TM IRESER KDIF RANGE1 RANGE2" D  **SEGIN MULTI C IITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 5000 0.5 RATAL 1 5000 0.5 RATAL 1 C TOL1 TOL2 10.5 NATAL 1 5000 0.5 RATAL 1		Ξ	7 H C L L L L L L L L L L L L L L L L L L	17 OY	MANGET	MANGEZ	
* SOUTH 200. 0 1 10.  * BASEND ** END OF "CODEG TW IRESER KDIF RANGE! RANGE2" D ** SASHEGIN MULTI C IITLE		100.	0	н	10.	1.0	
* END OF "CODEG TM IRESER KDIF RANGE1 RANGE2" D 828EGIN MULTI C IITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 1 C TOL1 TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO 9 1 1 1 C CODEB FROM TO CAP PFTMX DATA * END OF "CODEB FROM TO CAP PFTMX DATA * END OF "CODEB FROM TO CAP PFTMX DATA * END OF "CODEB FROM TO CAP PFTMX PTFMX" DATA		200.		11	10.	1.0	
### SOUTH WOLTI C TITLE	· *	P	Σ		GE1 RANGE2"	DATA	
SEGEON MULTI C IIILE C LOLP IRULE RNTYP RNINT C JOLI TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO 9 1 1 CAP PFTMX LINE NORTH SOUTH 900. 900.							
C IITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNITYP RNINT 5000 0.5 RATAL 1 1 C TOL1 TOL2 R RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO 9 1 1 0 C CODEB FROM TO CAP PFTMX DATA ** END OF "CODEB FROM TO CAP PFTMX DATA	&&BEGIN	H					
C   SAMPL   LOLP   IRULE   RNTYP   RNINT   SOO   0.5   RATAL   1   1   1   1   1   1   1   1   1	Q						
C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•	CEMBER 199	80				
C TOL1 TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.	O	LOLP	IRULE	GYTXX	RNINT		
C TOL1 TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO 9 1 1 CAP PFTMX LINE NORTH SOUTH 900. 900. * END OF "CODES FROM TO CAP PFTMX" DATA		5.0	RATAL	-			
C IRELAX NHINDO ITMAXO C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.	U	TO10	x	MANGER	OMA?!		
C IRELAX NHINDO ITMAXO C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.	:		11	Ç			
C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.	ć	000	27.47.4	•	2		
C CODEB FROM TO TO CAP PFTMX LINE NORTH SOUTH 900. 900.  * END OF "CODEB FROM TO CAP PFTMX PTFMX" DATA	ر	OONTER	7 TE			٠	
C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900. ** END OF "CODEB FROM TO CAP PFTMX PTFMX" DATA	0	<b>-</b> 1					
LINE NORTH SOUTH 900. * END OF "CODES FROM TO CAP PETMX PTFMX" DATA	C CODEB	FROM	10	CAP	PFTXX	PTFMX	
* END OF "CODES FROM TO CAP	LINE	NORTH	SOUTH	900	-006		
	**				PTEMX" DATA		

			RANGE2		1.0	E2" DATA	
			RANGE1	10.	10.	GE1 RANG	
			KDIF	#1	<b>⊶</b>	KDIF RAN	
		DIV" DATA	IRESER	0	0	TM IRESER	
0.0	0.0	END OF "CODEX DIV" DATA	£	-218.78	667.24	END OF "CODEG TM IRESER KDIF RANGE1 RANGE2" DATA	
	DIV-2			155 RORTH	SOUTH		158 &&END
151	152	153 *	3,45	in in	95	157	58

ク
A.
_
m
1998
ř
-
œ
ā
m
₩
ω.
DECEMBER
ŭ,
~
_
~
ō
ñ
2
~
ECUADOR

\*\*\* UNIT DATA OF GRID NORTH

۵ الد الد	0					۳. ۳٥۳	22.3									
UNIT	'n	~	ď		32.	UNIT	m +	i d	;	M M	63.					
æ	32.70	7.00	0.43		285.32	X	15.00	1.73		248.92	534.24					DIFF, COEF,
CODE	PISAYAMB	NAYON	CHILLOS		TOTAL	CODE	SANTA 80	SR. REDIE		TOTAL	HYDRO+THERMAL TOTAL				**************************************	_
FOR	0.9	4.2	4.0	4.2		FOR	19.9	19.3	19.3		O+THERN		· ·			RESERVE MARGIN
UNIT	%	*	6	18.		UNIT	÷ 4	'n	o.		Н	*	(DAY)	20.	ID NOF	RESER
3	78.00	4.41	1.13	1.62		3	125.00	1.64	3.76	-		ID NORTH	WKDAYS(DAY)		SINGLE GRID NORTH	Σ
CODE	AGOYAN	CUMBAYA	PASOCHOA	OTHERS H		CODE	ESMERALD	S.R BUNK	SR.REBUN			*** LCAD DATA OF GRID NORTH	H1CMM)	753.	RELIABILITY OF	LP .
HYDRO						THERMAL						*** LOAD			*** RELIA	LOLP (DAY/MONTH)

-0.360770 -6.012962 -0.052489 24.75 25.23 25.67 186.40 189.98 193.26 0.330807 0.400000 0.500871

-29.05

-218.76

\*19.995999

*** UNIT	DATA OF GRID	SOUTH	*					
нурко	CODE	3	FIND	FOR	CODE	3	LIND	0.
	PAUTEAB	87.70	'n	2	PAUTE C	91.88	8.	6
	DAU-PERI	43.00	63	0.5	OTHERS H	4 - 54	40	4
					TOTAL	1011.14	9.	
THERMAL	CODE	Σ.	UNIT	FOR	CODE	ž	UNIT	Ę.
	ESTERO V	76.00	2.	0	ESTERO G	20.00		0
	GUA: V #2	9.50	5	6.8	GUA VAP	31.60	,,,	'n
	ESTERO E	15.00	H	8.0	ESTERO E	20.00	,	-
	S.R DIES	1.34	17.	22.3	S.R BUNK	2,85	4	19.
	SR.REDIE	1.84	20.	22.3	SR. REBUN	3,00	8	19.
	ELECGUIL	37.00	5	14.0	ELECOUIT	16.00	8	14.
	GAS-93	78.00	.;	o 8	GAS-94	78.00	<b>+</b>	0
	VAPOR-95	117.50	,	9.0	VAPOR-97	66.00	2.	
					TOTAL	894.08	63.	
			HYDR(	O+THER	HYDRO+THERMAL TOTAL	1905.22	e∺ 60	
*** LOAD DATA OF	DATA OF GRID	SOUTH	*					
	H1(MM)	WKDAYS(DAY)	( YAC)					
	1238.		20.					
*** RELIA		SINGLE GRID SOUTH	Laos di		** **			
LOLP (DAY/MONTH)	4	RE (ME)	RESERVE MARGIN W)	MARG	~ .	DIFF.COEF.		
0.50000	٥	285.51	44	8	23.06	-0.020249		
	•	0					-	

DIFF.COEF.	-0.020249	-0.003729	-0.004032	-
MARGIN (X)	23.06	23.42	25.06	53 58
RESERVE MARGIN	285.51	289,91	310.28	667.22
LOLP (DAY/MONTH)	0.50000	0,400000	0.300499	0.0

ECUADOR DECEMBER 1998

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

RINIT	Ħ			
RANDOM	<b>.</b>			
RULE	RATAL			
LOLP(D/M)	0.500			
SAMPLE	2000	-	** GRID DATA **	

KDIF	ਜ ਜ
RMMIN (X)	• •
CME	753.0
BLOCK	ત્ત્ર લ
RMINIT	100.0
GRID NAME	NORTH
, o	4 0

\*\* BRANCH DATA \*\*

	7->5	(MM)
	F-7	(MM)
	CAP	(MW)
		( 2 )
	Z.	SOUTH
		(1) SOUTH
<b>K</b>	1L 22	NORTH
đ đ	CODE	6.7
** 4.40 00000 *	B BRANCH CODE	LINE
•	ற	н

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

ECUADOR DECEMBER 1998

SOUTH	212.20	17.14	0.49410	0.45802	0.48793	0.47016	0.51121	0.51852	0.51957	0.51073	0.50641	9.50046	0.50046
NORTH	68.74	9.13	0.42879	0.48543	0.49104	0.48175	0.51452	0.50819	0.52432	0.51490	0.51560	0.49831	0.49831
	(MM)	; ;											
17	RESERVE MARGIN		200	1000	1500	2000	2500	3000	3500	4000	4500	2000	LOLP(DAY/MONTH)
= 17	E L		11	11	. <b>n</b>	ıŧ	ŧi.	11	п	11	n	п	ă
ĭ	853		11	Ţ	Ţ	11	H	H	Ħ	H	Ţ	H	Ę,

TOTAL RESERVE MARGIN 280.94(MW)

ECUADOR DECEMBER 1998

ECONODI DECEMBER 1778

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

							T < - T	900.0
HZ12	<b>H</b>		KDIF		ਜ		FV-7	0.006
δ	pri		RMMIN (%)	0	۰		CAP	9.006
NANDOM			HT (ME)	753.0	1238.0			5
RULE	RATAL		BLOCK		44		Z	
LOLP(D/M)	0.500		RMINIT	-218.8	667.2	<b>N</b>	is. Z	NORTH ( 1) SOUTH
SAMPLE	2000	** GRID DATA **	NO. GRID NAME	1 NORTH	2 SOUTH	** BRANCH DATA **	NB BRANCH CODE	LINE
		*	Z			*	Ω. Σ	**

ECUADOR DECEMBER 1998 /-/4

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

SOUTH	667.24	53.90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0,0
± LαO≥	-218.78	1-29.05	0.07830	0.04082	0.02722	0.02699	0.03189	0.03722	0.05915	0.05203	0.05237	0.04981	0.04981
	38.	<b>%</b>											_
	VE MARGIN		200	1000	1500	2000	2500	3000	3500	0007	4500	2000	LOLP ( DAY / MONTH )
11	RESERVE		n	11	11	II	H	ţŧ	μ	II	Ħ	H	63
片	W.		H	1	¥	H	}-	H	H	L	H	H	Ö

A-4-54

TOTAL RESERVE MARGIN 448.46(MW)

RELIABILITY EVALUATION PROGRAM FOR INTERCONNECTED POWER SYSTEMS ( REPORT )

PRESENTED BY KCC

CALCULATION DATE 11/24/1993

LOLP OF SNI, AS OF DECEMBER, 2003

----+----50----+----50----+----30-----+00-----+---50----+---60----+70

BEGIN CONTR DATE 11/24/1993 TITLE						
£ 6 6						
566						
OF SNI' AS	lı.	DECEMBER,	2003			
GRID						
ICALCU IPS	IPSING	IPMULT				
0	0	0				
ANSMK. AN	ANSMK	ANSWA	ANSMK	ANSMK	ANSWA	ANSWK
0.5	4.0	0.3				
END OF	"ANSME"	Ö				
SINGL						
ECUADOR DECEMBER	R 2003					
	300					
9						
	7					
	HEIJIS	DELTXX	LTYP.			
	20.	20.	<b>a</b>			
LMER						
н						
LNMW	LNME	LEME	LNA	322	LNMM	32
0	958.2	978.1	0.76	6.776	914.4	0.840
	986.0	968.2	966.1	978.1	978.1	970.2
	958.2	920.3	898.6	944.2	2.8.0	914.4
END OF	MWNJ	DATA			1	
H						
	TKE.	S	g	IPOGI		
78	78.00	8	0.185	٥		
PISAYAMB 32	32.70	'n	0.871	٥		
4	.4125	4	5.065			
	7.00		4.125			
DACOCHOA	707		44.7	•		
	644	i	0.44.0	<b>&gt;</b> •		
	094.0	Ņ (	D.4.0	0		
VILKACIS 11	113.0	N	0.500	•		
Š	4.49	Ň	0.500	0		
H 2	1.620	, 18.	5.065	0		
END OF	1 3000.	TXW CN 0	IPOBI" DATA			
INDEXZ			٠.			
8						
	1XX	Z	9	TROOT		
ESMERALD 125.00	00.	***	1.07			
		H		• <		
	2	; ,	0 1 10 10 10 10 10 10 10 10 10 10 10 10	<b>&gt;</b> •		
	4.05	Ġ	23.15	0		
	2.20	÷	26.70	0		
	1.64	'n	23.15	٥		
	1.73	÷	23.36	0		
REBUN 3.	.76	6	20.26	٥		

\* INPUT DATA \* 2 PAGE

END OF "CODE TKW CN G IPP LOVAR LOAV 51.88 -28.02 LTVAR LTAV 0.0 0.0 0.0 0.0 IHD HT BT END OF "BPROB" DATA KBLOCK 159.8 1561.6 1591.8 1669.0 1578.8 1669.0 1578.8 1669.0 1578.8 1669.0 1578.8 1669.0 1578.8 1669.0 2. 5.90.0 2. 43.00 2. 43.00 2. 43.00 2. 43.00 2. 6ND OF "CODE TKW CN 0 IPC 5.90.00 2. 6.54 6. END OF "CODE TKW CN 0 IPC 70.00 2. 6.56 6. 6.57 6. 6.56 6. 6.56 6. 6.57 6. 6.56 6. 6.57 6. 6.56 6. 6.56 6. 6.57 6. 6.56 6. 6.56 6. 6.57 6. 6.59 6. 6.50 0. 1.1. 1.2. 1.3	·	BT BT BT	LNMW LNMW 1492.3 1578.8 1593.8 1578.8 1578.8		
TANDE TWW CN G IPOBIT  TOWAR LOAV  TOWAR LOAM  TOWAR LOAV  TOWAR CN G IPOBIT  TOWA	• •	8 08 T	LNMW 1540.0 1591.8	I POBI	H 0 0 0 0 0 0 0
THOUSE TEMP TO THE TANK TO THE		BPR08	LTYP P LNMW 1589.6 1574.4	4 4 81 82 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
TAGOOF TOOMS TO THE TAGOOF TOOMS TOOMS TOOMS TO THE TAGOOF TOOMS TO TOOMS TOOMS TOOMS TO TOOMS TOOMS TO	> ~ > .	, <u>₹</u> 8	DELTXX DELTXX 50. LNMW 1591.8 1578.8 1578.8	N	N % 1 % 1 1 4 7 1 4
10 00 44000 00 J. F. C.	00 00 000 000 000	THD H B F B B B B B B B B B B B B B B B B B B	OF "BPROB KBLOCK 1 1 HELJIT 20. 1561.6 1561.6 1561.6 0F "LNMW"	7 KW 7 .70 7 .70 8 .00 8 .90 7 .54	77 77 77 77 77 77 77 77 77 77 77 77 77
	GAS-2001 GAS-2003 INDEX3 INDEX4	INDEXS S BT O.0 END BPROB	END SEL MWF 1 1 1 1 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DEX1 1 1 EAB E C PERI R S H RS H DEX2	CODE ESTERO V ESTERO G GUA V #2 GUA VAP ESTERO E ESTERO E ESTERO E S.R BUNK

	87 89 80 B				
	8T 8PR08		<b>7</b> X#7 <b>1</b>	960. RANGE 2 1.0 1.0	
0000	8 9₽8 8∓ 808 8∓	. :	SAMP 10 10 PFTMX	900. PTFMX" DATA RANGE1 10. 10.	RNINT 1 1 10 10
0.84 0.84 0.34 0.84 IPOBI" DATA	8 PR 08		RANGEM 10. 10.	्रें संस्थित इस्	RANGEM
11. 12. 14. 15. CN 0 I 10.00 17. CO 1	BT DATA BPROB	DATA	IRULE RATAL H 3.3 ITMAXO 31	SOUTH 900 "CODES FROM TO CAP PF" DIV DIV DIV 0.0 "CODEX DIV" DATA TM IRESER KD: 00.0 "CODEG TM IRESER KDIF	TRULE RATAL B H B 3.3
78.00 117.50 66.00 OF "CODE 1 LOVAR 86.19 ETVAR 0.0		OF GROUP DATA	CCCASCA COUS COLP O.5 TOL2 3. NHINDO 1	# 7 0 0 0 L	MBER 2003 LOLP 0.5 TOL2 3.
GAS-93 GAS-94 VAPOR-95 VAPOR-97 INDEX3 INDEX4 INDEX6	G N N	OCOCCO END IN GROUP IN MULTI	ISAMPL ISAMPL TOL1 30. IRELAX CODEB	LINE NORTH C CODEX DIV DIV-1 DIV-2 C CODEG NORTH SOUTH END OF R&END	& ABEGIN MULTI C TITLE ECUADOR DECEMBER 2003 C ISAMPL LOLP 5000 0.5 C TOLI TOL2 30. 3.
	* U 	* ଶର * ଜୈଷ * ଶର * ଜଷ ଓ	125 c 127 c 127 c 128 c 130 c		24 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

\* INPUT DATA \* 4 PAGE

51 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1													
<b>Ф</b>		PTFMX	.006						RANGEZ	1.0	1.0	DATA	
<b>Ф</b>		PFTMX	900	TEMX" DATA		-			RANGE 1	10.	10.	SE1 RANGE2"	
<b>Ф</b>		CAP	.006	P PFTMX F		:			XDIF	-1	-	KDIF RANG	•
<b>Ф</b>	~4		HEO	FROM TO CAR	AIQ A			DIV" DATA	IRESER	0	0	TA IRESER .	
<b>Ф</b>				. *cobes	IO VIG	0.0		* CODEX		9.10	70.70	. PECODE :	
C C C C C C C C C C C C C C C C C C C	o	700 H	NOR	END OF	VIG		0.0	END OF			4.0	RND OF	
		CODEB	LINE		CODEX	DIV-1	DIV-2		CODEC	NORTH	SGUTH		SEND
		S.	_	*	O			*	O	_	_	*	eğ

A-4-59

TINO ***	*** UNIT DATA OF GRID NORTH	HLWON C	*					
нүрко	CODE	3	TINO	F.02	CODE	X	FIND	FOR S
	AGOYAN	78.00	2	0.5	PISAYAMB	32.70	۶.	ó
	CUMBAYA	4.41	4	ις • •	NAYON	7.00	Š	4.1
	PASOCHOA	1.13	8	0.5	CHILLOS	0,43	6	m
	SIFRACIS	113.00	٠,	0.5	TOACHI	64.40	ż	ò
	OTHERS H	1.62	18.	5.1				
					TOTAL	640.12	36	
THERMAL	CODE	Σ	TIND	F08	CODE	ž	TIND	FOR
	ESMERALD	125.00	**		SANTA RO	15.00	m	26.7
	GUANGOPO	4.05	ò	23.1	S.R DIES	2.20	7	26.7
	S.R BUNK	1.64	'n	23.1	SR.REDIE	1.73	•	23.4
	SR.REBUN	3.76	o,	20.3	GAS-2001	78.00	н	0.8
	GAS-2003	27.00	÷	9.0				
					TOTAL	353.92	8	•
			2		4	700	. 0	

HYDRO+THERMAL TOTAL 994.04 69.

\*\*\* LOAD DATA OF GRID NORTH \*\*\*

H1(MW) WKDAYS(DAY)

986. 20.

\*\*\* RELIABILITY OF SINGLE GRID NORTH \*\*\*

LOLP RESERVE MARGIN DIFF.COEF.

(DAY/MONTH) (MW)

(DAY/MONTH) (MW) (%) (DAY/MONTH/MW)
0.504395 199.84 20.27 -0.147124
0.399699 211.65 21.47 -0.001738
0.299487 231.46 23.47 -0.008922

ECUADOR DECEMBER 2003

TEND ***	*** UNIT DATA OF GRID SOUTH	SOUTH	¥ ¥					
HYDRO		¥	LIND	FOR	CODE	3	FIND	ñ 0
	PAUTEAB	87.70	'n	61	PAUTE C	91.88		ď
	DAU-PERI	43.00	8	0.5	MAZAR	53.90	c,	·
	OTHERS H	4.54	•	5				
	:				TOTAL	1118.94	20.	
THERMAL	COOE	M.	PINO	FOR	CODE	Σ	UNIT	F0
	ESTERO V	70.00	ć,	0.0	ESTERO G	20.00	<b>+</b> :	e-3
	GUA V #2	9.50	82	8.2	GUA VAP	31.50	ij	•
	ESTERO E	15.00	H	10.6	ESTERO E	20.00	4	14.
	S.R DIES	1.34	17.	26.7	S.R BUNK	2.85	4	23.
	SR.REDIE	1.84	20.	20.6	SR.REBUN	3.00	'n	21.
	ELECOUIL	37.00	٠	15.4	ELECOUIT	16.00	8	44 (3)
	GAS-93	78.00	H	0.8	GAS-94	78.00		ó
	VAPOR-95	117.50	ed ed	0	VAPOR-97	99.00	ķ	ċ
					TOTAL	894.08	63.	

HYDRO+THERMAL TOTAL 2013.02 83.

\*\*\* LOAD DATA OF GRID SOUTH \*\*\*

H1(MW) WKDAYS(DAY)

20. 1609. \*\*\* RELIABILITY OF SINGLE GRID SOUTH \*\*\*

GIN. DIFF.COEF.	-0.010883	-0.014110	-0.002552	
MARGIN.	20.05	20.60	21.47	
RESERVE MARCIN (MW)	322.61	331.53	345.45	20.707
LOLP (DAY/MONTH)	0.472392	0.400000	0.300038	00 00 00 00 00 00 00 00 00 00 00 00 00

ECUADOR DECEMBER 2003 P-7

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

*
DATA
CARLO
BLNCM
*

RENII			KOIF	स्त हुई
ξ			HI RMMIN	• •
RANGOM			E 3	986.0
RULE	RATAL		BLOCK	ਜ਼ਿਜ਼
COLP(D/M)	0.500	·	RMINIT BLOCK	300.0
SAMPLE	2000	** GRID DATA **	NO. GRID NAME	SOUTH
Ys.		I & & C & I	02	₩ Ø

\* AFAC HONAGO \*\*

** 41	NF NT CAP F-VT	AND CENT CENT
*	S	
** BRANCH DATA **	BRANCH CODE	
*	NB	

ECUADOR DECEMBER 2003 7-8

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

								-		-			
SOUTH	248.83	15.46	0.48566	0.45677	0.48481	0.47094	0.51098	0.51641	0.51934	0.51101	0.50424	0.49844	778670
NORTH	95.51	69.6	0.45888	0.51230	6.50953	0.49372	0.52317	0.51435	0.52620	0.51593	0.51812	0.50158	0.50158
	G ME	3											
12	RESERVE MARGIN		200	1000	1500	2000	2500	3000	3500	000%	4500	2000	LOLP ( DAY / MONTH)
12	ω		11	п	11	87	ij	н	fs	F¢	н	Ħ	ŏ.
H	RES		Ţ	H	ΙI	Ħ	Ħ	Ħ	H	Ħ	11	H	Ş

ECUADOR DECEMBER 2003 /- 9

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

*
DATA
CARLO
MONTE
*

**		KOIF	ਜਜ
<del></del> 1		RMMIN (X)	00
		H (MK)	986.0
RATAL		BLOCK	pol poè
0,500		RMINIT (MW)	9.1
2000	** GRID DATA **	NO. GRID NAME	1 NORTH 2 SOUTH
	0,500	0.500	RMINIT BLOCK H1 RMMIN (W) (X)

## \*\* BRANCH DATA \*\*

	2	CA P	CAP F->T	× 1
٠		35	ĆΜE)	
NORTH ( 1) SO	1) SOUTH (2)	0-	0.006	

ССИЛЬОН ВЕСЕМНЕЯ 2003 /- 10

\*\*\* RELIABILITY OF INTERCONNECTED SRID \*\*\*

														15.00(%)
SOUTH	40.404	25.11	0.05526	0.04974	0.03316	0.03343	69650.0	0.04751	0.06510	0.06239	0.06168	0.05756	0.05756	
NORTH	9.10	0.92	0.36606	0.33982	0.35580	0.33136	0.35536	0.36010	0.36747	0.35258	0.34189	0.32852	0.32852	(PIX 17 + 257
	(IE)	8												ADCTE
	RESERVE MARGIN		500	1000	1500	2000	2500	3000	3500	0007	4500	2000	LOLPCDAY/MONTH)	WINGLE BEGEROUG MARKET
74 B	ESERVE		# <del> -</del>	#  -	# E	# <u> </u>	n E	m n	e # F]	9 . = 13	7 = L	. ∺	OLPCDA	0.1410

RELIABILITY EVALUATION PROGRAM FOR INTERCONNECTED POWER SYSTEMS
( REPORT )

PRESENTED BY KCC

CALCULATION DATE 12/01/1993

LOLP OF SNI, AS OF DECEMBER, 1998 ALTERNATIVE

DELTXX LTYP ANSMK ANSM ANSMK ANSWK A	##BEGIN CONTR C DATE 12/01/1993
DELTXX ANSMK LNMW LNMW TATOO TO TATO TO TATO TO TATO TO TATO TO TATO TATO TO TATO TAT	SNI, AS
DELTX LTYP  50. P  LNWW LNWW LNWW LNWW  7470 723.2 698.4  739.4 737.8 721.2 698.4  739.4 737.8 721.1 709.0  20. 0.154 0  20. 0.726 0  20. 0.154 0  20. 0.26 0  20. 0.20 0  20.	ONISHI
DELTXX LTYP 50. P 50. LNHW LNHW LNHW 747.0 743.9 721.2 698.4 7 750.8 686.3 721.1 709.0 6 2. 0.726 0 2. 0.726 0 4. 4.221 0 2. 0.396 0 2. 2.915 0 2. 2.915 0 18. 4.221 0 2. 2.915 0 19.29 0 11. 22.25 0 5. 19.29 0 6. 22.25 0 6. 22.25 0 6. 22.25 0 6. 22.25 0 7KW CN 0 IPOBI DATA 1. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0 2. 0.80 0	END OF
LNMW LNMW LNMW LNMW TATO 72.0 698.4 72.0 72.1 698.4 747.0 74	&&EEND &&BEGIN SINGL C TITLE
DELTXX LTYP 50. P 50. P 10. LNMW LNMW LNMW 747.0 743.9 721.2 698.4 737.8 743.9 721.1 709.0 702.8 686.3 721.1 709.0 6. 1. 22.25 6. 22.25 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80 7. 0.80	ECUADOR DECEMBER 1998 CODEO KBLOCK NORTH 1
LNMW LNWW TANGE TA	HEIJIT
LNMW LNMW LNMW LNMW TAT.0 743.9 721.2 698.4 737.8 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 747.0 74.221 0 74.221	
TOTAL TASTA TATA TOTAL T	Z .
TOP.8 686.3 721.1 709.0  CN 0.154 0  2. 0.726 0  4. 4.221 0  2. 0.396 0  2. 2.915 0  18. 4.221 0  CN 0.88 0  1. 0.88 0  5. 19.29 0  1. 22.25 0  6. 22.25 0  6. 22.25 0  7. 0.80 0  2. 0.80 0  2. 0.80 0  2. 0.80 0  2. 0.80 0  2. 0.80 0  2. 0.80 0  3. 22.25 0  4. 22.25 0  5. 19.29 0  6. 22.25 0  7. 0.80 0  7. 0.80 0  7. 0.80 0  7. 0.80 0	753.0
CN 0.154 2. 0.154 2. 0.726 4. 4.221 2. 3.437 2. 3.437 2. 3.95 2. 2.915 18. 4.221 18. 4.221 18. 4.221 19.29 11. 0.88 19.29 6. 19.29 6. 19.29 6. 22.25 6. 22.25 7. 19.29 6. 22.25 6. 22.25 7. 19.29 6. 22.25 7. 19.29 6. 22.25 7. 19.29	731.8
CN 0.154 2. 0.726 4. 4.221 2. 0.396 2. 0.396 2. 2.915 18. 4.221 18. 4.221 2. 2.915 18. 4.221 0.396 19.29 19.29 19.29 19.29 19.29 19.29 19.29 19.29 19.29 20.80 20.80	5
2. 0.154 4. 4.221 2. 3.437 2. 0.396 2. 2.915 18. 4.221 18. 4.221 18. 4.221 18. 0.88 1. 0.88 5. 19.29 6. 22.25 6. 22.25 7. 20.80 1. 0.80	F
CN C	78.00
2. 3.437 2. 0.396 2. 2.915 18. 4.221 0. 1. 0.88 1. 0.88 1. 22.25 6. 19.29 6. 22.25 9. 19.29 1. 0.80	4.4125
2. 0.396 2. 2.915 18. 4.221 18. 4.221 CN 0.82 1. 0.82 5. 19.29 6. 22.25 6. 22.25 9. 19.29 1. 0.80	2.00
18. 4.221 CN Q IPOBI" DATA CN Q O.88 3. 22.25 6. 19.29 1. 22.25 5. 19.29 6. 22.25 6. 22.25 7. 19.29 1. 0.80	0.430
DE TKW CN G IPOBI" DATA  CN G IPOB  1. 0.88  3. 19.29  1. 22.25  5. 19.29  6. 22.25  9. 19.29  1. 0.80	ä
CN 0.88 3. 22.25 6. 19.29 1. 22.25 5. 19.29 6. 22.25 9. 19.29 1. 0.80 2. 80	END OF
1. 0.88 6. 19.29 5. 19.29 6. 19.29 1. 0.80	•
3. 22.25 1. 22.25 5. 19.29 6. 22.25 1. 0.80	125.00
6. 1. 22.25 5. 19.29 9. 1. 0.80	15.00
1. 22.25 5. 19.29 9. 22.25 1. 0.80 2. 0.80	4
5. 19.29 6. 22.25 9. 19.29 1. 0.80 2. 0.80	N
6. 22.25 9. 19.29 1. 0.80 2. 0.80	eri i
1. 0.80 2. 0.80	<u>,</u>
2. 0.80	317.50
	66.00

A-4-67

	. 6	99		LNMW 14.7 14.7 46.5			
		BPROS		1214.7 1214.7 1246.5			
	ED	BPROB		LNMW 1148.2 1226.3			
	B	86808		LNMW 1184.9 1224.8 1184.9	1000 C	1800 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	m m	8 P R O B	7 4 4	LNMW 1223.1 1211.4 1125.0	2.06 2.06 2.06 0.50 4.22 IPOBI DATA	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	14.29 0.40 0.80 0.80
LOAV -21:40 LTAV 0.0	8	DATA BPROB	3° DATA OELTXX 50.	LNMW 1224.8 1214.7 1154.9 DATA	2	2 4 4 4 4 4 4 6 4 6 4 6 6	N N N
29.62 29.62 LTVAR	E. 8.	OF "BT" BPROB	OF "BPROB" KBLOCK 1 1 HELUIT	LNMW 1201.5 1238.0 1201.5 0F "LNMW"	43.00 4.54 0F "CODE	20.00 20.00	37.00 16.00 78.00
NOONI E		O.O END SPROB	1.00000 CODEO SOUTH RANGEL 50.	LNMW 1233.0 1223.1 1201.5 END INDEX1	0 4 4 4 6	CCDE CCDE CCDE ESTERO V ESTERO V ESTERO C GUA VAP ESTERO E ESTERO E ESTERO E S.R DIES S.R BUNK SO BUNK	SK.REBUN ELECOUIL ELECOUIT GAS-93
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		659° 640° 640°	* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	72 72 72 72 72 72 72 72 72 72 73 73 75 75 75 75 75 75 75 75 75 75 75 75 75		83.5 C 83	4 4 4 4 4

\* INPUT DATA \* 3 PAGE

C INDEX. LIVAR LITAV C INDEX. LIVAR LITAV C INDEX			200	LOVAR	LOAV				
C INDEXA LTVAR LTAV C INDEXS 140			'n	66.31	-35.40				
# BT				LTVAR	LTAV				
C INDEXS IND  * END OF "BT" DATA  C BRROB BPROB BPROB BPROB BPROB BPROB BPROB  * BERONO END OF "BPROB" DATA  * END OF "BPROB" DATA  * END OF GROUP DATA  * END OF GROUP DATA  * C TOLI  TOL2  TOLI  TO			4	0.0	0.0				
## END OF "BPROB BPROB B	106		įvi	THD					
# END OF "BT" DATA  C BPROB BPROB BPROB BPROB BPROB BPROB BPROB  # ASBEGIN GROUP  # END OF "BPROS" DATA  # BROON GROUP  # END OF "BPROS" DATA  # BROON GROUP  # END OF GROUP DATA  # BROON GROUP DATA  # BROON GROUP  # BROON GROUP DATA  # BROON GROUP GROUP DATA  # BROON GROUP DATA  # BROON GROUP GROUP GROUP  # BROON GROUP GROUP GROUP  # BROON GROUP GROUP  # BROON GROUP GROUP  # BROON GROUP			ı,	<u>+</u>			-		
# END OF "BFROB BPROB C BEND BPROB BPROB BPROB DECEMEER 1998 END OF SOLD BPROB BPROB BPROB DECEMEER 1998 END OF SOLD BPROB BPROB DECEMEER 1998 C ISAMP 31 C TRILL SOLD BPROB B	107	Ø	j	ET	E E	ά	ď	i o	Č
# END OF "BT" DATA  C BRROB BPROB BPROB BPROB BPROB BPROB  # ## BROB BPROB BPROB BPROB BPROB BPROB # # BRO OF "BPROB" DATA # ## BRO OF "BPROB" DATA # # BRO OF "BPROB" DATA # # BROD BECEMEER 1998  C TITLE C TITLE C TITLE C TOLL TOLL BATA	108	ò	٥		i i	)	5	<u>.</u>	Ö
C GROUD BAROB BPROB BPRO	109		CNE	0F *BT* C	ATA				
1.00000  8.8EGGIN GROUP  E. END OF GROUP DATA  8.8EGIN  C TITLE  C TICLI  C TICLI  C TOLI  C T	110 0	S GPRO		BPROB	BPROB	80808	8000	000	0
## END OF 'BPROB' DATA ##END ##EGIN GROUP ##ECADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TOL1 C TOL1 C TOL2 C TOL3 C TOL3 C TOL4 C TOL4 C TOL4 C TOL4 C TOL5 C T	111	1.0000		i :			0	0 2 2 3	2440
### END OF GROUP DATA ###################################	112 #		END						
* END OF GROUP DATA  **REND  **RESTAN  **CAMPL  C TITLE  C LOLP  INCLE  C LOLD  O.5  RATAL  1  1  1  1  1  1  1  1  1  1  1  1  1		SEND							
## END OF GROUP DATA  ### END OF GROUP DATA  #### END OF GROUP DATA  #### CODES  #### END OF GROUP DATA  #### END OF "CODES FROM TO CAP PFTMX" DATA  #### END OF "CODES FROM TO CAP PFTMX" DATA  #### END OF "CODES FROM TO CAP PFTMX" DATA  #### END OF "CODES FROM TO CAP PFTMX" DATA  #### END OF "CODES FROM TO CAP PFTMX" DATA  ##### END OF "CODES TROM TO CAP PFTMX" DATA  ##################################			ROUP						
RABEGIN MULTI  C TITLE  C CODES  C CODE			END	01.089.10	4.40	٠			
C TITLE  ECUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 1 1 2 0.0 3.3 10. 10  C CODES FROM TO CAP PFTMX DATA  C CODES FROM TO CAP PFTMX DATA  C CODES DIV OIV DIV DIV DIV DIV-1 0.0 1 10.  * END OF "CODES FROM TO CAP PFTMX PTFMX" DATA C CODES TROM TO CAP PFTMX PTFMX" DATA C CODES TROM TO CAP PFTMX PTFMX" DATA C CODES TROM TO CAP PFTMX PTFMX" DATA C CODES THE SER MOTE RANGE! RANGE * END OF "CODES THE RESER KDIF RANGE! RANGE SOUTH 100. 0 1 10.  * END OF "CODES THE RANGE! RANGE! RANGE SOUTH 100. 0 1 10.  * END OF "CODES THE RANGE! RANGE C SAMPL LOLP IRULE RNTYP RNINT C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TITLE C TOLL TOLL TAXAN C CODES TROM TO CAP PFTMX LINE NORTH SOUTH C TRELAX NHINDO ITMAXO LINE FROM TO CAP PFTMX LINE NORTH SOUTH C CODES THE RANGE TO PFTMX LINE NORTH SOUTH C CODES THE CAP PFTMX LINE NORTH TOLE TOLE TOLE TOLE TOLE TOLE TOLE TOLE		CNESS	;	; ;	1				
C TITLE  ECUADOR DECEMEER 1998  C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1  TOLI TOL2 H RANGEM JSAMP 3.3 3.3 10. 10  C ODEB FROM TO CAP PFTMX DATA C CODES FROM TO CAP PFTMX DATA C CODEX DIV OIV DIV DIV DIV DIV-1 0.0  END OF "CODES FROM TO CAP PFTMX PTFMX" DATA C CODEX DIV OIV DIV DIV DIV-2 0.0  THESSER KDIF RANGE! RANGES DIV SOUTH 100. 0  SOUTH 100. 0  SOUTH 100. 0  EABEGIN MULTI C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TATLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT C TOLI TOLL TOLL H RANGEM JSAMP 30. 3 3.3 10. 10  C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH SOUTH C TOLL TOLL TOLL TOLL TOLL TOLL TOLL TOL		M NISESIA	ULTI						
C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		TITLE				•			
C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 2 3.3 10. 10. 10. 3.3 10. 10. 10. 10. 10. 10. 10. 10. 10. 10.	611	ECUADOR	DECF	460 100 A					
C TOLI TOL2 RATAL 10.  C TOLI TOL2 RATAL 10.  3.3 10. 10  1 31. CAP SAMP  C CODES FROM TO CAP PFTMX DATA  C CODEX DIV			; -				1		
C TOUL TOLZ MAIAL 1 10  C TRELAX NHINDO ITMAXO  C CODES FROM TO 3 CAP PFTMX  LINE NORTH SOUTH 900.  * END OF "CODES FROM TO CAP PFTMX" DATA  C CODEX DIV DIV DIV DIV DIV  DIV-2 0.0  * END OF "CODEX DIV" DATA  C CODEG TM IRESER KDIF RANGE! RANGE  NORTH 100. 0 1 10.  * END OF "CODEG TM IRESER KDIF RANGE! RANGE  SOUTH 100. 0 1 10.  * END OF "CODEG TM IRESER KDIF RANGE! RANGE  C TITLE  E CUADOR DECEMBER 1998  C TSAMPL LOLP IRULE RNTYP RNINT  C TITLE  E CUADOR DECEMBER 1998  C TSAMPL LOLP IRULE RNTYP RNINT  C TOLL TOLL TOLL HRANGE  C TOLL TOLL HRANGE  C TOLL TOLL HRANGE  C TOLL TOLL HRANGE  C TOLL TOLL HRANGE		1	, (	) (	2 4 6	4.1	Z Z Z		
C TRELAX NHINDO ITMAXO  C TRELAX NHINDO ITMAXO  C CODEB  FROM TO 3.3 10. 10  C CODEB  FROM TO 31  C CODEB  FROM TO 30  FROM TO 30  FROM TO CAP PFTMX DATA  C CODEX  DIV-1  C CODEX  END OF "CODES FROM TO CAP PFTMX DATA  C CODEC  TM IRESER KDIF RANGE! RANGE! RANGE  SOUTH  C TITLE  ECUADOR DECEMBER 1998  C ISAMPL  C TOLL		, .	n (	14:42	rt :	<b>**1</b>			
C TRELAX NHINDO ITMAXO  C CODES  C CODES  FROM TO 31 CAP PFTHX  LINE NORTH SOUTH 900, 900.  C CODES  END OF "CODES FROM TO CAP PFTHX DATA  C CODES  NORTH 100, 0.0  SOUTH 100, 0.1  END OF "CODES THIN PTHIN PTHIN DATA  C CODES  RABEGIN MULTI  C TITLE  ECUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNTYP RNINT  C TOLL TOL2  C TOLL TOL2  C TOLL TOL2  C TRELAX NHINDO ITMAXO  LINE NORTH SOUTH  C CODES  RATAL  C TOLL TOLZ  C TRELAX NHINDO ITMAXO  LINE NORTH SOUTH  C CODES  RATAL  C TOLL TOLZ  C TRELAX NHINDO ITMAXO  LINE NORTH SOUTH  C TOLL  C TOL			4	ָ	<b>T</b>	X D D Z Z Z	UNAMP		
C CODES				νή.	ю. Ю	10.	10		
C CODES FROM 1 51 CAP PFTMX LINE NORTH SOUTH 900, 900, 900,  E END OF "CODES FROM TO CAP PFTMX" DATA C CODEX DIV DIV DIV DIV DIV-1 0.0 DIV-2 0.0 THESER KDIF RANGE! RANGE RANG				ODNIHN	ITMAXO				
LINE NORTH SOUTH 900.  * END OF "CODES FROM TO CAP PFTMX" DATA DIV-1 0.0  * END OF "CODES FROM TO CAP PFTMX PTFMX" DATA DIV-1 0.0  * END OF "CODEX DIV				7					
LINE NORTH SOUTH 900. 900. 9  END OF "CODES FROM TO CAP PFTMX PIFMX" DATA DIV-1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.			az J.		0	CAP	PFTMX	PTFMX	
CODEX DIV DIV DIV DIV DIV DIV-1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	127	W Z L	2	~	KLO0	900.		900.	
C CODEX DIV DIV DIV DIV DIV DIV DIV DIV-1 0.0 DIV-2 0.0 DIV-2 0.0 I 10.	# 22.21		S S S S		S FROM TO	PFTMX	PTFMX" DATA		
DIV-1  DIV-2  CODEC  CODEC  TM IRESER KDIF RANGE1 RANGE1  NORTH  LOO  SOUTH  CODEG TM IRESER KDIF RANGE1 RANGE2  SOUTH  CANDOR DECEMBER 1998  C ISAMPL  C IS	129 C	CODEX	IO	ΔIO					
# END OF "CODEX DIV" DATA  C CODEG TM IRESER KDIF RANGE1 RAN  ** END OF "CODEG TM IRESER KDIF RANGE1 RANGE2" DAT  8.8EGIN MULTI  C TITLE  ECUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNTYP RNINT  C SOOO 0.5 RATAL 10.  C TOLL TOL2 H RANGEM JSAMP  30.  C IRELAX NHINDO ITMAXO  C CODEB FROM TO CAP PFTMX PT  LINE NORTH SOUTH 900. 900.	90	DIV-1		0.0					
C CODEG TM IRESER KDIF RANGE1 RANGE1 RANGE1 RANGE1 RANGE1 RANGE1 RANGE2 DATE & CODEG TM IRESER KDIF RANGE2 DATE & CODEG TM INDO ITMAXO  C IRELAX NHINDO ITMAXO  C CODEG FROM TO CAP PFTMX PT  C CODEG FROM TO CAP PFTMX PT  C LINE NORTH SOUTH 900. 900. 9	131	DIV-2	ò						
C CODEG TM IRESER KOIF RANGE! RANGE  NORTH 100. 0 1 10.  SOUTH 200. 0 1 10.  & SOUTH 200. 0 1 10.  & REGIN MULTI  C TITLE  ECUADOR DECEMBER 1998  C ISAMPL LOLP IRULE RNTYP RNINT  C ISAMPL LOLP IRULE RNTYP RNINT  C SOO 0.5 RATAL 10.  C SOO 0.5 RATAL 10.  C TRELAX NHINDO ITMAXO  C IRELAX NHINDO ITMAXO  C CODEB FROM TO 0.00. 900. 900.	* 2201				DIV DAT	47			
SOUTH   100.   1   100.   1   100.   1   100.   1   100.   1   100.   1   100.   1   100.   1   100.   1   100.   1   100.   1	133 C	CODEG		Σ	IRESER		DANCE 4	0.000	
SOUTH  200.  8.REND  8.REGIN MULTI  C TITLE  C TSAMPL  C TOLI  T TOL2  T TOL2  T TOL3  C TRELAX  NHNDO  T TMAXO  C CODEB  ROOF "CODE TM IRESER KDIF RANGE!" DAT  10.  10.  10.  10.  10.  10.  10.  10	134	HLWON		100.	0		7 0	230000	
* END OF "CODEG TM IRESER KDIF RANGE! RANGE2" DAT  &REGIN MULT!  C TITLE  C TOLD IRULE RNTYP RNINT  C TOL! TOL2 H RANGEM JSAMP  30. 3. 3.3 10. 10  C TRELAX NHINDO ITMAXO  C CODEB FROM TO CAP PFTMX PT  LINE NORTH SOUTH 900. 900. 9	135	SOUTH		200.				? .	
ASEGN MULTI C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTVP RNINT 500 0.5 RATAL 1 C TOLL TOL2 H RANGEM JSAMP 30. 3. 3.3 10. 10 C IRELAX NHINDO ITMAXO C CODEB FROM TO 10 00.	136 *				TM TOPOE			3	
C TITLE C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT S000 0.5 RATAL 1 1 1 C TOL1 TOL2 H RANGEM JSAMP 30. 3. 3.3 10. 10 C IRELAX NHINDO ITMAXO C CODEB FROM TO 10 CAP PFTMX LINE NORTH SOUTH 900. 900.		SEND						A: 40	
C TITLE ECUADOR DECEMBER 1998 C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 1 1 C TOLI TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO C ODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.		SBEGIN M	ULTI						
C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 TOL1 TOL2 H RANGEM JSAMP 50. 3.3 3.3 10. 10 C IRELAX NHINDO ITMAXO C CODEB FROM TO 500. 900.		TITLE							
C ISAMPL LOLP IRULE RNTYP RNINT 5000 0.5 RATAL 1 1 1 1 1 1 1 0 10 10 10 10 10 10 10 10	140	ECUADOR	DECE	48ER 1998		• . :			
C TOL1 TOL2 H RANGEM JSAMP 3.3 10. 10 10 10 10 10 10 10 10 10 10 10 10 10			_	407		2	* NE		
C TOL1 TOL2 H RANGEM JSAMP 30. 3.3 10. 10 C IRELAX NHINDO ITMAXO C CODEB FROM TO CAP PFTMX LINE NORTH SOUTH 900. 900.	142	500	0	5.0	PATAS	•			
C IRELAX NHINDO ITMAXO C CODEB FROM TO C CODE FROM TO LINE NORTH SOUTH 900.			-1	TOLS	30	X0080	7 27 4 5		
C IRELAX NHINDO ITMAXO C CODEB FROM TO LINE NORTH 900. * FND OF FORE	144	OM M		14	it.				
C CODES FROM TO CAP PETMX LINE NORTH SOUTH 900.		H		CONHAN	TEMAYO	•	2		
C CODES FROM TO CAP PETMX LINE NORTH SOUTH 900. 900.	146								
LINE NORTH SOUTH 900.			i.	•	,				
COA			Ż		HEGO	ğ c	XXIX	PTFMX	
: : : ! ! !	* 671		CNU		, C. F. C.			.004	

A-4-69

			RANGE2	7.0	1.0	DATA	
			RANGE 1	10.	10.	RANGE2"	
			KDIF R	<b>~</b> 1	7	DIF RANGE1	
		TV" DATA	IRESER	o	0	END OF "CODEG TH IRESER KDIF RANGE1 RANGE2" DATA	
0.0		END OF "CODEX DIV" DATA	ΣL	30.74	417.72	F "CODEG T	
	0.0	GNE			4	END	
DIV-1	DIV-2		154 C CODEG	MEMON	SOUTH		158 SPEND
151		# 804	O	155		*	8
Š	152	E C	154	50	156	157	1.5E

ECUADOR DECEMBER 1998

\*\*\* UNIT DATA OF GRID NORTH \*\*\*

11000	ž	HIND MW	r Q X	CODE	3.5	CNH	FOR
AGOYAN	78.00		0.2		32.70	8	0.7
CUMBAYA	4.43	4	4.2		7.00	8	3.4
PASOCHOA	1.13	'n	7.0	CHILLOS	0.43	8	2.9
OTHERS H	1.62	18.	4.2			ı	· ·
				TOTAL	285,32	32.	
CODE	3	MW UNIT	FOR	CODE	3	UNIT	я 8
ESMERALD	125.00	**	6.0	SANTA RO	15.00	m.	22.3
GUANGOPO	4.05	9	19.3	S.R DIES	2.20	,-1	22.3
S.R BUNK	1.64	Ŋ	19.3	SR.REDIE	1.73	•	22.3
SR.REBUN	3.76	6	19.3	VAPOR-95	117.50	7	0
VAPOR-97	66.00	?	0.8				•
				TOTAL	498.42	34.	
		HYDR	O+THER	HYDRO+THERMAL TOTAL	783.74	66.	

\*\*\* LOAD DATA OF GRID NORTH \*\*\*

HI(MW) WKDAYS(DAY) 753.

20.

\*\*\* RELIABILITY OF SINGLE GRID NORTH \*\*\*

DIFF.COEF.	-0.014810	-4.031279	-0.009227	
MARGIN (X)	25.30	25.76	25.99	4.08
RESERVE MARGIN (M)	190.48	194.00	195.68	30.74
LOLP (DAY/MONTH):	0.50000	0.407439	0.300000	*14.035419

α
0
ò
~
œ
LL.
మ
Σ
EXGE
ü
S M
c)
õ
$^{\circ}$
_

11NO ***	DATA OF GRID	SOUTH	*	•				
нүрво	CODE	Σ 3	LAIN	FOR	CODE	3	UNZT	ŭ
	PAUTEAB DAU-PERI	87.70 43.00	ห์ พ่	0.5	PAUTE C OTHERS H	91.88	10 40	9. 4
					TOTAL	1011.14	18,	
THERMAL	CODE	<u>\$</u>	TIND	FOR	3000	ĭ	UNIT	O.A.
	ESTERO V	70.00	2	0.5	ESTERO G	20.00	•-	ć
	GUA V #2	9.50	2	8.8	GUA VAP	31.60		
	ESTERO E	15.00		8.0	ESTERO E	20.00	, ,	\$ e-
	S.R DIES	1.34	17.	22.3	S.R BUNK	2.85	7	19
	SR.REDIE	1.84	20.	22,3	SR.REBUN	3.00	2	6
	CLECOUIL	37.00	ĸ,	14.0	ELECOUIT	16.00	2	14.
	5AS-43	78.00	<b>.</b>	ο.	GAS-94	78.00	1.	ò
					TOTAL	644.58	60.	
			HYDR	)+THER	HYDRO+THERMAL TOTAL	1655.72	78.	
*** LOAD	DATA OF GRID	SOUTH	*					
	H1 (MW)	WKDAYS(DAY)	(DAY)					
	1238.		80.					
*** RELIA	RELIABILITY OF SIN	SINGLE GR	GRID SOUTH		(g)   特   美			
(DAY/MONTH)	σΞ.	RE:	RESERVE MARGIN	MARG		DIFF.COEF.		
0.50000	0	283.72	۵.	22	22.92 -(	-0.004336		
0.392397	4	287.11		23.19	•	-0.075217		
0.281054	4	301.07		72	24.32 -(	-0.010432		
* 0.020822		417.72		33.74	74			

ECUADOR DECEMBER 1998  $p^{*,T}$ 

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*.

RINIT	44
RANDOM	н
RULE	RATAL
LOLP(D/M)	005.0
SAMPLE	2000

\*\* GRID DATA \*\*

KDIF	इस्त्री कर्म
RMMIN (%)	00
E SE	753.0
BLOCK	<b>ન</b> ન
RMINIT (MW)	100.0
GRID NAME	NORTH
, 0	H 61

\*\* BRANCH DATA \*\*

6. 1. ⊢	( <b>3</b> E)	0.006
F->1	C ME	0.006
CAP	- ME	0.006
	-	(S)
z		SOUTH
		1
		_
μ. 2		NORTH
CODE		
NB BRANCH		LINE
ω 2		

ECUADOR DECEMBER 1998 , P. S

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

NORTH SOUTH

IT = 14

													14.10(%)
203.73	16.46	0.49187	0.45707	0.48638	0.47173	0.51379	0.52009	0.52169	0.51281	0.50594	0.50051	0.50051	C MM )
76.91	10.21	0.45792	0.50733	0.50436	0.49387	0.52451	0.51556	0.53142	0.52011	0.51986	0.50143	0.50143	280.646MW)
RESERVE MARGIN (MW)	(%)	200	1000	1500	2000	2500	3000	3500	0007	4500	2000	LOLPCDAY/MONTH)	TOTAL RESERVE MARGIN
RESER		IT	te Fr	n ⊢ ∺	ĭĭ =	in H	II =	11 }-	H	# 1.	я Н	LOLPC	TOTAL

ECUADOR DECEMBER 1998 /-9

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

RANDOM RULE LOLP(D/M) \*\* MONTE CARLO DATA \*\* SAMPLE

KDIF RINIT H1 - RMMIN 753.0 RATAL RMINIT BLOCK (MW) 30.7 0.500 \*\* GRID DATA \*\* 2 SOUTH NO. GRID NAME 2000

11.00 (MW) F-74 (MM) CAP (MW) 900.0 NORTH (1) SOUTH (2) \*\* BRANCH DATA \*\* NB BRANCH CODE LINE

ECUADOR DECEMBER 1998 P-10

*	
GRID	Ŧ
ECTED	SOUTH
INTERCONNECTED	NORTH
ŭ O	
RELIABILITY OF	
REL 3	++
*	= + +
*	н

RELIABILITY EVALUATION PROGRAM FOR INTERCONNECTED POWER SYSTEMS

( REPORT )

PRESENTED BY KCC

CALCULATION DATE 12/01/1993

LOLP OF SNI, AS OF DECEMBER, 2003 ALTERNATIVE

						3	ź								4			3	2	23	4																						
						37024	20412											ZWX.	968.2	970.2	914.														•	٠							
					٠	72024	Carlo Series											LNM	914.4	978.1	928.4													,									
			ALTERNATIVE			ANOMA												LNAM	2.776	978.1	3.476				IBOBI	o	٥	٥	0	o (	0 0				7	IPOBI	0	٥	٥	٥	o	0	>
						N N								LTYP	ο.			LAME	0.426	966.1	898.6				ø	0.185	0.871	\$ 0.065	4.125	0.475	4.4 200 m	000	2000	100		o	1.07	26.70	23,15	26.70	23.15	23.36	3
			DECEMBER, 2003		L JOKet	A 200 C	K P	ã						DELTXX	50.			3XXI	978.1	968.2	920.3	DATA			S		2.	4	~		ni o		, a	0 . 0 . 3 . 3 .	;	Ż	- 44	m	•	•	เก๋	ó	;
			AS OF		IPSING	N N N	4-0	ų. O			EMBER 2003	KBLOCK	ef	HEIJIT	20.			LNMK	958.2	986.0	958.2	OF "LNMW"			H X	78.00	32.70	4.4125	7.00	1.125	0.450	7 77	1 400	O	;	±XX±	125.00	15.00	4.05	2,20	1.64	1.73	1
	12/01/1993	TITLE	LOLP OF SNI,	GRI	TCALCU	20.00			SSEND	SEBEGIN SINGL	ECUADOR DECEMBER 2003		NORTH	RANGEL	20.	LMWF	ਜ	LNMW	986.0	976.1	958.2	END	: INDEX1	ed		AGOYAN	PISAYAMB	CUMBAYA	NOVAN	PASOCHOA	CHILLOS	TOAPIT	70450		CXUCKI	CODE		SANTA RO	GUANGOPO	S.R DIES	S.R DUNK	SR.REDIE	141111
2 C	M	7 C	S	9	υ ::::::::::::::::::::::::::::::::::::	, ,		# 25			16	17 C	1.0	19 C	80	21 C	22	23 C	5,4	25	26	* 7.	20 C	62	30 C	+4 (N	32	33	* 1	A Y	9 6	. a	) p	) () ) ()		43		45	97	47	84	43	

\* INPUT DATA \* 2 PAGE

----+---10----+---20----+---30----+40----+---50----+---60----+

	NDEX4 NDEX4 NDEX4 NDEX4 NDEX5 0.0 END BPROB 00000 END IN GROUP IN GROUP END TO END TO END TO END	78.00 78.00 78.00 78.00 78.00 1.0048 1.0048 1.006 1.00	T A B T T A C C C C C C C C C C C C C C C C C	POBL O.84 O.84 O.86 O.86 SPROB SPROB		88 80 80	# 80 80 80
	S-45 S-2001 INDEX3 INDEX4 INDEX5 S BT 0.0 BPROB 0.0000 CIN GROUP GIN GROUP THE	78.00 78.00 78.00 78.00 100AR 86.19 1HD H BPROB 0F GROUP I	7 A A TAV		α α	89 80 8-1	80 80 80 80 80
	S-2001 INDEXA INDEXA INDEXA INDEXA O.0 BPROB O.00 CEND GIN GROUP GIN GROUP THE	76.00 76.00 1004AR 86.19 1110 H BT 0F 8870B 0F 8870B 0F 680UP 1	C	0 m · m · m · m · m · m	8 8	t- & α α α α	80 80 80
	INDEX3 INDEX3 INDEX4 INDEX5 INDEX6 IN	0 - 6.00 C C C C C C C C C C C C C C C C C C	7 A B B T TAV D C C C C C C C C C C C C C C C C C C	ω · ω ο · »- ι	8 8 8	89 80 81	8 8 90
	INDEXA INDEXA INDEXA INDEXA INDEXS SE	OF "CODE LOVAR 86.19 LTVAR O.0 IHD H BPROB OF "BPROB OF "BPROB OF GROUP I	CCN O O O O O O O O O O O O O O O O O O	· 0 0 - 1	α Δ 8	89 NO 84	8 00 8 8
	INDEX3 INDEX4 INDEX5 S BT O.O BPROB COCOO CEND GIN GROUP GIN MULTI TIE	LOVAR 86.19 0.0 1HD H BPROB 0F '897 D	LOAV LOAV LTAV O.O BPROB	8 08 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 PR08	8 B T C S S T C S S T C S S S T C S S S T C S S T C S S T C	80 87 89 80
	INDEX4  INDEX5  SET  O.O  BPROB  OOOOOO  GIN GROUP  GIN GROUP  GIN GROUP  THE	86.19 LTVAR OD IND THD H BT BPROB OF GROUP   COF GROUP	-46.01 LTAV 0.0 ATA BPROB SATA TRULE	8 0	8 87 84 84 84 84 84 84 84 84 84 84 84 84 84	e 80 84 85 85 85 85 85 85 85 85 85 85 85 85 85	80 80 80 80
	INDEXA  INDEXS  S  S  BPROB  OOOOOO  CIN GROUP  GIN GROUP  GIN GROUP  TLE	LTVAR 0.0 IHD H BT BPROB OF "BPROB OF GROUP	LTAV 0.0 0.0 ATA BPROB PPROB TRULE	8 0	8 8PR08	8 04 8 1	8 8 80 80
· · · · · · · · · · · · · · · · · · ·	INDEXS  INDEXS  S  S  S  S  S  S  S  S  S  S  S  S	THD  H  BH BT  OF "BT" D  BPROB  OF "BPROB  OF GROUP I	0.0 BT ATA BPROB " DATA TRULE	B PROB ST	BPROB	80 00 00 00 00 00 00 00 00 00 00 00 00 0	8 90848
· · · · · · · · · · · · · · · · · · ·	INDEXS  SH  O.O  BPROB  OCOOOO  CROUP  GIN GROUP  GIN GROUP  THE  UADOR DECE	THD H H H BPROB OF *BPROB OF *GROUP I	BTA BPROB PATA TRULE	8 08 KK 17 18 18 18 18 18 18 18 18 18 18 18 18 18	8 PROB	88 80 94	8 00 8 8
· · · · · · · · · · · · · · · · · · ·	BT 0.0 BPROS 00000 COOO00 END C GIN GROUP END C END C END C END C	H BT BT D BPROB OF BPROB OF GROUP I	BT ATA BPROB BATA DATA	8 0 X X Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8 PROB	80 80 80 80 80	80 80 80 80
· · · · · · · · · · · · · · · · · · ·	BT 0.0 BPROB 00000 00000 END G GIN GROUP D GIN GROUP THE	BT OF "BPROB  OF "BPROB  OF GROUP	BTA BPROB CDATA TRULE	8 08 K	8PR08	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	80 80 80 81 81 81 81 81 81 81 81 81 81 81 81 81
The second secon	BPROB BPROB • 00000 CIN GROUP GIN GROUP BD END BIN MULTI	OF "BT" D BPROB OF "BPROB OF GROUP I	ATA BPROB " DATA DATA TRULF	8 PROB Y P	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 00 00 00 00 00 00	80 90 90
•	END END OF END O	OF SEROBS OF SEROUP I OF GROUP I LOLP	ATA BPROB DATA TRULF	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	80 80	86 80 8	80 80
	BPROB  OOOOOO  GIN GROUP  END GIN MULTI TLE  UADOR DECE	BPROB OF "BPROB OF GROUP   MSER 2003	BPROB DATA	SPROB NA TT	8 P R O B	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	80 % G
	COOOOO END O	OF "BPROB" OF GROUP I	* DATA SATA TRULE	α 			
	END O GIN GROUP GIN END O GIN MULTI	OF GROUP I	DATA	Z		44.	
	GIN GROUP GIN GROUP B GIN MULTI TLE	OF GROUP I	DATA TRULE	2 2 4		e de la companya de l	
	GIN GROUP  END (  D  GIN MULTI  TLE  UADOR DECE	OF GROUP   WBER 2003	DATA	S C C C C C C C C C C C C C C C C C C C		a.	
	END OF EN	OF GROUP I	DATA	S C C C C C C C C C C C C C C C C C C C		÷ .	,
	D GIN MULTI TLE UADOR DECEN	MBER 2003 LOLP	al a	RN TY P		:.	
2011	GIN MULTI TLE VADOR DECEN	MBER 2003 LOUP	TRUE	7. 7. 7.		0.5	
	TLE UADOR DECE	MBER 2003 LOLP	TRULE	RNTYP		ŧ.	
	ILE VADOR DECEN	MBER 2003	TRULE	RNTYP		ž į	
٠,	UADOR DECE	MBER 2003 LOUP	TRULE	RX TX TX		: .	
		COLP	TRULE	RNTYP TYP			
Ų.	ISAMPL		;	<b>₽</b> ₹ \$	ドスコスピ		7
126	2000	5.0	RATAL				٠.
127 C	TOLI	TOL2	ľ	RANGER	JSAMP		
128	30.	m	ы ы.	10.	10		
O		OCKLAN	TIMAXO		<b>,</b>		
. :		•	ĸ				
(	2000						
>	1.		)		χ. Σ. (	X Y	
	ב אולי בי			.006	•	900	
H	Z L		OM 10	CAP PFTMX P	PTFMX" DATA		
U	CODEX DIV	210	AIG AIG				
:	DIV-1	0		-			
136 DI	DIV-2 0.0	0		-			
127 *	END	OF CODEX	DIV" DATA				
138 C COL	CODEG	Σ	IRESER	HEGX	RANGE	PANGES	
129 NO	NOSTE	100.	0	•	Ç		
٠.	SOUTH	300					
*	e c	( i i i i i i i i i i i i i i i i i i i	# # # # # # # # # # # # # # # # # # #			1	
	2		**************************************	AULT KANGEL	EI HANGEZ"	DATA	
2	STA MOLTE						
υ	1116						
145 ECL	ECUADOR DECEMBER 2003	48E.R 2003					
146 C	ISAMPL	LOLP	IRULE	RNTYP	RNINT		
147	2000	5.0	RATAL	+-1 :	:		
148 C	TOL 1	TOLZ	r	MASSAG	· ICAMO		
	, O &	) )	: A		1000		
		•	0	•	10		
150 C	IRELAX	NHHNOO	THAXO				

A-4-80

INPUL DATA \* 4 PAGE

#4 10		٥			-4		-1								
S.	152 C CODES		FROM	Σ		Ç.				CAP		PFTMX		PTFMX	
153	LINE		NORTH	Ξ		SOUTH	×			900.		900.		900	
154	*	w	IO ON:	ř L	CODE	B 75	Σ	0	AP	¥ E E E E E E E E E E E E E E E E E E E	Y PTF	END OF "CODEB FROM TO CAP PFTMX PTFMX" DATA	. 41		
'n	155 C CODEX		OIV	۵	> 2	ÞΙζ	DIV DIV DIV	_					,		
156	DIV-1			0	0.0				•			·			
157	0IV-2		0.0												
158 4	*	w	END OF "CODEX DIV" DATA	i	300E	K	,	ATA							
0	159 C CODEG			•	Σ	IR	IRESER			KOIF	Œ	RANGET		RANGES	
160	NORTH		*1	179.54	45	:				~		10,			
161	SOUTH		8	232.52	25		0			-		10.			
162		ш	O QN	i.	3000	2	IRE	SER	×	IF R	NOE	END OF "CODEG TH IRESER KDIF RANGE! PANGE?"	2	DATA	
163	0.00 F 10 C					٠							,		

A-4-81

•
THOUSE CO.
C100
DATA OF
1 2 2 2
*

n 0	6.0	4.1	5	0			FOR	26.7	26.7	23.4	8	0.8		٠
UNIT	'n	Ņ	8	N		36.	UNIT	w	-4	•	ä	2.	35.	71.
3	32.70	7.00	0.43	64.40		640.12	X	15.00	2.20	1.73	27.00	66.00	525.42	1165.54
3000	PISAYAMB	MAYON	CHILLOS	TOACHI		TOTAL	CODE	SANTA RO	S.R DIES	SR.REDIE	GAS-2003	VAPOR-97	TOTAL	HYDRO+THERMAL TOTAL
η O G	0.2	ر. د	0.5	0.5	5.3		FOR		23.1	23.1	20.3	9.0		O+THER!
FHND	8	,	6	2	18.		UNIT	• •4	٠,	'n	Ċ.	1,		HYDR
3	78.00	4.43	1.13	113.00	1.62		ž	125.00	4.05	1.64	3.76	117.50		
2002	AGOYAN	CUMBAYA	PASOCHOA	S.FRACIS	OTHERS H		3000	ESMERALD	GUANGOPO	S.R BUNK	SR. REBUN	VAPOR-95		
HYDRO							THERMAL						-	

\*\*\* LOAD DATA OF GRID NORTH \*\*\*

HI(MW) WKDAYS(DAY)

\*\*\* RELIABILITY OF SINGLE GRID NORTH \*\*\*

DIFF.COEF.	-0.064507	-0.003171	-0.010961	
MARGIN (X)	20.33	22.39	23.70	- 0 a
RESERVE MARGIN	200.46	220.79	233.68	479.54
LOLP (DAY/MONTH)	0.498322	0.442476	0.299418	* 1.262555

\*\*\* UNIT DATA OF GRID SOUTH

FOR ROP	2.51	0.0			F 0.8	#4 #4	6.7	14.2	23.1	21.2	15.4	8.0	
UMIT	ī	2		20.	LIND	+	+	4	4	ί,	ο,	~	
3	91,88	53.90		1118.94	3	20.00	31.60	20.00	2.85	3.00	16.00	78.00	
CODE	PAUTE C	MAZAR		TOTAL	CODE	ESTERO G	GUA VAP	ESTERO E	S.R BUNK	SR.REBUN	ELECOUIT	GAS-94	
ς α	2.5	0.5	5.1		FOR	9.0	8.2	10.6	26.7	50.6	15.4	ο Θ	8.0
TINO	Ŋ	Ċ,	•		LEND	8	4	.4	17.	20.	'n		ä
3 X	87.70	43.00	4.54		3	76.00	9.50	15.00	1.34	1.84	37.00	78.00	78.00
CODE	PAUTEAB	DAU-PERI	OTHERS H		CODE	ESTERO V	GUA V #2	ESTERO E	S.R DIES	SRIREDIE	CLECOUIL	CAS-93	GAS-2001
HYDRO					THERMAL								

HYDRO+THERMAL TOTAL 1841.52 81.

TOTAL 722.58 61.

\*\*\* LOAD DATA OF GRID SOUTH \*\*\*

H1(MW) WKDAYS(DAY)

1609.

\*\*\* RELIABILITY OF SINGLE GRID SOUTH

ECUADOR DECEMBER 2003 P-7

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

RINIT	я	
RANDOM	r.	
RULE	RATAL	
LOLP(D/M)	005.0	
SAMPLE	0005	·

\*\* GRID DATA \*\*

KOIF	pri gri
RMMIN (X)	00
H (MM)	986.0 1609.0
BLOCK	ert ert
RMINIT	300.0
GRID NAME	NORTH SOUTH
0	et (V

\*\* BRANCH DATA \*\*

7-25	(MM)	0.006	
F 4-14	( BE	0.006	
CAP	(ME)	0.000	
		(2)	
Z		SOUTH	
		ć 1.)	
		'n	
Z		NO87H	
CODE			
B BRANCH		LINE	
63			

ECUADOR DECEMBER 2003 P - 8

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

IT = 9

RESERVE MARGIN (MW) 100.00 244.40

IT = 500 (%) 10.14 15.19

IT = 1000 0.51722 0.45500

IT = 2000 0.5177 0.48498

IT = 2000 0.52741 0.51420

IT = 3500 0.52741 0.51420

IT = 3500 0.53052 0.51420

IT = 4000 0.51962 0.51363

IT = 4000 0.51977 0.50542

IT = 4000 0.51977 0.50542

IT = 5000 0.51977 0.50542

IT = 5000 0.51977 0.50542

IT = 5000 0.51978 0.49921

IOTAL RESERVE MARGIN 344.40(MW) 13.27(%)

ECUADOR DECEMBER 2003

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

		,		•	-	T - 7	9000
<b>-</b> +		X 5 1 1	ti	e4 .		F->T	9000
##		RMMIN (X)	٥	0	- N	GA S	0,006
		H1 (ME)	986.0	1609.0			
RATAL		вгоск	ы	**		r Z	NORTH (1) SOUTH (2)
. 500		RMINIT	179.5	232.5			(1)
٥	_				# ·	2	NORTH
2005	GRID DATA **	O. GRID NAME	NORTH	2 SOUTH	BRANCH DATA	BRANCH CODE	1 LINE
	4	2			#	0) 2	•
	0.500	0.500 ** **	RMINIT BLOCK HI RMMIN (MW) (X)	8 PATAL 1  RMINIT BLOCK H1 RMMIN  (MW) (MW) (X)  179.5 1 986.0 0	8MINIT BLOCK H1 RMMIN (MW) (MW) (MW) (MW) (X)	RMINIT BLOCK H1 RMMIN (MW) (X) 179.5 1 986.0 0 232.5 1 1609.0 0	RMINIT BLOCK H1 RMMIN KDIF  (MM) (MW) (X)  179.5 1 986.0 0 1  232.5 1 1609.0 0 1  MF NT CAP F->T

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

									:					. d
SOUTH	232.52	14.45	0.22681	0.23131	0.23961	0.22489	0.26455	0.26141	0.27380	0.26105	0.25103	0.23832	0.23832	
NORTH	179.54	18.21	0.15093	0.12394	0,13894	0.12697	0.11071	0.11388	0.11642	0.11562	0.11679	0.11305	0.11305	(PE1270 017
	(3E) 7	(%)											÷	M T C C C
-1	VE MARGIN		200	1000	1500	2000	2500	3000	3500	4000	4500	2000	LOLPIDAY/MONTH	DESFOVE
11 11	RESERVE		# }~	11	11	i i	H	11 =	드	н 	H L	= 11	LOLP(	TOTAL

RELIABILITY EVALUATION PROGRAM FOR INTERCONNECTED POWER SYSTEMS ( REPORT )

PRESENTED BY KCC

CALCULATION DATE 12/15/1993

LOLP OF SNI, AS OF DECEMBER, 1998 RECOMMENDATION

----+---10----+---20----+---30----+---40-----+---50----+---60----+---70

	:					
12/15/1993 TITEF						
LOLP OF SNI,	AS OF	DECEMBER,	1998 RECOMM	RECOMMENDATION		
GRID						
ICALCU	IPSING	IPMULT	-			
٥	0	0		٠		
ANSMK	ANSMK	ANSMK	ANSWK	ANSWK	ANSMK	ANSMK
ι <b>ν</b> Ο						
END	OF ANSMK"	C" DATA		-		
WARNED TO THE COLUMN						
TITLE SINGL						
ĕ	DECEMBER 1998	•				
CODEO	KBLOCK	1				
NORTH		-				
RANGEL	HEIJIT	DELTXX	LTYP			
50.	20.	50.	<b>a</b> .	-		
LME						
ы						
<b>MWN</b>	LNNE	LNZE	LNXE	3W2 1	MWN 7	3
753.0	731.9	747.0	743.9	721.2	698.4	739.5
745.5	753.0	739.4	737.8	747.0	747.0	740.9
731.8	73		686.3	721.1.	709.0	498.4
END	OF LUNE	DATA				
INDEXI						
1 1100	3	i		;	·	
AGO YAN	10	Š	9 . 1	18041		
PISAYAMB	40.70	• •	301.0	<b>&gt;</b> (		
CUMBAYA	4.4125	1 4		·		
NAYON	7.00	'n	7777			
PASOCHOA	1.125		908.0	• •		
CHILLOS	0.430	i	2,915	·		
OTHERS H	1.620	: ::	4.221	۰٥		
DAU-PERI	43.00	5	0.50	٥		
GND	OF "CODE	TKW CN O	IPOBI" DATA			
INDEXZ						
CI.						-
CODE	TX¥	20	σ	IPOBI		
ESMERALD	125.00	ed ed	0.88	0		
SANTA RO	15.00	'n	22.25	0		
GUANGOPO	4.05	ý	19.29	0		
S.R DIES	2,20	;	22.25	0		
S.R BUNK	1.64	'n	19.29	0		
SR.REDIE	1.73	• •	22.25	0		
SR.REBUN	3.76	6	19.29	0		
VADOR+97	44					

LUAV  LTAV  0.0  LTAV  ATA  BPROB  BPROB  BPROB  BPROB  BPROB  LNMW  LNMW  LNMW  LNMW  LNMW  1224.8  1224.8  1224.8  1224.8  1224.9  1225.0  1226.8  1224.9  1226.8  1226.8  1226.9	BPROB BPR LTYP LTYP LTYP LNWW LNW 1223.1 1184 1223.1 1184 1223.1 1184 4.25 2.06 4.25 6.82 6.82 6.82 5.61 8.65 11.80 0.53 0.88 6.82 5.61 19.29 19.29 19.29 14.00 0.80
8 11 11 11 11 11 11 11 11 11 11 11 11 11	BT.  BPROS BPROS  1164.9  1124.9  1124.9  1124.9  1164.9  1164.9  1164.9  0  0  0  0  0  0  0  0  0  0  0  0  0
	LUMW 11148.2 1126.3 1164.9

					-	ď	·		SPROS SPROS																	PTFMX	.006			•	-	PANCE2		0	אַדאַר	į.										) THE CO.	₹E.J.	.006
						æ	·		BPROB										******	ET EX	-	CSAMP	10		:	XX	900.	PTFMX" DATA				PANGE 1		10.	, C					1-31-NG	, e-1	SAMO	0	) \$		VALUE		.004
						)- (8)		•	BPROB										2		- : : : :	KANGEM	01			CAP	.006	באר אדו			*1	KDIF	-	) e4	IRESER KOIF RAN			-		RNTYD	e e	RANGEM	10.	, 1		CAD	200	.00%
2	135,40	LTAV	0.0	•		i- co		DATA	BPROB		B" DATA			DATA				σ	1011	1 4 4 6	1	ε:	r) m	LIMAXO	31	0.00	2000	- COURS - KOR - C			"CODEX DIV" DATA	IRESER	0	0	Σ				60	IRULE	RATAL	x	: M	XTMAXO	+ +-1		AT:OS	2000
0 7 7 7	66.33	LTVAR	0.0	HHO	x	£ ₩		OF "BT"	SPROB		OF "BPROB"			OF GROUP DATA		:		EMBER 199	100	, u	100	20.		CONTEN			מסקיים ביים		, ,	0.0			100	200.	OF "CODEG				EMBER 199	LOLP	5.0	TOLZ	m	NHINDO	- <del>-</del>	FROM	_	
TROBEN	N)	INDEX	4	INDEXS	ıń.	18	0.0	GNS	BPROB	1.00000	GND	BEIND	SEBEGIN GROUP	CNE	SEEND	BASEGIN MULTI	TITLE	ECUADOR DECEMBER 1998	TSAMPI	2005				TRELAY	0 0000		i	משמ אשטטט			Ü	CODEG	NORTH	SOUTH	END	8&END	SEBEGIN MULTI	TITLE	ECUADOR DECEMBER 1998	ISAMPL	2000	TOL 1	30.	IRELAX	0	CODEB		
101		103 C	104	105 C	106	107	108	* 501	110 €	111	112 *	113 88	114 88	115 *	116 88	117 88	118 C	119	120 C	123	100			) † :	122		100	000		131	132 *	133 C	134	135	136 *	137 88	138 88	139 C	140	141 C	142	143 C	144	145 C	146	147 C		) (

6.0 END OF "CODEX DIV" DATA TM IRESER KDIF RANGE! RANGEZ -0.76 0 1 10. 1.0 449.22 0 1 10. 1.0 END OF "CODEG TM IRESER KDIF RANGE! RANGE2" DATA	152 DIV-2 0.0 152 DIV-2 0.0 153 * END OF "CODEX DIV" DATA 154 C CODEG TM IRESER KDIF RANGE! RANGE2 155 NORTH -0.76 0 1 10. 1.0 156 SOUTH 449.22 0 1 10. 1.0 157 * END OF "CODEG TM IRESER KDIF RANGE! RANGE2" DATA 158 &&END				٠		
END OF "CODEX DIV" DATA  TM IRESER KDIF RANGEI  -0.76 0 1 10.  449.22 0 1 10.  END OF "CODEG TM IRESER KDIF RANGEI RANGEZ"	110 0F		RANGEZ	0	1.0	DATA	
6.0 END OF "CODEX DIV" DATA TM IRESER KDIF R. -0.76 0 1 449.22 0 1 END OF "CODEG TM IRESER KDIF RANGE1	110 0F		ANGE 1	10.	10.	RANGE2"	
END OF "CODEX DIV" DATA THE IRESER -0.76 6.49.22 END OF "CODEG TM IRESER	110 07 110 11				<b>+</b>	KOIF RANGE!	
0.0 END OF "CODEX TM -0.76 449.22 END OF "CODEG	בבט מי		DIV" DATA IRESER	0	٥	TM IRESER	
	CODEC CONTH	0.0	END OF "CODEX TM	-0.76	449.22	END OF "CODEG	

\$ -4	
1998	
DECEMBER	
ECUADOR	

\*\*\* UNIT DATA OF GRID NORTH \*\*\*

AGOYAN 78.00 CUMBAYA 4.41 PASOCHOA 1.13 OTHERS H 1.62 CODE MW U ESMERALD 125.00 GUANGOPO 4.05 S.R. BUNK 1.64 SR.REBUN 3.76		PISAYAMB			
17A 4.41 HOA 1.13 IS H 1.62 ALD 125.00 FOPO 4.05 BUNK 1.64			32,70	2	7.0
SS H 1.62 SS H 1.62 ALD 125.00 FOPO 4.05 BUN 3.76		NAYON	7.00	~	7
MW M		CHILLOS	0.43	•	0
AM. 125.00 10PO 4.05 10NN 1.64 10NN 3.76	18. 4.2	DAU-PERI	43.00	8	9.0
MM HALD 125.00 GOPO 4.05 UNK 1.64 BUN 3.76		TOTAL	371.32	34.	
12	UNIT FOR	CODE	3	TINO	7 80
	1. 0.9		15.00	ກ	22.3
		S.R DIES	2.20		22.3
	5. 19.3	SR.REDIE	1.73	•	22.3
		VAPOR-97	66.00	κż	0.8
		TOTAL	380.92	33.	
	HYDRO+THERMAL TOTAL	MAL TOTAL	752.24	67.	

\*\*\* LOAD DATA OF GRID NORTH \*\*\*

HICMW) WKDAYS(DAY)

20. 753. \*\*\* RELIABILITY OF SINGLE GRID NORTH \*\*\*

77 187.39 24.89 -0.024185	00 192.50 25.56 -0.026022	98 196.19 26.05 -0.026791	49 -0.76 -0.10
0.499277	0.40000	0,251498	*16.392649
	187.39 24.89	187.39 24.89	192.50 25.56 192.19 26.05

A-4-93

数金米

\*\*\* UNIT DATA OF GRID SOUTH

нурко	CODE	3	L I N ∩	FOR	CODE	3	FIND	F08	
	PAUTEAB OTHERS H	87.70	v. 40	4.2	PAUTE C	91.88	ທ້	2.1	
					TOTAL	925.14	16.		
THERMAL	CODE	3	TIND	FOR	CODE	MM	FIND	FOR	
	ESTERO V	70.00	8	0.5	ESTERO G	20.00	#	6.0	
	GUA V #2	9.50	6	6.8	GUA VAP	31.60	4	5.6	
	ESTERO E	15.00	Ħ	9	ESTERO E	20.00	4.	11.8	
	S.R DIES	1,34	17.	22.3	S.R BUNK	2.85	4,	19.3	
	SR.REDIE	1.84	20.	22.3	SR.REBUN	3.00	5	19.3	
	ELECOUIL	37,00	8	14.0	ELECQUIT	16.00	۶,	14.0	
	GAS-93	78.00	1.	0.0	GAS-94	78.00	*1	0.8	
	VAPOR-95	117.50	Ħ	0.8					
					TOTAL	762.08	61.		
			HYD8	O+THER	HYDRO+THERMAL TOTAL	1687.22	77.		

\*\*\* LOAD DATA OF GRID SOUTH . \*\*\*

HICHWI WEDAYS(DAY)

1238. 20.

\*\*\* RELIABILITY OF SINGLE GRID SOUTH

IN DIFF.COEF.	99 -0.031453	23 -0.022101	-0.000964	62
MARGIN	22.99	23.23	24.01	36.29
RESERVE MARGIN (MM)	284.59	287.57	297.29	449.22
LOLP (DAY/MONTH)	0.516102	0.40000	0.339292	* 0.008981

``	
ં	
•	
98	
ò	
œ	
꾶	
E	
DECE	
ລັ	
α	
SUADO	
ž	
ü	

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

RINIT	p-i		KDIF	इस इस
¥ o	<del>, l</del>		RMMIN (X)	00
RANDOM			H1 CMM3	753.0
RULE	RATAL	. •	BLOCK	<b>બ</b> સ્ત
LOLP(D/M)	0.500		RMINIT BLOCK	100.0
SAMPLE	2000	** GRID DATA **	GRID	NORTH
SAN	υį	** GRIC	0	4 0

A-4-95

\*\* BRANCH DATA \*\*
NB BRANCH CODE
1 LINE NC

4-VF (WE)

F->1

NF CAP (AW) (AW) (AW)

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\* 0.51869 0.50029 0.50029 73.27 0.44119 0.50241 0.50309 0.52895 0.51895 0.49193 **\$** IT = 13 RESERVE MARGIN (MW)

280.62(MM)

TOTAL RESERVE MARGIN

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

\*\* MONTE CARLO DATA \*\*

RINIT	<b>H</b>	
RANDOM	#4	
RULE	RATAL	
LOLP(D/M)	0.500	
SAMPLE	000\$	

-	<b>H</b>		A LOX	<b>.</b>
5	**	٠	H1 RMMIN	00
			CMW)	753.0
1	RATAL		BLOCK	ਜਜ
	0.500		RMINIT BLOCK (MW)	449.2
,	0005	* GRID DATA **	GRID	SOUTH
Š		# GRII	, 0,	7 7

* *	** OXANCH UAIA **	<b>.</b>								
8	NB BRANCH CODE	u,			¥			CAP	F->T	7->F
								( 22)	( MW )	(3E)
-1	LINE	NORTH	~	<u>~</u>	(1) SOUTH	J	â	900.0	0.006	900.0

ECUADOR DECEMBER 1998  $\vec{I}^{\prime}$  - 10

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

z nos	77.57	36.29	0.00411	0.00205	0.00137	0.00103	0.00082	0.00068	0.00431	0.00377	0.00335	0.00301	0.00301
NOR	-0.76	-0.10	0.07887	0.04179	0.02786	0.02747	0.03059	0.03659	0.05856	0.05155	0.05285	0.05025	0.05025
	ŜE)	(%)											_
<b>-1</b>	RESERVE MARGIN		800	1000	1500	2000	2500	3000	3500	4000	4500	2000	LOLPIDAY/MONTH>
μ	Ä		41	31	11	#1	н	11	11	11	н	Ц	à
H	RES		Ħ	H	H	H	}  -1	}~ H	}~ H	H	Ħ	H	Š

22.52(%)

TOTAL RESERVE MARGIN 448.46(MW)

CALCULATION DATE 12/15/1993

LOLP OF SNI, AS OF DECEMBER, 2003 RECOMMENDATION

	BT BPR08		LNMW 1578.8 1578.8 1490.1		
	8T 8PR08		LNMW 1492.3 1593.8 1513.9		
0000	B7 89808		LNMW 1540.0 1591.8 1540.0	1 P O B I	H 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20.26 0.80 0.80 0.84 DOBI DATA	8 8T	4747 9	LNMW 1589.6 1574.4 1462.1	2.47 2.47 0.50 5.07 IPOBI DATA	2,63 2,06 3,10 2,06 3,10 2,05 2,115 2,12 2,12 1,5,60 1,50 1,50 1,50 1,50 1,50 1,50 1,50 1,5
7. 11. 13. 2. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	BT DATA BPROB	DATA	LNMW 1591.8 1578.8 1500.9 DATA	7KE G. V. V. O. S. O.	20101111111111
3.76 78.00 27.00 66.00 0F CCODE 10VAR 51.88 LTVAR 0.0		OF "BPROB" DATA KBLOCK 1 HEIJIT DELTX 20. 50	LNMW 1561.6 1609.0 1561.6 OF "LNMW"	TKW 87.70 91.88 53.90 4.54 OF "CODE	750 700 700 700 700 700 700 700 700 700
SR.REBUN GAS-2001 GAS-2003 VAPOR-97 INDEX3 INDEX4	BT O.O END SPROB	1.00000 CODEO SOUTH RANGEL CMWF	LNMW 1609.0 1589.6 1561.6 1561.6 INDEXI	CODE PAUTEAS PAUTE C MAZAR OTHERS	ESTERO V ESTERO V GUA V #2 GUA VAP ESTERO E ESTERO E S.R BUNK SR.REBUN SR.REBUN ELECQUIL
**************************************	65.4	3 4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3 2 4 7 7 8 9 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

105 GAS-9- 105 C APOR 105 C IND 100 C IND 110 C IND 1115 C EP 1115 C EP 1116 & EP 1117 * 1.000 1118 & EP 1118 & EP 1119 & EP 1	NDEX3  NDEX4  A NDEX5  NDEX6  NDEX6  NDEX6  NDEX6  NDEX7	00 50 50 50 60 60 71 80 80 80 80 80 80 80 80 80 80 80 80 80	KW CN G 11. 10.00 C 10.00 C 17.00 C 17.00 C 18.00 C 18.00 C 18.00 C 18.00 C	DATA BPROBITE DATA BPROB	_	80 80 80 80 80 80 80 80 80 80 80 80 80 8	80 O
	NDEXA	76.00 117.50 117.50 100.AR 86.19 17.AR 0.0 1HD 87 0F 887" DA 8PROB 0F GROUP ( COLP	74 CW CM	9 W G C	8 O	8 PRO 8 ++	80 89 89 89 89 89 89 89 89 89 89 89 89 89
	OR-95 NDEX3 NDEX4 NDEX5 NDEX5 O O O END OOOOO END IN GROUP IN GROUP IN MULTI LE ADOR DECE SAMPL	117.50  OF "CODE  LTVAR  CTVAR  O.0  IHO  BT  BT  BT  OF "BPROB  OF GROUP (  OF GROUP (	KW CN G L4 COAV L4 COAV L4 COAV L4 COAV C4 COA C4 COAV C4 CA C4 C4 CA C4 C4 CA C4 CA C4 CA C4 C4 CA C4 C4 C4 C4 C4 C4 C4 C	w w ,	ф О ф ф	89 1- 89	8 P R O B T T
	END  S  NDEX4  A  NDEX5  NDEX5  O.0  O.0  END  IN GROUP  IN MULTI  LE  ADOR DECE  SAMPL,  5000	OF "CODE LOVAR 86.19 LTVAR OF "BT" DV BPROS OF "BPROS OF "BPROS OF "BPROS OF CROUP (	KW CN G LOAV C LOAV C LTAV O O O O O O O O O O O O O O O O O O O	u		8 OR OB	BPR08
	NDEX3 NDEX4 NDEX5 NDEX6	LOVAR 86.19 LTVAR 0.0 IHD H 8T 8T 8PROB OF "BPROB OF GROUP (	-46.04 -46.05 -47.0	<b>u</b> 0		BPROS	8 8 8 4 8 4 8 4 8 4 8 4 8 4 8 4 8 4 8 4
	NDEX4  NDEX5  NDEX5  O O O  END  END  IN GROUP  IN GROUP  IN MULTI  LE  ADOR DECE  SAMPL  TOL1	B6.19 CTVAR D.0 IHD BT BT BPROB OF BPROB OF GROUP (	4 4 0 0 F H	8 08 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 08 11 80 81	8 08 44 84 84 84 84 84 84 84 84 84 84 84 84	8 P. R. B. B. B. P. R. B.
	NDEXA NDEXA NDEXS OOOO OOOO END IN GROUP IN GROUP END END SAMPL. SOOO	CTVAR CTVAR THO THO BRROS OF "BPROS OF GROUP ( COLP	. 400 H	8 08 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	89 OX	80 80 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	80808
	NDEX4 NDEX5 S S BT O.O END EPROB O0000 IN GROUP IN MULTI END ADOR DECE SAMPL 5000	DF *8T" DO BPROB OF GROUP (	480 4	8 08 5 1	80 81	8 PRO8	BPR08
	NDEXS BET O O O O BET O O O O BET O O O O O BET O O O O O O BET O O O O O O O BET O O O O O O O O BET O O O O O O O O O BET O O O O O O O O O O O BET O O O O O O O O O O O O O O O O O O O	DF 8T DV BPROS OF BPROS OF GROUP (	⊢ «	8 00 5 1	8 08 48 11 11 11 11 11 11 11 11 11 11 11 11 11	8 PRO 8	89.808
	NDEXS S S OO OO OO END IN GROUP IN MULTI LE ADOR DECEI SAMPL SOO TOL1	THD H BT BPROB OF "BPROB OF CROUP ( CROUP (	- ⊢ ∢	8 00 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	8 0 0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	88 08 98 FF	8 PR 08
	S ET O.0  O.0  END  END  END  IN GROUP  END  IN MULTI  LE  ADOR DECEI  SAMPL.	BT ST OF SPROS OF BPROS OF BPROS OF CROUP (	<b>⊢</b> •	8 08 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	89 81 81	8 PRO8	BPR08
	BT 0.0 END END O0000 END IN MULTI LE ADOR DECE SAMPL 5000	BT BPROB OF BPROB OF GROUP (		8 0 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	89 PRO 89 TE	8 PR OB
	0.0 EPROB EPROB 00000 IN GROUP IN MULTI LE ADOR DECEI SAMPL, 5000	OF *8T° 50 8PROS OF *BPROS OF GROUP (		8 00 00 00 00 00 00 00 00 00 00 00 00 00		23 OC CC	84 64 83 83 83 84 84 85 85 85 85 85 85 85 85 85 85 85 85 85
	O.O BPROB O0000 IN GROUP END IN MULTI LE ADOR DECE SAMPL,	BPROB OF BPROB OF GROUP (	-	80 00 80	80 80	80848	BPROB
	END BPROB 00000 IN GROUP IN GROUP IN MULTI LE ADOR DECEI SOGO	BPROB BPROB OF GROUP ( OF GROUP (	⊢ ∢	80 60 60 60 60 60 60 60 60 60 60 60 60 60	80 80	8 P R O B	8 P R O B
	EPROB 00000 END IN GROUP IN MULTI LE ADOR DECEI SAMPL, 5000	BPROBOF CROUP (OF GROUP (CROUP	⋖	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 P R O B	80848	BPROB
	OOOOOO IN GROUP IN MULTI LE ADOR DECEI SAMPL,	OF BPROBLOF GROUP L	< <				
	END	OF GROUP (OF GROUP (COLP)	⋖				
	END IN GROUP IN MULTI LE ADOR DECEI SAMPL, 5000	OF GROUP ( OF GROUP ( MBER 2003) LOLP	⋖				
7 7 7 7 7	IN GROUP IN MULTI LE ADOR DECE SAMPL, SOOO	OF GROUP (	JATA IRULE				
	IN GROUP END IN MULTI LE ADOR DECEI SAMPL, 5000	OF GROUP ( MBER 2003	DATA IRULE				
	END IN MULTI LE ADOR DECEI SAMPL, 5000	OF GROUP (	DATA IRULE				
	IN MULTI LE ADOR DECE SAMPL, SAMPL, TOL1	MBER 2003	됩기 <b>0</b> 원	6 ) 1			
	IN MULTI LE ADOR DECE SAMPL, 5000 TOL1		IRULE	6 ) !			
_	IN MULTI LE ADOR DECEI SAMPL, SOGO TOL1		IRULE	6 ) }	·		
	LE ADOR DECEI SAMPL. SOCO TOL1		IRULE	, i	٠		
D - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ADOR DECE SAMPL. SOCO TOL1		IRULE	) 		,	
3	SAMPL. SAMPL. SOCO TOL1		IRULE	2	-		
4	SAMPL. 5000 7011	107 107	INOUE				
ပ	5000 7011		1	7 - Z	REMENT		
126	T0L1	in.	RATAL	-1	r4		
127 C	44	TOLS	Ŧ	RANGEM	JSAMP		
128		ĸ	M, M	10.	10		
ć		CCAFOR	******		:		
,			THE PARTY				
	0	**	~t ₩)				
31 C CODEB		FROM TO		CAD	PFIMX	PTFMX	
32 LINE	-	NORTH S	SOUTH	.006	900.	900.	
4	ű,		7.	,	STEMY" DATA		
<							
J		> T	ATG ATG			.*	
135 DIV-1	<u> </u>	0					
136 DIV-2	-2 0.0	0			٠		
137. *	ENO	OF "CODEX	DIV" DATA				
138 C CODEG	9	Σ	TRESER	45.03	DANGE 1	CHUNCH	
		5	4				
		•	> '	+	2	7.	
140 SOUTH		300.	0		10.	0.7	
141 *	OX.	OF "CODEG	TH IRESER KOIF	KDIF RANGEL	EI RANGE2"	DATA.	
142 88END	-						
143 84BEG	RABEGIN MULTI						
	L.						
١.	SOURCE SECRETORS SOURCE	****					
. 4	200	202	:				
ii O	ISAMPL	LOLP	IRULE	RNTYP	RNINT		
147	5000	ν. Ο	RATAL	<b>1</b>	-		
2 871	TOL 1	TOLZ	r	RANGEM	JSAMP		
671	30.	-M	m M	10.	0		
Ç		CONTHN	- V-		1		
,		> > > > > > > > > > > > > > > > > > > >	> < 4 : 4				

\* INPUT DATA \* 4 PAGE

PTFMX 900•			RANGE2	1.0	DATA
PFTMX 900.	END OF "CODES FROM TO CAP PFTMX PTFMX" DATA DIV DIV DIV DIV 0.0		RANGE1	10.	END OF "CODEG TM IRESER KOIF RANGE1 RANGE2" DATA
CAP 900:	D PETMX B	÷	KDIP 1		KDIF RANG
1 то тин	FROM TO CA V DIV	DIV" DATA	IRESER 0	0	TM IRESER
<b>-</b>	ND OF "CODER FROM TO DIV DIV DIV DIV 0.0	0.0 END OF "CODEX DIV" DATA	TM 226.04	186.02	OF "CODEG
<b>o</b>					ON W
51 52 C CODEB 53 LINE	54 * 55 C CODEX 56 DIV-1	DIV-2	S9 C CODEG	SOUTH	62 * 63 &&END
52 53 C	4 5 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5	53 #	0 0 0 0	1.5	2 5 2 5 4 8 8 8

A-4-103

i i	
Ξ	
ž	
GKIC	
5	
4 40	
120	
¥	

F08	6.0	4.1	W,S	0	0		FOR	26.7	26.7	23.4	9.0	0.8		
TINO	જં	6	4	'n	Ġ	38.	FIND	m	1.	ģ	÷	¢i.	ы	73.
X	32.70	4.00	0.43	64.40	43.00	726.12	¥	15.00	2.20	1.73	78.00	00.99	485.92	1212.04
CODE	PISAYAMB	NAYON	CHILLOS	TOACHI	DAU-PERI	TOTAL	CODE	SANTA RO	S.R DIES	SR.REDIE	GAS-2001	VAPOR-97	TOTAL	HYDRO+THERMAL TOTAL
F 0 R	0.5	5:1	0.5	0.5	τ. Ω		FOR	1.1	23.1	23.1	20.3	0.8		O+THER
FIND	2.	4	6	2	18.		TINO	e-1	9	'n	6	÷		HYDR
ž	78.00	4.41	1.13	113.00	1.62		3	125.00	4.05	1.64	3.76	27.00		
CODE	AGOYAN	CUMBAYA	PASOCHOA	S.FRACIS	OTHERS H		CODE	ESMERALD	GUANGOPO	S.R BUNK	SR.REBUN	GAS-2003		
HYDRO							THERMAL						·	

\*\*\* LOAD DATA OF GRID NORTH \*\*\*

H1(MW) WKDAYS(DAY)

986.

20.

\*\*\* RELIABILITY OF SINGLE GRID NORTH \*\*\*

-0.001380	-0.009293	-0.011849	
18.98	22.46	23.58	22.92
167.18	221.44	232.50	226.04
698676*0	0.425442	00000000	* 0.368442
	167.18 15.98	187.18 18.98	187.18 18.98 221.44 22.46 232.50 23.58

2003	
DECEMBER	
CUADOR D	

\*\*\* UNIT DATA OF GRID SOUTH

нурво	CODE	3	TIND	FOR	CODE	3	TIMO	FOR	
	PAUTEAB	87.70	Ŋ.	8	PAUTE C	91.88	Ņ	2,5	
	MAZAR	53.90	લં	5.0	OTHERS H	4.54	•	5.5	
					TOTAL	1032.94	18.		
THERMAL	CODE	Σ	UNIT	FOR	CODE	M	UNIT	FOR	
	ESTERO V	70.00	ď.	9.0	ESTERO G	20.00			
	GUA V #2	9.50	ŵ	8.2	GUA VAP	31.60	; ;	6.7	
	ESTERO E	15.00	+	10.6	ESTERO E	20.00	4	14.2	
	S.R DIES	1.34	17.	26.7	S. R BUNK	2.85	4	23.1	
	SR.REDIE	1.64	20.	20.6	SR. REBUN	9.00 1	٠,	21.2	
	ELECQUIL	37.00	ć.	7.5	ELECGUIT	16.00	8	15.4	
	GAS-93	78.00	÷	0	GAS94	78.00			
	VAPOR-95	117.50	*	9.0			1		
	-			,	TOTAL	762.08	61.		
			HYDR	O+THER	HYDRO+THERMAL TOTAL	1795.02	79.		

\*\*\* LOAD DATA OF GRID SOUTH \*\*\* HI(MM) WKDAYS(DAY)

1609.

20.

\*\*\* RELIABILITY OF SINGLE GRID SOUTH \*\*\* RESERVE MARGIN 101

DIFF.COEF.	-0.006866	-0.015401	-0.002597	
RESERVE MARGIN	19.88	20.56	21.10	11.56
RESERVE (MW)	319.84	330.89	339.58	186.02
LOLP (DAY/MONTH)	0.459443	0.400725	0.300000	* 3.231045

ECUADOR DECEMBER 2003

\*\*\* INPUT DATA OF INTERCONNECTED SYSTEM \*\*\*

# ##
DATA
CARLO
MONTE
¥

		KOIF	e4 e4	
ed	,	RMMIN (%)	00	,
		H SW	986.0	
RATAL		вгоск	ल <del>ल</del>	į
0.500		TINIMR (MM)	300.0	
2000	GRID DATA **	NO. GRID NAME	NORTH SOUTH	** BRANCH DATA **
	0.500	0.500 7A ##	RMINIT BLOCK H1 (MW)	RMINIT BLOCK H1 RMIN (Z) 100.0 1 986.0 0 300.0 1 1609.0 0

T->F <MW>> 900.0

F->T (MW)

CAP (MW) 900.0

NORTH ( 1 ) SOUTH

u. Ž

NB BRANCH CODE

\*\*\* RELIABILITY OF INTERCONNECTED GRID \*\*\*

E	245.44	15.25	0.48451	0.45554	0.48625	0.47237	0.51234	0.51790	0.52121	0.51255	0.50543	97669.0	0.49946
SOCIA	Ň		0	ò	ò	ó	ò	ò	ò	ó	ò	0	0
NON	99.13	10.05	0.45232	0.51148	0.50860	0.49537	0.52492	0.51522	0.52652	0.51538	0.51645	0.49990	0.49990
	C ME	3											
2	E MARGIN		200	10001	1500	2000	2500	3000	3500	4000	4500	2000	LOLP ( DAY / MONTH )
D.	RESERVE		u	μ	\$1	H	<b>81</b>	ţI	μ	11	ιŧ	ri	۵
-	RES		H	片	Η	님	H	H	Ë	H	片	۲ ۲	ទ

TOTAL RESERVE MARGIN 344.57(MW) 13.28(%)

ECUADOR DECEMBER 2003

		RINIA	<b>.</b>		KDIF	und and
		Š	, +		RMMIN (X)	00
* *		RANDOM			£ 3	986.0
SYSTEM		RULE	RATAL		BLOCK	** **
NECTER		2				00
*** INPUT DATA OF INTERCONNECTED SYSTEM **	۲ <u>+</u>	LOLP(D/M)	0.500		RMINIT (MM)	226.0
ra oF	LO DAT			*		
PUT DAT	** MONTE CARLO DATA **	SAMPLE	2000	** GRID DATA **	GRID	NORTH SOUTH
NH ###	** MON	SA		* * GRI	, 0	40

	7Y	Ĩ.	0.006
	F->1	CME	0.006
	CAP	320	0.006
			ŝ
			•
	Ä		NORTH ( 1) SOUTH ( 2)
			7
			v
##	u.		NORTH
DATA	CODE		
BRANCH DATA **	BRANCH		LINE
	•		_

<b>长</b> 4
GRID
INTERCONNECTED
P
RELIABILITY
*

	2	•0	v	:	o,	4	ω	Q	4		īV.	7	
SOUTH	186.02	11.56	0.26075	0.26595	0.27412	0.25704	0.29228	0.29082	0.30634	0.29341	0.28225	0.26887	0.24887
NORTH	226.04	22.92	0.12283	0.07701	0.06299	0.05751	0.04601	0.04838	0.04202	0.04357	0.04246	0.04123	40170.0
	CME)	(%)											
_	RESERVE MARGIN		200	1000	1500	2000	2500	3000	3500	. 0007	4500	2000	L TANKY VARIABLE
п	28		IJ	11	и	н	В	JI	11	1i	н	, UF	2
H	RES		H	H	片	H	H	H	H	H	H	}	2

15.88(%)

TOTAL RESERVE MARGIN 412.06(MW)