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FINANCIAL CONSTRAINTS IN
CAPACITY PLANNING:
A NATIONAL UTILITY REGULATORY
MODEL (NUREG)

MASTER

Volume III of III:
Software Description

FINAL REPORT

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Submitted to:
Division of Coal and Electric Power
Energy Information Administration
U.S. Department of Energy

Prepared Under Contract No. DEAC-01-79EI-10579

October 29, 1981

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SUMMARY

This volume is the software description for the National Utility Regulatory Model (NUREG). This is the third of three volumes provided by ICF under contract number DEAC-01-79EI-10579. These three volumes are:

- a manual describing the NUREG methodology,
- a users guide, and
- a description of the software.

This manual describes the software which has been developed for NUREG. This includes a listing of the source modules. All computer code has been written in FORTRAN.

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1.0 INTRODUCTION

This document contains listings and descriptions of the programs developed for the NUREG methodology. The programs described in this document are:

- The NCM-NUFS Interface
- The Financial Sensitivity Program (FSP)
- The Capacity Additions Adjustments Program (CAAP)
- NUREG.FORM1.FORT
- NUREG.FORM1M.FORT

The later two programs are used to generate historical financial data for NUFS aggregated to the NCM regions. Note that descriptions of NUFS and NCM are not contained in this volume as they are fully documented elsewhere.

2.0 THE NCM-NUFS INTERFACE

This program reads the National Coal Model solution files, extracts and processes the information needed for NUFS, and writes this information to a partitioned data set. The input files needed are:

- the NCM solution files for 1985, 1990, and 1995,
- the binary file that contains the common block data from NCM, and
- the historical data file containing 1979 generation data.

The units numbers for these files are shown in Table 1. In addition, the code links to a library that contains several routines that are used to compare and manipulate character strings. This library is also used by NCM.

TABLE 1

INPUT FILES FOR THE NCM-NUFS INTERFACE

<u>File</u>	<u>Unit Number</u>
1985 NCM Solution	25
1990 NCM Solution	26
1995 NCM Solution	27
Common Block Data	13
Historical Data	98

Figure 1 shows the organization of the program.

FIGURE 1

The main program first calls subroutine INITLZ. This subroutine reads the common block and historical data. It also sets up arrays that are used in other portions of the program to aggregate plant types. Subroutine EXTRAC is then called for each run year (1985, 1990, and 1995). This routine extracts the required information about builds, operates and fuel costs, and sorts and aggregates this information. In addition, EXTRAC calculates power transfers between regions and generation losses.

Finally, subroutine COMPUT is called. This subroutine calculates builds, capital costs and generation by region. These numbers, as well as fuel costs, are interpolated between run years. In addition, builds are extrapolated from 1995 to 2005. Subroutine COMPUT writes the results of these calculations to temporary files (units 30-74). Additional job steps are used to reassemble these files into a partitioned data set that is read by NUFS. Figure 2 is a listing of the code and control statements.

A listing of the program now follows.

```

1.      //IS3UNCMC JOB (6376,M20),'SHAVEL',TIME=(0,6),MSGCLASS=A
1.01    /* NN1.FINANCE
1.1      //DELD EXEC PGM=IEFBR14,REGION=10K
1.2      /*
1.21    //DD1 DD DSN=CN6376.IS3.NUREG.GOX.FINANCE,DISP=(MOD,DELETE),
1.3      //      UNIT=3350,SPACE=(TRK,(10,1,1))
2.      //FPC EXEC FORTGCL,REGION=200K
3.      //FORT.SYSPRINT DD SYSOUT=A
4.      //FORT.SYSIN DD *
4.1      C*****
4.2      C
4.3      C   THIS VERSION OF THE NCM/NUFS INTERFACE IS BASED ON EIA'S
4.4      C   NCM AS OF 10/29/81. ANY CHANGES TO THAT CODE MAY RESULT
4.5      C   IN CHANGES TO THIS INTERFACE.
4.6      C
4.7      C   I. SHAVEL ICF- 10/30/81
4.8      C
4.9      C*****
5.      COMMON/SHARE/SPACE(20000)
5.1      INTEGER*ISOLN/25/,NUMRUN/3/
6.      CALL INITLZ(25)
7.      DO 10 IRUN=1,NUMRUN
8.      CALL EXTRAC(IRUN,ISOLN)
8.1      ISOLN=ISOLN+1
9.      10 CONTINUE
10.     CALL COMPUT
11.     STOP
12.     END
500.     SUBROUTINE INITLZ(ISOLN)
500.1     COMMON /REG/CBUILD(45,14,2,3),COPER(45,14,3),AVEFUE(45,3)
500.2     X ,HEL75(45),OANDM(45,4),NUCFUL(45)
500.3     X ,FULCST(45),SLOSS(45,4)
500.31    REAL*4 NUCFUL
501.     C .READ DATA FOR COMMON BLOCKS :-
501.1     C*****
501.2     C
501.3     C
501.4     C   COMMON BLOCKS GO HERE
501.5     C
501.6     C
501.7     C*****
502.     C /URDATA/, /CRDATA/, /CASE/, /TRANS/, AND /DATA/
503.     C
504.     C .UTIL0- FOR 'UTIL4'
505.     C
506.     REAL*4 LOAD,LOADF
507.     COMMON/URDATA/NUMUR,NPLTP,PLTYPE(50),PLID(50),NUMUE,UE(24),
508.     INBLNDS,BUE(13),UR(44),NDMDTP,DMDNAM(7),LOAD(4),LOADF(44,4),
509.     2CAPF(44,4,4),NTLEX,TLNKEX(99),TPRCX(99),TEFFEX(99),NTLNW,
510.     XTLNKNW(99),TPRCNW(99),TEFFNW(99),TEFF(44),TPRCE(44),OGCAP(44),
511.     XBLEND(13,24),FUELDE(44,24),NPLID,RHSCL(44),RHSC9(44),PENL(3,4)
512.     7,NUBLND,UBLEND(31,5)
513.     C
514.     COMMON/CRDATA/NUMCR,CR(31),CEFF(31),EEFF(31),NUMCT,CT(40),
515.     XOLIC(31,5,8),UC(40),NUMBTU,NUMSUL,BTU(5),SULF(8),MAPSUL(40),

```

```

516.      XBTUCON(31,5),NSULU,SULU(6),COUNT(31,5,8)
517.      C
518.      REAL*8 CASNAM,URNAM,CRNAM,CENAM,PIENAM
519.      INTEGER*4 TLBYR,BYRCST,BYRPRD,BYREL,BYRCL,BYRPG,BYROG,CASYR,
520.      X      REPTYR,COALYR
521.      COMMON/CASE/CASNAM(4),URNAM(44,3),CRNAM(31,3),CENAM(10,3),
522.      XPIENAM(12,3),CAPLIM,BLDMAX,BLDMIN,UDC,GNP,BYRCST,BYRPRD,BYREL,
523.      XBYRCL,BYRPG,BYROG,CASYR,SCRCAP,DRGCAP,CCR(44),TLBSW,TLBYR,SHIP,
524.      XTIMESW,NYRCST,TRELNW,CSTMLT,REPTYR,REPDEF,COALYR,UDF,CCNM(31),
525.      XCCVL(31),NCCR8,NUMCEN,NUMPIE,MURCEN(44),MCRPIE(31)
551.      C
551.1     C*****
551.2     C
551.3     C
551.4     C      END GMG COMMON BLOCKS
551.5     C
551.6     C
551.7     C*****
552.      C
553.      C
554.      C
556.      C
558.      C
559.      REAL*8 PBNAME
560.      COMMON/FRUN/PBNAME,RUNYR
560.1     C
560.2     COMMON /HISTOR/ HGN(44)
560.3     REAL*4 HGN
561.      C
562.      COMMON /MAPS/IBMAP(50),NIBMAP,OMAPS(50),IOMAPS(50),NOMAPS
564.      INTEGER GDDATA/13/,SOLN/15/
565.      C
565.1     C*****
565.2     C
565.3     C
565.4     C      INSERT THE SECTION FROM REPORTS THAT READS GDDATA
565.5     C
565.6     C
565.7     C*****
566.      C
567.      DIMENSION BIN1(3500),BIN2(2000),BIN3(800)
568.      C
569.      EQUIVALENCE (BIN1,NUMUR),(BIN2,NUMCR),(BIN3,CASNAM)
570.      C
571.      C .READ 'GDDATA' BINARY FILE
572.      C
573.      REWIND GDDATA
574.      READ(GDDATA) BIN1
575.      READ(GDDATA) BIN2
576.      READ(GDDATA) BIN3
581.01     C
581.02     C*****
581.03     C
581.04     C
581.05     C      FNN OF GNATA READ SECTION
581.06     C

```

```

581.07 C
581.08 C*****
581.7     READ(5,666) NIBMAP
581.8     666 FORMAT(I2)
581.9     DO 201 II=1,NIBMAP
581.91    READ(5,666) IIBMAP(II)
581.92    201 CONTINUE
581.93    READ(5,666) NOMAPS
581.94    DO 202 II=1,NOMAPS
581.95    READ(5,667) OMAPS(II),IOMAPS(II)
581.96    202 CONTINUE
581.97    667 FORMAT(A2,2X,I2)
582.     C 200 CONTINUE
582.1    C*****READ THE SOLUTION FILE
582.2    C***** FIX THE READ STATEMENT
583.     REAL*8 ACTD,DUALD,NAME,LBD,UBD
584.     REWIND ISOLN
585.     C DO 501 I=1,4
586.     C READ(ISOLN) ACTD
587.     C 501 CONTINUE
587.1    C***** FIX THE READ STATEMENT
588.     C READ(ISOLN) ACTD,PBNAME,(ACTD,J=3,10),FUNCT
589.     DO 503 I=1,9
590.     READ(ISOLN) ACTD
591.     503 CONTINUE
591.1    C*****READ THE SOLUTION FILE
591.2    C***** FIX THE READ STATEMENT
592.     510 READ(ISOLN,END=530)ACTD,LBD,UBD,DUALD,NAME
593.     IF (ICOMP('LDUMMY',NAME,6,1,1).NE.0) GO TO 510
594.     RUNYR=ACTD
595.     REWIND ISOLN
596.     GO TO 600
597.     530 PRINT 540
598.     540 FORMAT(' NO LDUMMY')
600.     C
600.001  600 CALL RDHIST
600.01   NATION=NUMUR+1
600.1    DO 605 I=1,NATION
600.2    605 HEL75(I)=0.
601.     DO 610 I=1,NUMUR
601.1    C KREG=MURCEN(I)
601.2    HEL75(I)=HGN(I)*TEFF(I)
601.3    610 HEL75(NATION)=HEL75(NATION)+HGN(I)*TEFF(I)
601.4    RETURN
602.     END
1000.    SUBROUTINE EXTRAC(IRUN,ISOLN)
1001.     C
1001.1    C*****
1001.2    C
1001.3    C
1001.4    C INSERT GMG COMMON BLOCKS HERE
1001.5    C
1001.6    C
1001.7    C*****
1002.     REAL*4 LOAD,LOADF
1003.     COMMON/URDATA/NUMUR,NPLTP,PLTYPE(50),PLID(50),NUMUE,UE(24),

```

```

1004.      1NBLNDS,BUE(13),UR(44),NDMDTP,DMDNAM(7),LOAD(4),LOADF(44,4),
1005.      2CAPF(44,4,4),NTLEX,TLNKEX(99),TPRCX(99),TEFFEX(99),NTLNW,
1006.      XLNKNW(99),TPRCNW(99),TEFFNW(99),TEFF(44),TPRCE(44),OGCAP(44),
1007.      XBLEND(13,24),FUELDE(44,24),NPLID,RHSCL(44),RHSC9(44),PENL(3,4)
1008.      7,NUBLND,UBLEND(31,5)
1009.      C
1010.      REAL*8 CASNAM,URNAM,CRNAM,CENAM,PIENAM
1011.      INTEGER*4 TLBYR,BYRCST,BYRPRD,BYREL,BYRCL,BYRPG,BYROG,CASYR,
1012.      X      REPTYR,COALYR
1013.      COMMON/CASE/CASNAM(4),URNAM(44,3),CRNAM(31,3),CENAM(10,3),
1014.      XPIENAM(12,3),CAPLIM,BLDMAX,BLDMIN,UDC,GNP,BYRCST,BYRPRD,BYREL,
1015.      XBYRCL,BYRPG,BYROG,CASYR,SCRCAP,DRGCAP,CCR(44),TLBSW,TLBYR,SHIP,
1016.      XTIMESW,NYRCST,TRELNW,CSTMLT,REPTYR,REPDEF,COALYR,UDF,CCNM(31),
1017.      XCCVL(31),NCCR8,NUMCEN,NUMPIE,MURCEN(44),MCRPIE(31)
1030.1     C*****
1030.2     C
1030.3     C
1030.4     C      END GMG COMMON
1030.5     C
1030.6     C
1030.7     C*****
1031.     C
1032.      REAL*8 OILPR(44,2),TOT(50)
1033.      REAL*4 OILNM(2) / 'PG', 'DG' /
1034.     C
1035.      INTEGER      PAGE, REPORT, CHAPTR
1036.     C
1037.     C
1038.      COMMON/SHARE/ FUELP(44,25),FUELQ(44,25),
1039.      X  BUILDS(44,14,2),OPERSS(44,14)
1040.     C
1041.      COMMON /MAPS/IBMAP(50),NIBMAP,OMAPS(50),IOMAPS(50),NOMAPS
1042.      COMMON /REG/CBUILD(45,14,2,3),COPER(45,14,3),AVEFUE(45,3)
1043.      X ,HEL75(45),OANDM(45,4),NUCFUL(45)
1043.1     X ,FULCST(45),SLOSS(45,4)
1043.2     REAL*4 NUCFUL
1044.      REAL*8 ENDSEC,ACTN,COSTD,LBD,UBD,DUALD,NAME,SUM2,VALMIN,RCTD
1045.      DATA ENDSEC/'$ENDSEC$'/, TOTAL/0./
1045.1     REAL*4 TRANSFR(44,3)
1046.     C
1047.     C
1048.      VALMIN=1.D-5
1048.1     NATION=NUMUR+1
1048.2     IELEC=NUMUE+1
1049.     C
1050.      DATA      BLANK/' ' /
1051.     C
1052.     C
1053.     C      INITIALIZE SOME ARRAYS
1054.      DO 720 I=1,NUMUR
1055.      DO 701 J=1,25
1056.      FUELP(I,J)=0.
1057.      701 FUELQ(I,J)=0.
1058.1     FULCST(I)=0.0
1059.      DO 702 J=1,14
1060.      OPERSS(I,J)=0.

```

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1061.      DO 703 K=1,2
1062.      703 BUILDS(I,J,K)=0.
1063.      702 CONTINUE
1064.      720 CONTINUE
1065.      DO 740 I=1,NATION
1066.      AVEFUE(I,IRUN)=0.
1066.1     OANDM(I,IRUN)=0.
1067.      DO 741 J=1,14
1068.      COPER(I,J,IRUN)=0.
1069.      DO 742 K=1,2
1070.      742 CBUILD(I,J,K,IRUN)=0.
1071.      741 CONTINUE
1072.      740 CONTINUE
1072.1     DO 743 I=1,NUMUR
1072.3     DO 743 K=1,3
1072.4     743 TRNSFR(I,K)=0.
1073.      C
1074.      C .READ SOLUTION FILE
1074.1     C*****FIRST READ THE ROW SECTION
1075.      C *****
1076.      C      REWIND,ISOLN
1077.      C
1078.      C .SKIP FIRST 9 RECORDS
1079.      C
1080.      DO 2 I = 1, 9
1081.      2 READ(ISOLN,END=300) ACTD
1082.      C
1083.      C .SKIP ROWS
1084.      C
1084.1     C***** FIX THE ROW READ STATEMENT
1085.      3 READ(ISOLN,END=300). ACTD,LBD,UBD,DUALD,NAME
1086.      IF(ACTD .EQ. ENDSEC) GO TO 12
1087.      IF (ICOMP(NAME,'L',1,1,1).EQ.0) GO TO 4
1088.      IF (ICOMP(NAME,'N',1,1,1).EQ.0) GO TO 10
1089.      C****COLLECT ALL DIRECT COAL FUEL COSTS AND QUANTITIES
1090.      GO TO 3
1091.      4 CALL LOOKUP(NAME,UE,2,5,1,18,4,IFUE,&997)
1091.1     CALL LOOKUP(NAME,UR,2,3,1,NUMUR,4,IREG,&3)
1091.3     FUELP(IREG,IFUE)=DUALD
1091.301  C  WRITE(6,996) NAME,DUALD
1091.31     GO TO 3
1091.4     C***** NEW-CALCULATE ELECTRIC PRICES
1091.5     997 IF (ICOMP('EB',NAME,2,1,5).NE.0) GO TO 3
1091.6     CALL LOOKUP(NAME,UR,2,3,1,NUMUR,4,IREG,&3)
1091.7     FUELP(IREG,19)=DUALD
1091.8     C  WRITE(6,996) NAME,DUALD
1091.9     996 FORMAT(T2,A8,2X,E15.7)
1094.      GO TO 3
1095.      10 IF (ICOMP(NAME,'Y',1,4,1).NE.0) GO TO 3
1096.      CALL LOOKUP(NAME,UE,2,5,1,18,4,IFUE,&3)
1097.      CALL LOOKUP(NAME,UR,2,2,1,NUMUR,4,IREG,&3)
1098.      FUELQ(IREG,IFUE)=ACTD
1098.1     C  WRITE(6,996) NAME,ACTD
1099.      GO TO 3
1100.      C
1101.      C .SKIP NEXT THREE (3) RECORDS

```

```

1102.      C
1102.1    C*****READ THE COLUMN SECTION
1103.      12 DO 13 I = 1, 3
1104.      13 READ(ISOLN,END=300) ACTD
1105.      C
1105.1    C**** FIX READ STATEMENT
1106.      20 READ(ISOLN,END=300) ACTD, COSTD, LBD, UBD,RCTD, NAME
1107.      IF (ACTD .EQ. ENDSEC) GO TO 300
1108.      IF (ACTD.LT.VALMIN) GO TO 20
1109.      IF (ICOMP(NAME,'OFLAM',5,1,1).EQ.0) GO TO 50
1109.1    IF (ICOMP(NAME,'OILPRC',6,1,1).EQ.0) GO TO 20
1110.      IF (ICOMP(NAME,'TPI',3,1,1).EQ.0) GO TO 60
1111.      IF (ICOMP(NAME,'B',1,1,1).EQ.0) GO TO 100
1112.      IF (ICOMP(NAME,'O',1,1,1).EQ.0) GO TO 200
1112.1    IF (ICOMP(NAME,'T',1,1,1).NE.0) GO TO 20
1112.2    IF (ICOMP(NAME,'EX',2,6,1).EQ.0.OR.
1112.3    +   ICOMP(NAME,'NW',2,6,1).EQ.0.OR.
1112.4    +   ICOMP(NAME,'CM',2,6,1).EQ.0) GO TO 700
1113.      GO TO 20
1114.      C*****OIL FOR FLAME STABILIZATION
1115.      50 CALL LOOKUP(NAME,UR,2,6,1,NUMUR,4,IREG,&20)
1116.      T=COSTD*ACTD
1117.      FULCST(IREG)=T+FULCST(IREG)
1117.1    C PRINT 1099, COSTD,ACTD,NAME
1117.2    1099 FORMAT(E15.7,2X,E15.7,A8)
1118.      GO TO 20
1119.      C*****PETROLEUM FUEL
1120.      60 CALL LOOKUP(NAME,UR,2,4,1,NUMUR,4,IREG,&20)
1121.      T=COSTD*ACTD
1121.1    C PRINT 1099, COSTD,ACTD,NAME
1122.      FULCST(IREG)=T+FULCST(IREG)
1123.      GO TO 20
1124.      C*****BUILD
1124.01   100 CONTINUE
1124.1    C 100 WRITE(6,691) NAME
1124.2    691 FORMAT('IT IS A BUILD',1X,A8)
1125.      CALL LOOKUP(NAME,CCNM,4,4,1,NCCRS,4,KPLAC,&20)
1126.      CALL LOOKUP(NAME,UR,2,2,1,NUMUR,4,IREG,&20)
1127.      TCAP=ACTD*COSTD/(CCR(IREG)*CCVL(KPLAC))
1127.1    IF (KPLAC.GE.17.AND.KPLAC.LE.19) TCAP=716.5*ACTD
1128.      KPLAC=IBMAP(KPLAC)
1129.      BUILDS(IREG,KPLAC,1)=ACTD+BUILDS(IREG,KPLAC,1)
1130.      BUILDS(IREG,KPLAC,2)=TCAP+BUILDS(IREG,KPLAC,2)
1131.      GO TO 20
1132.      C *****OPERATES      OANDM AND GW OUTPUT
1132.01   200 CONTINUE
1132.1    C 200 WRITE(6,692) NAME
1132.2    692 FORMAT('IT IS AN OPERATE',1X,A8)
1133.      CALL LOOKUP(NAME,UR,2,2,1,NUMUR,4,IREG,&20)
1134.      CALL LOOKUP(NAME,OMAPS,1,4,1,NOMAPS,4,KPLAC,&20)
1135.      KPLAC=IOMAPS(KPLAC)
1136.      OPERSS(IREG,KPLAC)=OPERSS(IREG,KPLAC)+ACTD
1137.      OANDM(IREG,IRUN)=OANDM(IREG,IRUN)+ACTD*COSTD
1137.1    OANDM(NATION,IRUN)=OANDM(NATION,IRUN)+ACTD*COSTD
1138.      GO TO 20
1138.001  700 CONTINUE

```

```

1138.01 C*****NEW CODE-TRANSFERS AND TRANSMISSION BUILDS HERE- THIS CODE
1138.02 C 700 WRITE(6,591)NAME,ACTD,COSTD
1138.03 591 FORMAT(' ITS TRANS',2X,A8,' ACTD= ',F15.5,' COSTD= ',F15.5)
1138.04 C***** LOOKS FOR CAPITAL EXPENDITURES FOR ALL LINES NOT JUST NEW
1138.041 INW=0
1138.05 CALL LOOKUP(NAME,UR,2,2,1,NUMUR,4,IFR,&20)
1138.06 CALL LOOKUP(NAME,UR,2,4,1,NUMUR,4,ITO,&20)
1138.07 CALL LOOKUP(NAME,'EX',2,6,1,1,4,IRA,&696)
1138.08 CALL LOOKUP(NAME,TLNKEX,4,2,1,NTLEX,4,ILINK,&999)
1138.09 TRANEF=TEFFEX(ILINK)
1138.1 GO TO 697
1138.11 696 CALL LOOKUP(NAME,TLNKNW,4,2,1,NTLNW,4,ILINK,&999)
1138.111 INW=1
1138.12 TRANEF=TEFFNW(ILINK)
1138.121 697 CONTINUE
1138.13 C 697 WRITE(6,694) IRUN,IFR,ITO,ACTD,NAME
1138.14 694 FORMAT(' IRUN= ',I3,2X,'FROM REG= ',I3,2X,'TO REG= ',I3,2X,
1138.15 + 'AMT=',F10.4,'NAME=',A8)
1138.16 CHARGE=(FUELP(ITO,IELEC)+FUELP(IFR,IELEC))/2.0
1138.161 C WRITE(6,661) CHARGE,ACTD,TRANEF
1138.162 661 FORMAT(' CHARGE ',F20.4,' ACTD ',F20.4,' TRANEF ',F20.4)
1138.17 AVEFUE(IFR,IRUN)=AVEFUE(IFR,IRUN)-CHARGE*ACTD
1138.18 AVEFUE(ITO,IRUN)=AVEFUE(ITO,IRUN)+CHARGE*ACTD
1138.19 TRNSFR(IFR,IRUN)=TRNSFR(IFR,IRUN)-ACTD
1138.2 TRNSFR(ITO,IRUN)=TRNSFR(ITO,IRUN)+ACTD*TRANEF
1138.201 IF(INW.EQ.0) GO TO 20
1138.21 TCAP=ACTD*COSTD/CCR(IFR)
1138.22 BUILDS(IFR,13,1)=ACTD + BUILDS(IFR,13,1)
1138.23 BUILDS(IFR,13,2)=TCAP + BUILDS(IFR,13,2)
1138.24 GO TO 20
1138.25 C****END OF SECTION READING SOLUTION
1138.26 300 DO 330 I=1,NUMUR
1138.27 C KREG=MURCEN(I)
1141. DO 305 J=1,14
1142. COPER(I,J,IRUN)=COPER(I,J,IRUN)+OPER8S(I,J)*TEFF(I)
1143. COPER(NATION,J,IRUN)=COPER(NATION,J,IRUN)+OPER8S(I,J)*TEFF(I)
1144. DO 306 K=1,2
1145. CBUILD(NATION,J,K,IRUN)=CBUILD(NATION,J,K,IRUN)+BUILDS(I,J,K)
1146. 306 CBUILD(I,J,K,IRUN)=CBUILD(I,J,K,IRUN)+BUILDS(I,J,K)
1147. 305 CONTINUE
1148. T=0.
1149. DO 310 J=1,18
1150. T=FUELP(I,J)*FUELQ(I,J)+T
1150.1 C WRITE(6,662) I,J,FUELP(I,J),FUELQ(I,J)
1150.2 662 FORMAT(' I= ',I3,' J= ',I3,' PRC ',F20.4,' QTY ',F20.4)
1151. 310 CONTINUE
1152. AVEFUE(I,IRUN)=AVEFUE(I,IRUN)+T+FULCST(I)
1153. AVEFUE(NATION,IRUN)=AVEFUE(NATION,IRUN)+T+FULCST(I)
1154. 330 CONTINUE
1154.11 C*****
1154.12 C ****CALCULATE THE LOSSES WHICH OCCUR FROM
1154.13 C GENERATION TO SALES, SLOSS. (IE. TD LOSSES AND TRANSFERS)
1154.14 C*****
1154.15 SALESN=0.0
1154.16 DO 615 JREG=1,NUMUR
1154.17 GENER=0.0

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1154.18      DO 614 NPLANT=1,14
1154.19 614   GENER=GENER+COPER(JREG,NPLANT,IRUN)/TEFF(JREG)
1154.2       SALES=TEFF(JREG)*(GENER+TRNSFR(JREG,IRUN))
1154.21      SLOSS(JREG,IRUN)=SALES/GENER
1154.22      ADJGEN=GENER+TRNSFR(JREG,IRUN)
1154.23 C     PRINT 1008,JREG,ADJGEN
1154.24 1008  FORMAT(' CALCULATED ADJUSTED GENERATION FOR REGION ',I2,':',F15.4)
1154.25      SALESN=SALESN+SALES
1154.26      615 CONTINUE
1154.27      GENER8=0.0
1154.28      DO 620 NPLANT=1,14
1154.29 620   GENER8=GENER8+COPER(NATION,NPLANT,IRUN)/TEFF(JREG)
1154.3       SLOSS(NATION,IRUN)=SALESN/GENER8
1154.31      DO 625 JREG=1,NATION
1154.32 625   SLOSS(JREG,IRUN)=1.0-SLOSS(JREG,IRUN)
1154.33      DO 791 JREG=1,NATION
1154.34 C     PRINT 1011,JREG,TRNSFR(JREG,IRUN)
1154.35 1011  FORMAT(' NET TRANSFERS FOR REGION ',I2,'IS',':',F10.4)
1154.36      791 CONTINUE
1155.        RETURN
1155.1       999 WRITE(6,998)
1155.2       998 FORMAT(' LOOKUP ERROR IN EXTRAC')
1155.3       STOP
1156.        END
1500.        SUBROUTINE COMPUT
1500.001 C*****
1500.002 C
1500.003 C
1500.004 C
1500.005 C     INSERT GMG COMMON HERE
1500.006 C
1500.007 C
1500.008 C*****
1500.01      C
1500.02      REAL*4 LOAD,LOADF
1500.03 C
1500.04      COMMON/URDATA/NUMUR,NPLTP,PLTYPE(50),PLID(50),NUMUE,UE(24),
1500.05      1NDLNDG,BUE(13),UR(44),NDMDTP,DMDNAM(7),LOAD(4),LOADF(44,4),
1500.06      2CAPF(44,4,4),NTLEX,TLNKEX(99),TPRCX(99),TEFFEX(99),NTLNW,
1500.07      XTLNKNW(99),TPRCNW(99),TEFFNW(99),TEFF(44),TPRCE(44),OGCAP(44),
1500.08      XBLEND(13,24),FUELDE(44,24),NPLID,RHSCL(44),RHSC9(44),PENL(3,4)
1500.09      7,NUBLND,UBLEND(31,5)
1500.111 C*****
1500.112 C
1500.113 C
1500.114 C
1500.115 C     END GMG COMMON
1500.116 C
1500.117 C
1500.118 C
1500.119 C*****
1500.12      C
1500.13      COMMON/SHARE/ FUELP(44,25),FUELQ(44,25),
1500.14      X  BUILDS(44,14,2),OPER8S(44,14)
1501.        COMMON /REG/CBUILD(45,14,2,3),COPER(45,14,3),AVEFUE(45,3)
1502.        X ,HEL75(45),OANDM(45,4),NUCFUL(45)

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1502.1      X ,FULCST(45),SLOSS(45,4)
1502.2      REAL*4 NUCFUL,RATE(4,4),BUFF1(14)
1502.201 C*****
1502.202 C   THE ARRAYS ISPAN AND KSPAN DEFINE THE NUMBER
1502.203 C   OF YEARS BETWEEN MODEL YEAR RUNS AND ALSO
1502.204 C   THE PLANNING HORIZON.  ISPAN DEFINES THE PLANNING
1502.205 C   HORIZON.  THE ENTRIES ARE THE YEARS FROM THE BEGINING OF THE
1502.206 C   HORIZON TO THE FIRST RUN YEAR, THE FIRST TO SECOND RUN YEAR,
1502.207 C   THE SECOND TO THIRD RUN YEAR AND THE THIRD RUN YEAR TO THE
1502.208 C   END OF THE PLANNING HORIZON.  KSPAN DEFINES THE NUMBER OF
1502.209 C   YEARS BETWEEN DATA SUPPLIED TO THE MODEL.  THIS IS THE NUMBER
1502.21 C   OF YEARS BETWEEN HISTORICAL DATA AND MODEL RUN YEARS.
1502.22 C*****
1503.      INTEGER ISPAN(4)/7,5,5,10/
1503.1     INTEGER KSPAN(3)/07,5,5/
1504.      REAL DELTA(2,3),GENNEW(45)
1505.      REAL SHARES(30),FRACT(30),INFLAT(30),FRACT1(30),FRACT2(30)
1505.11     REAL POINTS(4,6),GROW(4,4)
1505.2     REAL GENER8(30,2),TOTGEN(30)
1506.      REAL*4 BUFF(14)
1507.      REAL INF79/1.00/,GNPM/.06/,NUCST/6./
1507.1     REAL USGEN(30,14),USBILD(30,14),USTOTG(30)
1507.11     REAL*4 TOTPTS(3),TEF1(3) ,TEF(3)
1507.111    NAMELIST /NX/POINTS
1507.12     NATION=NUMUR+1
1507.2     DO 1201 I=1,3
1507.3     TOTPTS(I)=0.
1507.4     1201 TEF1(I)=0.
1508.      DO 790 J=1,30
1508.1     USTOTG(J)=0.
1508.2     DO 791 KAY=1,14
1508.3     USGEN(J,KAY)=0.
1508.4     791 USBILD(J,KAY)=0.
1509.      790 INFLAT(J)=EXP((J-2)*GNPM)/INF79
1510. C     DO 50 I=1,NATION
1511. C     DO 51 J=1,14
1512. C     PRINT 101, ((CBUILD(I,J,K,IRUN),K=1,2),IRUN=1,3)
1513.      101 FORMAT(' BUILDS',6F20.4)
1514. C     PRINT 102, (COPER(I,J,IRUN),IRUN=1,3)
1515.      102 FORMAT(' OPERATES',3F20.4)
1516. C 51 CONTINUE
1517. C     PRINT 103, (AVEFUE(I,IRUN),IRUN=1,3)
1518.      103 FORMAT(' OPERATING COST',F20.4)
1519. C 50 CONTINUE
1519.01 C *****RULES   FIRST COMPUTE TOTAL GENERATION USING
1519.02 C                EXPONENTIAL GROWTH RATE
1519.03 C ***** FOR OPERATE TYPES 1 AND 2, USE LINEAR INTERPOLATION
1519.04 C ***** COMPUTE NEW GENERATION BY SUBTRACTING EXISTING
1519.05 C                FROM THE TOTAL
1519.1 C**  LOOP ON REGIONS
1520.      DO 200 IREG=1,NATION
1520.01     DO 1206 L=1,3
1520.02     1206 TEF(L)=TEFF(IREG)
1520.2     IF(IREG.NE.NATION) GO TO 1204
1520.3     DO 1205 L=1,3
1520.4     1205 TEF(L)=TEF1(L)/TOTPTS(L)
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1520.5 1204 CONTINUE
1520.6 C WRITE(6,1211) IREG,TEF
1520.7 1211 FORMAT('IREG=',I3,2X,'TEF=',2X,3F7.5)
1521. KFILE=IREG+29
1521.01 C KFILE=6
1521.1 C*** FIRST COMPUTE TOTAL GENERATION
1521.2 C***** FILL POINTS ARRAY FOR IRUN=2,3,4.
1521.3 C
1521.4 C POINTS CONTAINS GENERATION FOR IRUN=1. POINTS(I,J)-
1521.5 C I IS THE RUN INDEX, AND J DENOTES THE TYPE OF GENERATION.
1521.6 C
1521.7 C J=1 IS FOR TOTAL OLD
1521.8 C J=2 IS FOR OLD NUC
1521.9 C J=3 IS FOR TOTAL GEN
1521.91 C J=4 IS FOR OLD NUC (A REPEAT)
1521.92 C J=5 IS FOR NEW NUC
1522. DO 202 IRUN=2,4
1522.1 DO 201 KAY=1,2
1522.2 POINTS(IRUN,KAY)=COPER(IREG,KAY,IRUN-1)
1522.3 201 CONTINUE
1523. POINTS(IRUN,3)=0.
1523.1 C***** POINTS(1,*) IS BUILT FROM HISTORICAL NUMBERS AND DIVIDED
1523.2 C
1523.3 C ACCORDING TO 1985 GENERATION CHARACTERISTICS
1524. 1207 DO 202 J=1,14
1525. 202 POINTS(IRUN,3)=POINTS(IRUN,3)+COPER(IREG,J,IRUN-1)
1525.1 POINTS(1,3)=HEL75(IREG)
1525.2 SUM=COPER(IREG,1,1)+COPER(IREG,2,1)
1525.3 POINTS(1,1)=(COPER(IREG,1,1)/SUM)*POINTS(1,3)
1525.4 POINTS(1,2)=POINTS(1,3)-POINTS(1,1)
1525.41 DO 1302 IRUN=2,4
1525.42 POINTS(IRUN,4)= COPER(IREG,2,IRUN-1)
1525.421 POINTS(IRUN,5)= COPER(IREG,7,IRUN-1)
1525.43 1302 CONTINUE
1525.44 POINTS(1,4)=COPER(IREG,2,1)/SUM*POINTS(1,3)
1525.45 POINTS(1,5)=COPER(IREG,7,1)/SUM*POINTS(1,3)
1525.451 C DO 6699 IRUN=1,3
1525.452 C6699 WRITE(80,6696) (POINTS(IRUN,L),L=4,5)
1525.453 C6696 FORMAT(2F15.7)
1525.454 DO 6670 IRUN=1,4
1525.455 6670 POINTS(IRUN,6)=POINTS(IRUN,4)+POINTS(IRUN,5)
1525.5 IF (IREG.EQ.NATION) GO TO 720
1525.51 DO 1212 IRUN=1,3
1525.7 TEF1(IRUN)=TEF1(IRUN) + POINTS(IRUN+1,3)
1525.8 1212 TOTPTS(IRUN)=POINTS(IRUN+1,3)/TEFF(IREG) + TOTPTS(IRUN)
1526. C***** COMPUTE GROWTH/DECLINE RATES
1526.1 C
1526.2 C OLD GEN IS LINEAR AND TOTAL GEN IS GEOMETRIC
1526.3 C
1526.4 C***** ALSO COMPUTE FRACT,FRACT1 AND FRACT2. THESE ARE THE GENERATION
1526.5 C BY YEAR
1526.6 C
1527. DO 204 K=1,3
1527.1 DO 203 J=1,2
1527.2 203 GROW(K,J)=(POINTS(K+1,J)-POINTS(K,J))/KSPAN(K)
1527.3 GROW(K,4)=(POINTS(K+1,6)-POINTS(K,6))/KSPAN(K)
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1528.      204 GROW(K,3)=ALOG(POINTS(K+1,3)/POINTS(K,3))/KSPAN(K)
1528.1    C      DO 6693 IRA=1,4
1528.2    C6693 WRITE(90,6692) (POINTS(IRA,IL),IL=1,3)
1528.3    6692 FORMAT(4F15.7)
1529.      JAY=1
1530.      KAY=1
1531.      DO 205 IRUN=1,3
1532.      SUM=0.
1533.      IYR=ISPAN(IRUN)
1533.1    JYR=KSPAN(IRUN)-ISPAN(IRUN)
1533.2    IBEGYR=JAY
1534.      DO 206 KYR=1,IYR
1534.1    SUM2=0.
1534.11   JYR=JYR+1
1534.12   JAY=JAY+1
1534.2    DO 208 J=1,2
1534.21   GENER8(JAY,J)=POINTS(IRUN,J)+GROW(IRUN,J)*JYR
1534.3    208 SUM2=SUM2+GENER8(JAY,J)
1536.      FRACT(JAY)=POINTS(IRUN,3)*EXP(GROW(IRUN,3)*JYR)-SUM2
1536.001  FRACT1(JAY)=(FRACT(JAY)+SUM2)/TEFF(IREG)
1536.002  FRACT2(JAY)=(POINTS(IRUN,6)+ GROW(IRUN,4)*JYR)/TEFF(IREG)
1536.01   TOTGEN(JAY)=FRACT(JAY)+SUM2
1536.02   USTOTG(JAY)=USTOTG(JAY)+TOTGEN(JAY)
1536.1    IF (FRACT(JAY).LE.0.) FRACT(JAY)=0.
1537.      206 SUM=SUM+FRACT(JAY)
1537.1    GENNEW(1)=FRACT(JAY)-FRACT(1BEGYR)
1538.      DO 207 KYR=1,IYR
1539.      KAY=KAY+1
1540.      207 SHARES(KAY)=FRACT(KAY)/SUM
1541.      205 CONTINUE
1542.      C      PRINT 701,(SHARES(JAY),JAY=2,18)
1543.      701 FORMAT(' SHARES',18F5.2)
1544.      C      PRINT 702,(FRACT(JAY),JAY=2,18)
1545.      702 FORMAT(' FRACTION',18F5.0)
1546.      720 DO 210 J=1,14
1547.      IF (CBUILD(IREG,J,1,3).LE.0.001) GO TO 210
1548.      DO 213 KAY=1,2
1549.      DELTA(KAY,1)=CBUILD(IREG,J,KAY,1)
1550.      DO 211 K=2,3
1551.      DELTA(KAY,K)=CBUILD(IREG,J,KAY,K)-CBUILD(IREG,J,KAY,K-1)
1552.      211 CONTINUE
1553.      213 CONTINUE
1554.      JAY=1
1555.      DO 212 IRUN=1,3
1557.      IYR=ISPAN(IRUN)
1558.      IF (DELTA(1,IRUN).LT.0.001) GO TO 712
1559.      AVEC=DELTA(2,IRUN)/DELTA(1,IRUN)
1560.      712 DO 214 L=1,IYR
1561.      JAY=JAY+1
1562.      IF (DELTA(1,IRUN).LT.0.001) GO TO 214
1562.1    IF (IREG.NE.NATION) GO TO 721
1562.2    Q=USBILD(JAY,J)
1562.3    GO TO 722
1563.      721 Q=SHARES(JAY)*DELTA(1,IRUN)*1000
1563.1    USBILD(JAY,J)=USBILD(JAY,J)+Q
1564.      722 BUFF(1)=AVEC/INF79
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1565.      WRITE(KFILE,105) JAY,J,Q ,BUFF(1)
1566.      105 FORMAT(2I5,F20.3,F20.3)
1567.      214 CONTINUE
1568.      212 CONTINUE
1568.01    C*****
1568.02    C***NOW EXTRAPOLATE BUILDS TO YEAR 2005
1568.03    C***FIRST EXTRAPOLATE SHARES TO YEAR 2005, ALSO CALCULATE FACTOR.
1568.04    C***FACTOR IS THE RATIO OF NEW GEN FROM 95-2005 TO THAT OF 90-95.
1568.05    C***TOTAL GEN IS ASSUMED TO GROW AT SAME RATE AS IT DID IN 90-95
1568.06    C*****
1568.07      IRUN=4
1568.08      JAY1=JAY
1568.09      IYR=ISPAN(IRUN)
1568.1      DO 300 J1=1,IYR
1568.11    300  GENNEW(J1)=EXP(GROW(3,3)*J1)-1.0
1568.12      AOLD=0.0
1568.13      DO 310 J1=1,IYR
1568.14      JAY=JAY+1
1568.15      SHARES(JAY)=(GENNEW(J1)-AOLD)/GENNEW(IYR)
1568.16      AOLD=GENNEW(J1)
1568.17    310  CONTINUE
1568.18      FACTOR=GENNEW(IYR)*TOTGEN(JAY1)/(POINTS(4,3)-POINTS(3,3))
1568.19      IF (DELTA(1,3) .LT. .001) GO TO 210
1568.2      DO 320 J1=1,IYR
1568.21      JAY1=JAY1+1
1568.22      IF (IREG .NE. NATION) GO TO 321
1568.23      Q=USBILD(JAY1,J)
1568.24      GO TO 322
1568.25    321  Q=FACTOR*DELTA(1,3)*SHARES(JAY1)*1000.0
1568.26      USBILD(JAY1,J)=USBILD(JAY1,J)+Q
1568.27    322  WRITE(KFILE,105) JAY1,J,Q,BUFF(1)
1568.28    C 322 CONTINUE
1568.29    320  CONTINUE
1568.3      210 CONTINUE
1569.      JAY=0
1569.01      BUFF(1)=0.
1569.02      WRITE(KFILE,105) JAY,JAY,BUFF(1),BUFF(1)
1569.03    C*****
1569.04    C NOW FINER CATEGORIES OF NEW GENERATION ARE INTERPOLATED BY YEAR.
1569.05    C *****SUMEND IS TOTAL GENERATION BY NEW PLANTS AT END OF PERIOD
1569.06    C *****SUMBEG IS TOTAL GENERATION BY NEW PLANTS AT BEGINNING OF PERIOD
1569.07    C*****
1573.      JAY=1
1574.      DO 220 IRUN=1,3
1574.1      SUM2=0.
1574.5      DO 226 J=3,14
1574.6    226  SUM2=SUM2+COPER(IREG,J,IRUN)
1576.      KYR=ISPAN(IRUN)
1577.      DO 225 IYR=1,KYR
1578.      JAY=JAY+1
1578.1      IF (IREG.NE.NATION) GO TO 224
1578.2      DO 223 J=1,2
1578.3    223  BUFF(J)=USGEN(JAY,J)
1578.4      GO TO 229
1579.    C 224 BUFF(1)=GENERS(JAY,1)+GENERS(JAY,2)
1579.1      224 CONTINUE

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1580.      C      BUFF(2)=GENERS(JAY,2)
1582.1    C *****THE FOLLOWING METHOD USES END PERIOD SHARES TO
1582.2    C      TO ALLOCATE NEW GENERATION...INTERPOLATION
1590.01    BUFF(1)=FRACT1(JAY)
1590.02    BUFF(2)=FRACT2(JAY)
1590.1     DO 228 J=1,2
1590.2     228 USGEN(JAY,J)=USGEN(JAY,J)+BUFF(J)
1591.     229 WRITE(KFILE,106)BUFF(1),BUFF(2)
1592.     106 FORMAT(7F11.3)
1593.     225 CONTINUE
1594.     220 CONTINUE
1594.01    C***** FIND GROWTH RATES FOR FUEL AND O&M. 1979-1985 WILL REMAIN
1594.02    C      CONSTANT.
1594.03    DO 1230 IRUN=2,3
1594.04    KYR=ISPAN(IRUN)
1594.05    ALPHA=1./FLOAT(KYR)
1594.051    B1=COPER(IREG,2,IRUN)+COPER(IREG,7,IRUN)
1594.052    B2=COPER(IREG,2,IRUN-1)+COPER(IREG,7,IRUN-1)
1594.06    RATE(1,IRUN)=(ABS(AVEFUE(IREG,IRUN)/POINTS(IRUN+1,3))/ABS(AVEFUE(
1594.07    + IREG,IRUN-1)/POINTS(IRUN,3)))*(ALPHA)
1594.08    RATE(3,IRUN)=(((OANDM(IREG,IRUN)-NUCST*B1)/POINTS(IRUN+1,3))/
1594.09    + ((OANDM(IREG,IRUN-1)-NUCST*B2)/POINTS(IRUN,3)))*(ALPHA)
1594.1     1230 CONTINUE
1594.11    DO 1236 I=1,3
1594.12    1236 RATE(I,1)=1.
1594.15    997 FORMAT(3(E10.5,3X))
1594.16    C*****
1594.17    JAY=1
1594.18    IRUN=1
1594.19    KYR=ISPAN(IRUN)
1594.2     DO 1235 IYR=1,KYR
1594.21    JAY=JAY+1
1594.22    BUFF(1)=(AVEFUE(IREG,IRUN)/POINTS(IRUN+1,3))
1594.23    BUFF(2)=NUCST
1594.24    BUFF(3)=(OANDM(IREG,IRUN)/POINTS(IRUN+1,3)-BUFF(2)*
1594.25    + (COPER(IREG,2,IRUN)+COPER(IREG,7,IRUN))/POINTS(IRUN+1,3))
1594.28    WRITE(KFILE,106) BUFF(1),BUFF(2),BUFF(3)
1594.29    1235 CONTINUE
1595.     JAY=1
1596.     DO 230 IRUN=2,3
1597.     KYR=ISPAN(IRUN)
1598.     DO 235 IYR=1,KYR
1599.     JAY=JAY+1
1600.     BUFF(1)=(AVEFUE(IREG,IRUN-1)/POINTS(IRUN,3))*(RATE(1,IRUN)**IYR)
1600.1     BUFF(2)=NUCST
1600.2     BUFF(3)=(OANDM(IREG,IRUN-1)/POINTS(IRUN,3)-BUFF(2)*
1600.21    + (COPER(IREG,2,IRUN-1)+COPER(IREG,7,IRUN-1))/POINTS(IRUN,3))*
1600.22    + (RATE(3,IRUN)**IYR)
1600.3     C      BUFF(3)=INFLAT(JAY)*OANDM(IREG,IRUN)/POINTS(IRUN+1,3)
1601.     WRITE(KFILE,106) BUFF(1),BUFF(2),BUFF(3)
1602.     235 CONTINUE
1603.     230 CONTINUE
1603.1     BUFF(1)=SLOSS(IREG,1)
1603.2     BUFF(2)=SLOSS(IREG,2)
1603.3     BUFF(3)=SLOSS(IREG,3)
1603.4     WRITE(KFILE,106) (BUFF(L),L=1,3)

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1624.      ENDFILE KFILE
1625.      REWIND KFILE
1626.      200 CONTINUE
1627.      RETURN
1628.      END
1990.      SUBROUTINE RDHIST
1990.1     C
1990.2     C*****
1990.3     C
1990.4     C
1990.5     C
1990.6     C      INSERT GMG COMMON BLOCK HERE
1990.7     C
1990.8     C
1990.9     C*****
1991.     C
1991.1     REAL*4 LOAD,LOADF
1991.2     C
1991.3     COMMON/URDATA/NUMUR,NPLTP,PLTYPE(50),PLID(50),NUMUE,UE(24),
1991.4     1NBLNDS,BUE(13),UR(44),NDMDTP,DMDNAM(7),LOAD(4),LOADF(44,4),
1991.5     2CAPF(44,4,4),NTLEX,TLNKE(99),TPRC(99),TEFFEX(99),NTLNW,
1991.6     XTLNKNW(99),TPRCNW(99),TEFFNW(99),TEFF(44),TPRCE(44),OGCAP(44),
1991.7     XBLEND(13,24),FUELDE(44,24),NPLID,RHSCL(44),RHSC9(44),PENL(3,4)
1991.8     7,NUBLND,UBLEND(31,5)
1992.1     C*****
1992.2     C
1992.3     C
1992.4     C      END GMG COMMON
1992.5     C
1992.6     C
1992.7     C
1992.8     C*****
1992.9     C
1993.     COMMON /HISTOR/ HGN(44)
1993.1     REAL*4 HGN
1993.2     DO 100 I=1,113
1993.3     READ(98,1)
1993.4     100 CONTINUE
1993.5     1 FORMAT(A1)
1993.6     DO 200 I=1,NUMUR
1993.7     READ(98,2) REG,VAL
1993.8     CALL LOOKUP(REG,UR,2,1,1,NUMUR,4,I,REG,&999)
1993.9     HGN(I,REG)=VAL
1994.     200 CONTINUE
1994.1     RETURN
1994.2     999 CONTINUE
1994.3     WRITE(6,3)
1994.4     3 FORMAT(' LOOKUP ERROR IN RDDHIST')
1994.41    2 FORMAT(2X,A2,F10.1)
1994.5     STOP
1994.6     END
2000.     //LKED.SYSLIB DD
2001.     //          DD DSN=CN6435.HS1.CONVERT.MYLIB,DISP=SHR
2002.     //LKED.SYSLMOD DD DISP=(NEW,CATLG),
2003.     //          DSN=CN6376.IS3.NUREG.GOX.FINANCE(LARGE),
2004.     //          SPACE=(TRK,(10,1,1)),UNIT=3350,

```

2005. // DCB=(DSORG=P0,RECFM=U,BLKSIZE=7294)

3.0 THE FINANCIAL SENSITIVITY PROGRAM (FSP)

The purpose of FSP is to estimate the sensitivity of the financial parameters to changes in capital additions. These derivatives are calculated for each of the NCM build years 1985, 1990, and 1995. FSP begins by successively running NUFS, each time varying the level of capital additions. Next, it examines the results and forms partial derivatives by dividing the change in the value of the parameters by the percentage change in the level of capital additions.

FSP is a set of six job steps. The first job step creates four different capacity expansion forecast files for NUFS. The first file is the one produced by the NCM/NUFS interface. The second file is formed by lowering the costs of all capacity additions in the years 1979-1985 by a given percentage (the value of the percentage is a user input). Similarly, the third and fourth files are formed by lowering costs of builds for the years 1986-90, and 1991-1995, respectively. Each of the latter three files correspond to the original NCM solution's capacity additions lowered in the solution years 1985, 1990, and 1995. It should be noted that the extrapolated builds for the years past 1995 are also lowered in the fourth file.

The next four job steps each run NUFS using the different capacity additions files created in Step 1. Each of the steps produces a forecast of the financial parameters corresponding to different capacity addition files. Each of these sets of forecasts is passed to the final job step.

The final step forms the derivatives as follows. For the 1985 derivatives, the forecasts from NUFS for the 1985 reduced capacity case are subtracted from the forecasts from NUFS for the original NCM solution. These differences are then divided by the percentage of capacity additions cut in the years 1979-1985. This yields the derivatives for the 1985 capital additions. The 1990 and 1995 derivatives are calculated in a similar manner. These derivatives, combined with other data, are then written to a file which will be used by the CAAP.

A flow of data diagram for FSP is shown in Figure 2. A listing of FSP now follows.

FIGURE 2
DATA FLOW FOR FSP

```

1. //MI2UNUFS JOB (6376,D02,,15),'COMPILE',TIME=(0,19)
2. //STEP1 EXEC FORTGCC
3. //FORT.SYSIN DD *
4. C NUREG.FSP          FINANCIAL SENSITIVITY PROGRAM
5. C WRITTEN BY MARK INGLIS   ICF INC.   OCTOBER 29,1981
6. C THIS MODULE IS DESIGNED FOR ANALYSIS OF ELECTRIC UTILITY REGIONS WHICH
7. C ARE DETERMINED TO HAVE NON-FINANCIALLY FEASIBLE CAPACITY EXPANSION PLANS.
8. C
9. C THIS FIRST STEP IS DESIGNED TO CREATE INTERFACE FILES FOR NUF5 WHICH
10. C HAVE CAPITAL COSTS LOWERED IN GIVEN YEARS BY A GIVEN PERCENTAGE. THESE
11. C FILES WILL BE USED IN COMBINATION WITH NUF5 TO DETERMINE SENSITIVITY
12. C OF FINANCIAL PARAMETERS TO CHANGES IN CAPITAL ADDITION COSTS.
13. C
14. C     DIMENSION ISPAN(5),DELCAP(5),TEMP(20),TARGET(4),
15. C     1 TOTCAP(5),WGTPEN(4,25)
16. C     DATA DELCAP/5*0.0/,TOTCAP/5*0.0/,ISPAN/2,9,14,29.0/,
17. C     * NYRS3,NOSPAN/18,3/
18. C***VARIABLE DEFINITIONS:
19. C     NOSPAN- NUMBER OF SOLUTIONS IN OPTIMIZATION (3 FOR MEFS.NCM)
20. C     ISPAN- YEARS DEFINING EACH SOLUTION
21. C     NYRS3- INTEGER REPRESENTATION FOR 1995
22. C***FIRST, READ IN INPUTS WHICH DEFINE THE SCOPE OF RUN:
23. C     NREG- NUMBER OF INFEASIBLE REGIONS
24. C     NAME- TITLE OF REGION
25. C     RATE- PERCENTAGE REDUCTION TO BE MADE IN CAPITAL COSTS
26. C     NYRS1,NYRS2- RANGE OF YEARS OF WHICH TO LOOK AT FINANCIAL PARAMETERS
27. C     TARGET- TARGET VALUES FOR FINANCIAL PARAMETERS
28. C     ...
? L 78/L
78. C***NOW WRITE OUT TEMPORARY FILE TO BE PASSED.
79. C     WRITE(20,5) NAME
80. C     WRITE(20,210) RATE
81. C     WRITE(20,6) NYRS1,NYRS2
82. C     WRITE(20,210) TARGET
83. C     DO 220 I=1,4
84. C     220 WRITE(20,210) (WGTPEN(I,J),J=1,NYRS)
85. C     210 FORMAT(7(E10.4,1X))
86. C     6 FORMAT(2I4)
87. C     WRITE(20,6) NOSPAN
88. C     WRITE(20,210) (DELCAP(I),I=1,NOSPAN),(TOTCAP(I),I=1,NOSPAN)
89. C     300 CONTINUE
...
? L 100
100. 15*100.0 PENALTY WEIGHTS FOR AFUDC PERCENTAGE OF INCOME
? L 101/L
101. 15*100.0 PENALTY WEIGHTS FOR ACTUAL RETURN ON EQUITY
102. 15*100.0 PENALTY WEIGHTS FOR EXTERNAML FINANCING PERCENTAGE
103. VM *****TITLE OF SECOND INFEASIBLE REGION*****
104. .20 PERCENTAGE REDUCTION IN BUILDS
105. ...
? M 103
103. VM *****TITLE OF SECOND INFEASIBLE REGION*****
ALTERS ? RVA
103. VA *****TITLE OF SECOND INFEASIBLE REGION*****
ALTERS ?

```

```

1.  //MI2UNUFS JOB (6376,D02,,15),'COMPILE',TIME=(0,19)
2.  //STEP1 EXEC FORTGCC
3.  //FORT.SYSIN DD *
4.  C NUREG.FSP          FINANCIAL SENSITIVITY PROGRAM
5.  C WRITTEN BY MARK INGLIS   ICF INC.   OCTOBER 29,1981
6.  C THIS MODULE IS DESIGNED FOR ANALYSIS OF ELECTRIC UTILITY REGIONS WHICH
7.  C ARE DETERMINED TO HAVE NON-FINANCIALLY FEASIBLE CAPACITY EXPANSION PLANS.
8.  C
9.  C THIS FIRST STEP IS DESIGNED TO CREATE INTERFACE FILES FOR NUF5 WHICH
10. C HAVE CAPITAL COSTS LOWERED IN GIVEN YEARS BY A GIVEN PERCENTAGE.  THESE
11. C FILES WILL BE USED IN COMBINATION WITH NUF5 TO DETERMINE SENSITIVITY
12. C OF FINANCIAL PARAMETERS TO CHANGES IN CAPITAL ADDITION COSTS.
13. C
14.   DIMENSION ISPAN(5),DELCAP(5),TEMP(20),TARGET(4),
15.   1 TOTCAP(5),WGTPEN(4,25)
16.   DATA DELCAP/5*0.0/,TOTCAP/5*0.0/,ISPAN/2,9,14,29,0/,
17.   * NYRS3,NOSPAN/18,3/
18. C***VARIABLE DEFINITIONS:
19. C   NOSPAN- NUMBER OF SOLUTIONS IN OPTIMIZATION (3 FOR MEFS,NCM)
20. C   ISPAN- YEARS DEFINING EACH SOLUTION
21. C   NYRS3- INTEGER REPRESENTATION FOR 1995
22. C***FIRST, READ IN INPUTS WHICH DEFINE THE SCOPE OF RUN:
23. C   NREG- NUMBER OF INFEASIBLE REGIONS
24. C   NAME- TITLE OF REGION
25. C   RATE- PERCENTAGE REDUCTION TO BE MADE IN CAPITAL COSTS
26. C   NYRS1,NYRS2- RANGE OF YEARS OF WHICH TO LOOK AT FINANCIAL PARAMETERS
27. C   TARGET- TARGET VALUES FOR FINANCIAL PARAMETERS
28. C   WGTPEN- PENALTY WEIGHTS FOR NOT SATISFYING CONSTRAINTS
29.   READ(8,*) NREG
30.   WRITE(20,6) NREG
31.   DO 300 K=1,NREG
32.   READ(8,5) NAME
33.   5   FORMAT(A2)
34.   READ(8,*) RATE
35.   READ(8,*) NYRS1,NYRS2
36.   NYRS=NYRS2-NYRS1+1
37.   READ(8,*) TARGET
38.   DO 15 I=1,4
39.   15  READ(8,*) (WGTPEN(I,J),J=1,NYRS)
40. C***NOW THE BUILDS SECTION OF THE NUF5 INTERFACE FILE IS READ, ALTERED,
41. C***AND PRINTED OUT TO THE NEW INTERFACE FILES.
42.   100  READ(10,*) JYR,JPLANT,PLTCAP,CAPCST
43.   WRITE(14,30) JYR,JPLANT,PLTCAP,CAPCST
44.   CAPRED=CAPCST*(1.0-RATE)
45. C***NOW WRITE OUT BUILD TO EACH OF FOUR FILES:
46. C*** FILE 11 = NCM 85 BUILDS REDUCED
47. C*** FILE 12 = NCM 90 BUILDS REDUCED
48. C*** FILE 13 = NCM 95 PLUS EXTRAPALATIONS BUILDS REDUCED
49. C*** FILE 14 = BASE NCM SOLUTION
50. C*** FILE 15 = ALL BUILDS REDUCED
51.   DO 10 I=1,NOSPAN
52.   IFILE=I+10
53.   IF ((JYR.GE.ISPAN(I)) .AND. (JYR.LT.ISPAN(I+1))) GO TO 20
54. C***THE CAPCST IS NOT TO BE REDUCED FOR THIS FILE (IFILE)
55.   WRITE(IFILE,30) JYR,JPLANT,PLTCAP,CAPCST

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```
56. 30  FORMAT(2I8,2F15.3)
57.    GO TO 10
58. C***THE CAPCST IS TO BE REDUCED FOR THIS FILE (IFILE)
59. 20  WRITE(IFILE,30) JYR,JPLANT,PLTCAP,CAPRED
60.    WRITE(15,30) JYR,JPLANT,PLTCAP,CAPRED
61.    IF (JYR .GT. NYRS3) GO TO 10
62.    DELCAP(I)=DELCAP(I)+(CAPRED-CAPCST)*PLTCAP
63.    TOTCAP(I)=TOTCAP(I)+CAPCST*PLTCAP
64. 10  CONTINUE
65.    IF (JYR .NE. 0) GO TO 100
66.    WRITE(15,30) JYR,JPLANT,PLTCAP,CAPRED
67. C***NOW THE REST OF THE INTERFACE FILE IS READ AND COPIED DIRECTLY TO THE
68. C***NEW INTERFACE FILES.
69.    NUM=(NYRS3-1)*2+1
70.    DO 140 L=1,NUM
71.    READ(10,120) TEMP
72. 120  FORMAT(20A4)
73.    WRITE(14,120) TEMP
74.    DO 130 I=1,NOSPAN
75.    IFILE=10+I
76. 130  WRITE(IFILE,120) TEMP
77. 140  WRITE(15,120) TEMP
78. C***NOW WRITE OUT TEMPORARY FILE TO BE PASSED.
79.    WRITE(20,5) NAME
80.    WRITE(20,210) RATE
81.    WRITE(20,6) NYRS1,NYRS2
82.    WRITE(20,210) TARGET
83.    DO 220 I=1,4
84. 220  WRITE(20,210) (WGTPEN(I,J),J=1,NYRS)
85. 210  FORMAT(7(E10.4,1X))
86. 6    FORMAT(2I4)
87.    WRITE(20,6) NOSPAN
88.    WRITE(20,210) (DELCAP(I),I=1,NOSPAN),(TOTCAP(I),I=1,NOSPAN)
89. 300  CONTINUE
90.    STOP
91.    END
92. //GO.SYSLIN DD DSN=*.FORT.SYSLIN,DISP=(OLD,DELETE)
93. //GO.FT08F001 DD *
94. 2    NUMBER OF INFEASIBLE REGIONS
95. IL *****TITLE OF FIRST INFEASIBLE REGION*****
96. .20  PERCENTAGE REDUCTION IN BUILDS
97. 3 17  RANGE OF YEARS FOR WHICH DERIVATIVES ARE TO BE CALCULATED (1=BASE)
98. 3.0 50.0 .13 50.0  ACCEPTABLE RANGES FOR FOR INT COV,AFUDC %,ROE,EXT FIN
99. 15*100.0  PENALTY WEIGHTS FOR INTEREST COVERAGE
100. 15*100.0  PENALTY WEIGHTS FOR AFUDC PERCENTAGE OF INCOME
101. 15*100.0  PENALTY WEIGHTS FOR ACTUAL RETURN ON EQUITY
102. 15*100.0  PENALTY WEIGHTS FOR EXTERNAML FINANCING PERCENTAGE
103. VA *****TITLE OF SECOND INFEASIBLE REGION*****
104. .20  PERCENTAGE REDUCTION IN BUILDS
105. 3 17  RANGE OF YEARS FOR WHICH DERIVATIVES ARE TO BE CALCULATED (1=BASE)
106. 2.5 45.0 .14 60.0  ACCEPTABLE RANGES FOR FOR INT COV,AFUDC %,ROE,EXT FIN
107. 15*100.0  PENALTY WEIGHTS FOR INTEREST COVERAGE
108. 15*100.0  PENALTY WEIGHTS FOR AFUDC PERCENTAGE OF INCOME
109. 15*100.0  PENALTY WEIGHTS FOR ACTUAL RETURN ON EQUITY
110. 15*100.0  PENALTY WEIGHTS FOR EXTERNAML FINANCING PERCENTAGE
111. //GO.FT10F001 DD DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U2),DISP=SHR
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```
112. //          DD DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U1),DISP=SHR
113. //GO.FT11F001 DD DISP=(NEW,PASS),DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U1),DISP=SHR
114. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
115. //GO.FT12F001 DD DISP=(NEW,PASS),DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U2),DISP=SHR
116. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
117. //GO.FT13F001 DD DISP=(NEW,PASS),DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U3),DISP=SHR
118. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
119. //GO.FT14F001 DD DISP=(NEW,PASS),DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U4),DISP=SHR
120. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
121. //GO.FT15F001 DD DISP=(NEW,PASS),DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U5),DISP=SHR
122. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
123. //GO.FT20F001 DD DISP=(NEW,PASS),DSN=CN6376.IS3.NUREG.NUFSIN.BASE(U6),DISP=SHR
124. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
125. //*****
126. // *NOW, NUFS IS RUN 4 TIMES. THE FINANCIAL PARAMETERS FROM THE RUNS
127. // *WILL BE USED TO DETERMINE THE SENSITIVITY OF THE PARAMETERS TO
128. // *CHANGES IN CAPITAL COSTS. THIS INFORMATION IS USED TO CALCULATE
129. // *NECESSARY CAPITAL CONSTRAINT FOR NCM OR MEFS.
130. //*****
131. //STEPRUN1 EXEC PGM=TEST,REGION=700K
132. //STEPLIB DD DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
133. //FT04F001 DD DUMMY
134. //FT06F001 DD DUMMY
135. //FT07F001 DD DUMMY
136. //FT08F001 DD DISP=(NEW,PASS),DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
137. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
138. //FT09F001 DD *
139. * TITLE OF RUN
140. NUREG METH TEST 6/8
141. * (1)NUMBER OF YRS;(2)NUMBER OF REGIONS;(3)OPT7;(4)OPT8
142. 17 2 5 1
143. //FT10F001 DD DSN=CN6376.MI2.NUREG.PRIVATE(IL),DISP=SHR
144. //          DD DSN=CN6376.MI2.NUREG.PRIVATE(VA),DISP=SHR
145. //FT11F001 DD DSN=CN6376.MI2.NUREG.PUBLIC(IL),DISP=SHR
146. //          DD DSN=CN6376.MI2.NUREG.PUBLIC(VA),DISP=SHR
147. //FT12F001 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IL),DISP=SHR
148. //          DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(VA),DISP=SHR
149. //FT13F001 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IL),DISP=SHR
150. //          DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=SHR
151. //FT14F001 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=SHR
152. // *
153. //STEPRUN2 EXEC PGM=TEST,REGION=700K
154. //STEPLIB DD DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
155. //FT04F001 DD DUMMY
156. //FT06F001 DD DUMMY
157. //FT07F001 DD DUMMY
158. //FT08F001 DD DISP=(NEW,PASS),DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
159. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
160. //FT09F001 DD *
161. * TITLE OF RUN
162. NUREG METH TEST 6/8
163. * (1)NUMBER OF YRS;(2)NUMBER OF REGIONS;(3)OPT7;(4)OPT8
164. 17 2 5 1
165. //FT10F001 DD DSN=CN6376.MI2.NUREG.PRIVATE(IL),DISP=SHR
166. //          DD DSN=CN6376.MI2.NUREG.PRIVATE(VA),DISP=SHR
167. //FT11F001 DD DSN=CN6376.MI2.NUREG.PUBLIC(IL),DISP=SHR
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168. // DD DSN=CN6376.MI2.NUREG.PUBLIC(VA),DISP=SHR
169. //FT12F001 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IL),DISP=SHR
170. // DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(VA),DISP=SHR
171. //FT13F001 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IL),DISP=SHR
172. // DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=SHR
173. //FT14F001 DD DSN=&&TEMP85,DISP=(OLD,DELETE)
174. //*
175. //STEPRUN3 EXEC PGM=TEST,REGION=700K
176. //STEPLIB DD DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
177. //FT04F001 DD DUMMY
178. //FT06F001 DD DUMMY
179. //FT07F001 DD DUMMY
180. //FT08F001 DD DISP=(NEW,PASS),DSN=&&TEMP90SR,SPACE=(TRK,(1,1)),
181. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
182. //FT09F001 DD *
183. * TITLE OF RUN
184. NUREG METH TEST 6/8
185. * (1)NUMBER OF YRS;(2)NUMBER OF REGIONS;(3)OPT7;(4)OPT8
186. 17 2 5 1
187. //FT10F001 DD DSN=CN6376.MI2.NUREG.PRIVATE(IL),DISP=SHR
188. // DD DSN=CN6376.MI2.NUREG.PRIVATE(VA),DISP=SHR
189. //FT11F001 DD DSN=CN6376.MI2.NUREG.PUBLIC(IL),DISP=SHR
190. // DD DSN=CN6376.MI2.NUREG.PUBLIC(VA),DISP=SHR
191. //FT12F001 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IL),DISP=SHR
192. // DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(VA),DISP=SHR
193. //FT13F001 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IL),DISP=SHR
194. // DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=SHR
195. //FT14F001 DD DSN=&&TEMP90,DISP=(OLD,DELETE)
196. //*
197. //STEPRUN4 EXEC PGM=TEST,REGION=700K
198. //STEPLIB DD DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
199. //FT04F001 DD DUMMY
200. //FT06F001 DD DUMMY
201. //FT07F001 DD DUMMY
202. //FT08F001 DD DISP=(NEW,PASS),DSN=&&TEMP95SR,SPACE=(TRK,(1,1)),
203. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
204. //FT09F001 DD *
205. * TITLE OF RUN
206. NUREG METH TEST 6/8
207. * (1)NUMBER OF YRS;(2)NUMBER OF REGIONS;(3)OPT7;(4)OPT8
208. 17 2 5 1
209. //FT10F001 DD DSN=CN6376.MI2.NUREG.PRIVATE(IL),DISP=SHR
210. // DD DSN=CN6376.MI2.NUREG.PRIVATE(VA),DISP=SHR
211. //FT11F001 DD DSN=CN6376.MI2.NUREG.PUBLIC(IL),DISP=SHR
212. // DD DSN=CN6376.MI2.NUREG.PUBLIC(VA),DISP=SHR
213. //FT12F001 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IL),DISP=SHR
214. // DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(VA),DISP=SHR
215. //FT13F001 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IL),DISP=SHR
216. // DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=SHR
217. //FT14F001 DD DSN=&&TEMP95,DISP=(OLD,DELETE)
218. //*
219. //STEPRUN5 EXEC PGM=TEST,REGION=700K
220. //STEPLIB DD DSN=CN6376.MI2.NUFS.LOAD,DISP=SHR
221. //FT04F001 DD DUMMY
222. //FT06F001 DD DUMMY
223. //FT07F001 DD DUMMY
```

```

224. //FT08F001 DD DISP=(NEW,PASS),DSN=&&TEMPALSR,SPACE=(TRK,(1,1)),
225. //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160,DSORG=PS),UNIT=DASD
226. //FT09F001 DD *
227. * TITLE OF RUN
228. NUREG METH TEST 6/8
229. * (1)NUMBER OF YRS;(2)NUMBER OF REGIONS;(3)OPT7;(4)OPT8
230. 17 2 5 1
231. //FT10F001 DD DSN=CN6376.MI2.NUREG.PRIVATE(IL),DISP=SHR
232. //          DD DSN=CN6376.MI2.NUREG.PRIVATE(VA),DISP=SHR
233. //FT11F001 DD DSN=CN6376.MI2.NUREG.PUBLIC(IL),DISP=SHR
234. //          DD DSN=CN6376.MI2.NUREG.PUBLIC(VA),DISP=SHR
235. //FT12F001 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IL),DISP=SHR
236. //          DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(VA),DISP=SHR
237. //FT13F001 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IL),DISP=SHR
238. //          DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=SHR
239. //FT14F001 DD DSN=&&TEMPALL,DISP=(OLD,DELETE)
240. //*
241. //STEP2 EXEC FORTGCG
242. //FORT.SYSIN DD *
243. C THIS PROGRAM CALCULATES THE SENSITIVITY OF PARAMETERS TO CHANGES IN CAPITAL
244. C COSTS
245.     DIMENSION DELCAP(5),BASE(4,25),ALTER(4,25),DELTA(4,4,25),
246.     1 TARGET(4),ELAS(4,4,25),TOTCAP(5),WGTPEN(4,25)
247. C***FIRST READ IN TEMPORARY FILES CREATED FROM FIRST STEP.
248.     DOUBLE PRECISION NAME1(4)
249.     DATA NAME1/'INT COV','AFUDC %','RT ON EQ','EXT FINX'/
250.     READ(8,*) NREG
251.     WRITE(20,1) NREG
252.     DO 300 K1=1,NREG
253.     READ(8,50) NAME
254. 50    FORMAT(A2)
255.     READ(8,*) RATE
256.     READ(8,*) NYRS1,NYRS2
257.     READ(8,*) TARGET
258.     NYRS=NYRS2-NYRS1+1
259.     DO 230 I=1,4
260. 230    READ(8,15) (WGTPEN(I,J),J=1,NYRS)
261.     READ(8,*) NOSPAN
262.     READ(8,*) (DELCAP(I),I=1,NOSPAN),(TOTCAP(I),I=1,NOSPAN)
263. C***NOW PARAMETERS ARE READ IN AND DERIVATIVES ARE CALCULATED.
264.     NOSPAN=NOSPAN+1
265.     ITEMP=NOSPAN+1
266.     DO 25 L=1,6
267.     DO 25 I=1,ITEMP
268.     IFILE=I+9
269. 25    READ(IFILE,26) TEMP
270. 26    FORMAT(2A4)
271.     READ(10,*) (IYEAR,(BASE(J,K),J=1,4),K=1,NYRS2)
272.     WRITE(6,120) ((BASE(J,K),J=1,4),K=1,NYRS2)
273.     DO 10 I=1,NOSPAN
274.     IFILE=I+10
275.     READ(IFILE,*) (IYEAR,(ALTER(J,K),J=1,4),K=1,NYRS2)
276.     WRITE(6,120) ((ALTER(J,K),J=1,4),K=1,NYRS2)
277.     DO 20 J=1,4
278.     DO 30 K=1,NYRS2
279.     DELTA(I,J,K)=(ALTER(J,K)-BASE(J,K))/(RATE*(-1.0))

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280.      ELAS(I,J,K)=0.0
281.      IF (BASE(J,K) .EQ. 0.0) GO TO 30
282.      ELAS(I,J,K)=((ALTER(J,K)-BASE(J,K))/BASE(J,K))/
283.      *      (RATE*(-1.0))
284. 30    CONTINUE
285. 20    CONTINUE
286. 10    CONTINUE
287.  C WRITE OUT DELTA FILE FOR THE LP
288.      WRITE(20,2) K1,NAME
289.      NYRS=NYRS2-NYRS1+1
290.      WRITE(20,3) NYRS
291.      NOSPN=NOSPN-1
292.      WRITE(20,4) NOSPN
293.      WRITE(20,5) TARGET
294.      DO 80 J=1,4
295.      WRITE(20,9) NAME1(J)
296. 80    WRITE(20,15) (WGTPEN(J,K),K=1,NYRS)
297.      DO 90 J=1,4
298.      WRITE(20,13) NAME1(J)
299. 90    WRITE(20,15) (BASE(J,K),K=NYRS1,NYRS2)
300.      DO 100 J=1,4
301.      WRITE(20,11) NAME1(J)
302.      DO 100 K=NYRS1,NYRS2
303.      WRITE(20,120) (DELTA(I,J,K),I=1,NOSPN)
304. 100   CONTINUE
305.      WRITE(20,6) (TOTCAP(I),I=1,NOSPN)
306.      DO 200 J=1,4
307.      WRITE(21,12) NAME1(J),K1
308.      DO 200 K=NYRS1,NYRS2
309.      TOTAL=0.0
310.      DO 210 I=1,3
311. 210   TOTAL=ELAS(I,J,K)+TOTAL
312.      RATIO=0.0
313.      IF (ELAS(4,J,K) .EQ. 0.0) GO TO 220
314.      RATIO=TOTAL/ELAS(4,J,K)
315. 220   WRITE(21,130) (ELAS(I,J,K),I=1,NOSPN),RATIO
316. 200   CONTINUE
317. 300   CONTINUE
318. 1     FORMAT('NUMBER OF INFEASIBLE REGIONS'/I2)
319. 2     FORMAT('TITLE OF INFEASIBLE REGION #',I2/A2)
320. 3     FORMAT('NUMBER OF YEARS DERIVATIVES ARE CALCULATED'/I2)
321. 4     FORMAT('NUMBER OF YEARS NCM SOLVES FOR'/I2)
322. 5     FORMAT('BOUNDS FOR INT COV,AFUDC %,RT ON EQ, AND EXT FIN %'/
323.  * 4(F10.4,1X))
324. 6     FORMAT('TOTAL CAPITAL EXPENDITURES FOR EACH SOLUTION'/
325.  * 4(E12.6,1X))
326. 9     FORMAT(A8,'PENALTY WEIGHTS FOR NOT MEETING CONSTRAINTS')
327. 11    FORMAT(A8,' DERIVATIVES')
328. 12    FORMAT(A8,' ELASTICITIES FOR REGION # ',I2)
329. 13    FORMAT(A8,' BASE CASE VALUES')
330. 14    FORMAT(/(4(E10.4,1X)))
331. 15    FORMAT(7(E10.4,1X))
332. 120   FORMAT(4(E10.4,1X))
333. 130   FORMAT(5(F10.4,1X))
334.      STOP
335.      END

```

336. //GO.FT06F001 DD DUMMY
337. //GO.FT08F001 DD DISP=(OLD,DELETE),DSN=*&DELCAP
338. //GO.FT10F001 DD DSN=*&TEMPBSSR,DISP=(OLD,DELETE)
339. //GO.FT11F001 DD DISP=(OLD,DELETE),DSN=*&TEMP85SR
340. //GO.FT12F001 DD DISP=(OLD,DELETE),DSN=*&TEMP90SR
341. //GO.FT13F001 DD DISP=(OLD,DELETE);DSN=*&TEMP95SR
342. //GO.FT14F001 DD DISP=(OLD,DELETE),DSN=*&TEMPALSR
343. //GO.FT20F001 DD SYSOUT=A
344. //GO.FT21F001 DD SYSOUT=A

4.0 THE CAPACITY ADDITIONS ADJUSTMENT PROGRAM

This program finds the changes in capital additions that are required to make the NCM solutions financially feasible. It solves region by region and writes files that are read by the NCM revise programs. These files contain upper bounds on the aggregate capital additions for each region under consideration. There are two output files: a file for the 1985 revise, and a file for the 1990/1995 revise. Data from FSP are read from unit 20. The code links to a load library that contains the linear programming package XMP.

Figure 3 shows the organization of the program.

FIGURE 3

The main program controls the flow of the program and outputs the files to be read by NCM's revise programs. Subroutine INPUT is called to read the data passed by FSP. These data include initial and target values for the financial parameters. The partial derivatives of the financial parameters with respect to changes in capital outlays, and the names of the regions under consideration.

For each region, subroutine MATGEN is called to create a matrix file. Subroutine IUSER is called to solve the linear programming problem LPOUT, which is called by IUSER, extracts the solution data. The main program calculates the new capital bounds and outputs these numbers.

A listing of the program now follows.

```

1. C*****THIS PROGRAM IS THE MATRIX GENERATOR FOR THE STEP THAT DETERMINES
2. C   A FEASIBLE SET OF CAPITAL BOUNDS.  IRA SHAVEL, ICF, INC.
3. C
4.   REAL*4 REGNAM
5.   REAL*4 D,OLDPAR,TARGET
6.   COMMON /LPDATA/ REGNAM,D(4,4,21),NYR1,NYR2,OLDPAR(4,21),TARGET(4),
7.   + BND(4),ESC(4),WEIGHT(4),PENAL(4,21),BASE(4),NUMREG
8.   REAL*4 REGNAM
9. C
10.  REAL*8 MEMORY(9000 )
11.  REAL*8 TMAX,OBJECT
12.  REAL*4 VAL(9000),ALAM(100),NEW85,NEW90,NEW95,DEL85,DEL90,DEL95
13.  DATA OBJECT/'OBJ'/
14.  DATA TMAX/-1.D0/
15.  IPASS=0
16.  IF85=85
17.  IF90=90
18.  IF95=91
19.  WRITE(IF85,1) NUMREG
20.  WRITE(IF85,2)
21.  WRITE(IF90,3) NUMREG
22.  WRITE(IF90,4)
23.  WRITE(IF95,5) NUMREG
24.  WRITE(IF95,6)
25.  KFILE=99
26.  DO 100 LL=1,NUMREG
27.  REWIND 5
28.  CALL INPUT(IPASS)
29.  CALL MATGEN
30.  REWIND 5
31.  CALL IUSER(VAL,ALAM,OBJECT,TMAX,MEMORY)
32.  DEL85=-VAL(1)+VAL(4)
33.  DEL90=-VAL(2)+VAL(5)
34.  DEL95=-VAL(3)+VAL(6)
35.  NEW85=(1.-DEL85)*BASE(1) /1000.
36.  NEW90=NEW85+(1.-DEL90)*BASE(2)/1000.
37.  NEW95=NEW90+(1.-DEL95)*BASE(3)/1000.
38.  WRITE(IF85,7) REGNAM,NEW85
39.  WRITE(IF90,7) REGNAM,NEW90
40.  WRITE(IF95,7) REGNAM,NEW95
41. 100 CONTINUE
42. 1 FORMAT(I2,'01TABLE CAPBD ')
43. 2 FORMAT('          *          CPBD85')
44. 3 FORMAT(I2,'01TABLE CAPBD90')
45. 4 FORMAT('          *          CPBD90')
46. 5 FORMAT(I2,'01TABLE CAPBD95')
47. 6 FORMAT('          *          CPBD95')
48. 7 FORMAT(9X,A4,4X,F10.3)
49.  STOP
50.  END
51.  SUBROUTINE MATGEN
52. C*****THIS ROUTINE WRITES OUT THE MATRIX
53. C
54.  REAL*4 D,OLDPAR,TARGET
55.  COMMON /LPDATA/ REGNAM,D(4,4,21),NYR1,NYR2,OLDPAR(4,21),TARGET(4),

```

```

56.      + BND(4),ESC(4),WEIGHT(4),PENAL(4,21),BASE(4),NUMREG
57.      REAL*4 REGNAM
58.      DIMENSION RTYPE(4),RNAME(5),CNAME(4)
59.      DIMENSION CHAR(3)
60.      DIMENSION CHAR1(19)
61.      DATA RTYPE/'N','E','L','G'/
62.      DATA RNAME/'I','A','R','E','B'/
63.      DATA CNAME/'P','M','C','S'/
64.      DATA CHAR/'85','90','95'/
65.      DATA CHAR1/'81','82','83','84','85','86','87','88',
66.      X '89','90','91','92','93','94','95','96','97','100','101'/
67. C*** INITIALZE WEIGHT AND ESC
68. C
69.      DO 100 I=1,4
70.      WEIGHT(I)=.01
71.      ESC(I)=1.0
72.      100 CONTINUE
73. C*****BEGIN WRITING-FIRST THE HEADING AND ROW SECTION
74.      WRITE(5,11) REGNAM
75.      WRITE(5,12)
76.      RT=RTYPE(1)
77.      WRITE(5,13)RT
78.      RT=RTYPE(2)
79.      RN=RNAME(5)
80.      DO 201 I=1,NYR2
81.      WRITE(5,14) RT,RN,CHAR(I)
82.      201 CONTINUE
83.      RT=RTYPE(3)
84.      RN=RNAME(2)
85.      DO 202 I=1,NYR1
86.      WRITE(5,14) RT,RN,CHAR1(I)
87.      202 CONTINUE
88.      RN=RNAME(4)
89.      DO 203 I=1,NYR1
90.      WRITE(5,14) RT,RN,CHAR1(I)
91.      203 CONTINUE
92.      RT=RTYPE(4)
93.      RN=RNAME(1)
94.      DO 204 I=1,NYR1
95.      WRITE(5,14) RT,RN,CHAR1(I)
96.      204 CONTINUE
97.      RN=RNAME(3)
98.      DO 205 I=1,NYR1
99.      WRITE(5,14) RT,RN,CHAR1(I)
100.     205 CONTINUE
101. C*****COLUMNS NEXT
102.     WRITE(5,15)
103.     RN=RNAME(5)
104.     CN=CNAME(1)
105.     VALUE1=-1.
106.     DO 301 I=1,NYR2
107.     VALUE=+ESC(I)
108.     WRITE(5,16) CN,CHAR(I),VALUE
109.     WRITE(5,28) CN,CHAR(I),RN,CHAR(I),VALUE1
110.     301 CONTINUE
111.     RN=RNAME(5)

```

```

112.      CN=CNAME(2)
113.      VALUE1=1.
114.      DO 302 I=1,NYR2
115.      VALUE=+ESC(I)*WEIGHT(I)
116.      WRITE(5,16) CN,CHAR(I),VALUE
117.      WRITE(5,28) CN,CHAR(I),RN,CHAR(I),VALUE1
118. 302 CONTINUE
119.      CN=CNAME(3)
120.      RN1=RNAME(5)
121.      VALUE1=1.
122.      DO 400 J=1,NYR2
123.      DO 401 II=1,4
124.      RN=RNAME(II)
125.      IF(II.NE.1) GO TO 402
126.      WRITE(5,28) CN,CHAR(J),RN1,CHAR(J),VALUE1
127. 402 DO 403 I=1,NYR1
128.      VALUE=D(II,J,I)
129.      WRITE(5,28) CN,CHAR(J),RN,CHAR1(I),VALUE
130. 403 CONTINUE
131. 401 CONTINUE
132. 400 CONTINUE
133.      VALUE1=-1.
134.      VALUE2=+1.
135.      DO 1402 I=2,4,2
136.      DO 1402 J=1,NYR1
137.      VALUE=PENAL(I,J)
138.      WRITE(5,46) CNAME(4),RNAME(I),CHAR1(J),VALUE
139.      WRITE(5,47) CNAME(4),RNAME(I),CHAR1(J),RNAME(I),CHAR1(J),VALUE1
140. 1402 CONTINUE
141.      DO 1403 I=1,3,2
142.      DO 1403 J=1,NYR1
143.      VALUE=PENAL(I,J)
144.      WRITE(5,46) CNAME(4),RNAME(I),CHAR1(J),VALUE
145.      WRITE(5,47) CNAME(4),RNAME(I),CHAR1(J),RNAME(I),CHAR1(J),VALUE2
146. 1403 CONTINUE
147. C*****NOW THE RHS SECTION
148.      WRITE(5,18)
149.      DO 500 I=1,4
150.      RN=RNAME(I)
151.      DO 501 J=1,NYR1
152.      VALUE=TARGET(I)-OLDPAR(I,J)
153.      WRITE(5,36) RN,CHAR1(J),VALUE
154. 501 CONTINUE
155. 500 CONTINUE
156. C*****BOUNDS SECTION**
157.      WRITE(5,20)
158.      CN=CNAME(3)
159.      DO 600 I=1,NYR2
160.      BND(I)=-1.
161.      WRITE(5,33) CN,CHAR(I),BND(I)
162. 600 CONTINUE
163.      WRITE(5,22)
164.      WRITE(5,23)
165. 11 FORMAT(4HNAME,10X,2A4)
166. 12 FORMAT(4HROWS)
167. 13 FORMAT(2X,A1,1X,3HOBJ)

```

```

168.      14 FORMAT(2X,A1,1X,A1,A2)
169.      15 FORMAT(7HCOLUMNS)
170.      16 FORMAT(4X,A1,A2,7X,3HOBJ,7X,F12.5)
171.      18 FORMAT(3HRHS)
172.      20 FORMAT(6HBOUNDS)
173.      22 FORMAT(6HENDATA)
174.      23 FORMAT(2H/*)
175.      28 FORMAT (4X,A1,A2,7X,A1,A2,7X,F12.5)
176.      33 FORMAT(1X,2HLO,1X,3HBD1,7X,A1,A2,7X,F12.2)
177.      36 FORMAT (4X,4HRHS1,6X,A1,A2,7X,F12.5)
178.      46 FORMAT(4X,A1,A1,A2,6X,3HOBJ,7X,F12.5)
179.      47 FORMAT (4X,A1,A1,A2,6X,A1,A2,7X,F12.5)
180.      RETURN
181.      END
182.      SUBROUTINE INPUT(IPASS)
183. C*****THIS ROUTINE READS DATA FROM UNIT 20.
184.      REAL*4 D,OLDPAR,TARGET
185.      COMMON /LPDATA/ REGNAM,D(4,4,21),NYR1,NYR2,OLDPAR(4,21),TARGET(4),
186. + BND(4),ESC(4),WEIGHT(4),PENAL(4,21),BASE(4),NUMREG
187.      REAL*4 REGNAM
188.      IF(IPASS.GT.0) GO TO 25
189.      READ(20,2) NUMREG
190. 25 CONTINUE
191.      READ(20,1)  REGNAM
192.      READ(20,2) NYR1
193.      READ(20,2) NYR2
194.      READ(20,3)(TARGET(I),I=1,4)
195.      DO 50 I=1,4
196.      READ(20,5)
197.      READ(20,13) (PENAL(I,J),J=1,NYR1)
198. 50 CONTINUE
199.      DO 100 I=1,4
200.      READ(20,5)
201.      READ(20,13) (OLDPAR(I,J),J=1,NYR1)
202. 100 CONTINUE
203.      DO 150 II=1,4
204.      READ(20,5)
205.      DO 200 I=1,NYR1
206.      READ(20,4) (D(II,J,I),J=1,NYR2)
207. 200 CONTINUE
208. 150 CONTINUE
209.      READ(20,6) (BASE(I),I=1,NYR2)
210.      1 FORMAT(/A4)
211.      2 FORMAT(/I2)
212.      3 FORMAT(/7(E10.4,1X))
213.      13 FORMAT( 7(E10.4,1X))
214.      4 FORMAT(4(E10.4,1X))
215.      5 FORMAT(A1)
216.      6 FORMAT(/4(E12.6,1X))
217.      IPASS=IPASS+1
218.      RETURN
219.      END
220.      SUBROUTINE IUSER(VAL,ALAM,OBJECT,TMAX,MEMORY)
221. C*****THIS ROUTINE SOLVES THE LP. IT CALLS THE XMP ROUTINES
222. C      AND LPOUT.
223. C

```



```

224.      DOUBLE PRECISION B(100),BASCB(100),BASLB(100),BASUB(100),
225.      X BETAR(100),BOUND,CANDA(90,6),CANDCJ(6),CJ,COLA(90),
226.      X LJ,MEMORY(1),UJ,UZERO(100),XBZERO(100),YQ(100),Z
227.      INTEGER BNDTYP,COLLEN,COLMAX,DFEASQ,DTERM,DUNBR,
228.      X FACTOR,IOERR,ILOG,ITER,
229.      X ITER1,ITER2,LENMA,LENMI,LENMY,LOOK,M,MAPA(90),
230.      X MAPI(90),MAXA,MAXM,MAXN,N,NTYPE2,P,PRINT,TERMIN,UNBDDQ
231.      INTEGER*2 CAND(6),CANDI(90,6),CANDL(6),
232.      X COLI(90),ROWTYP(100)
233.      COMMON/XMPCOM/BIG,SMALL,ZL,ZLC,EPS1,EPS2,EPS3,EPS4,EPS5,EPS6
234.      COMMON /XINTG2/ STATUS(2800),BASIS(100),ZS(2800),ZB(100)
235.      INTEGER*2 STATUS,BASIS ,ZB,ZS
236.      REAL*8 BIG,SMALL,ZL,ZLC,EPS1,EPS2,EPS3,EPS4,EPS5,EPS6
237.      REAL*8 ROWNAM(100),COLNAM(2800),OBJECT,TMAX
238.      COMMON/XINTG4/SLACKH,SLACKL,N,M
239.      INTEGER SLACKL,SLACKH
240.      REAL*4 VAL(1),ALAM(1)
241.      IOIN=5
242.      IOERR=6
243.      ILOG=6
244.      MAXA=5000
245.      MAXM=100
246.      MAXN=1000
247.      COLMAX=90
248.      P=6
249.      LOOK=200
250.      FACTOR=50
251.      LENMY=9000
252.      PRINT=1
253.      BNDTYP=4
254.      WRITE(6,9001)
255.      9001 FORMAT( ' IN IUSER' )
256.      C      IF(NPASS.GT.1) GO TO 691
257.      CALL XMAPS(BNDTYP,IOERR,LENMA,LENMI,LENMY,
258.      X MAPA,MAPI,MAXA,MAXM,MAXN,MEMORY)
259.      691 CALL MPSXIN(M,N,B,ROWTYP,COLMAX,LENMA,LENMY,MAPA,MEMORY
260.      X ,IOERR,BNDTYP,COLLEN,COLA,COLI,CJ,UJ,LJ
261.      X ,IOIN,OBJECT,ROWNAM,COLNAM,TMAX)
262.      SLACKL=N+1
263.      C      IF(NPASS.GT.1) GO TO 692
264.      DO 170 J=1,N
265.      170 STATUS(J)=0
266.      CALL XSLACK(B,BASCB,BASIS,BASLB,BASUB,BNDTYP,BOUND,
267.      X COLA,COLI,COLMAX,IOERR,
268.      X LENMA,LENMI,LENMY,M,MAPA,MAPI,MAXM,MAXN,MEMORY,
269.      X N,ROWTYP,STATUS,
270.      X UZERO,XBZERO,Z)
271.      SLACKH=N
272.      1000 CALL XPRIML(B,BASCB,BASIS,BASLB,BASUB,BNDTYP,BOUND,
273.      X CAND,CANDA,CANDCJ,CANDI,CANDL,
274.      X COLA,COLI,COLMAX,
275.      X FACTOR,IOERR,ILOG,ITER1,ITER2,
276.      X LENMA,LENMI,LENMY,LOOK,
277.      X M,MAPA,MAPI,MAXM,MAXN,MEMORY,
278.      X N,NTYPE2,P,PRINT,STATUS,TERMIN,UNBDDQ,
279.      X UZERO,XBZERO,YQ,Z)

```

```

280.      IOLOG=10
281.      WRITE(IOLOG,908) TERMIN ,M,N
282.      908 FORMAT(18H TERMINATION CODE=,I4,6H ROWS,I4,6H COLS,I4)
283.      CALL LPOUT(VAL,ALAM,BASIS,BNDTYP,BOUND,B,
284.      X IOERR,IOLOG,
285.      X LENMA,LENMY,M,MAPA,MAXM,MAXN,MEMORY,N,NTYPE2,
286.      X STATUS,XBZERO,Z,UZERO,ROWNAM,COLNAM,SLACKL,SLACKH,TMAX)
287.      CALL MPSXOT(BASIS,BNDTYP,BOUND,B,
288.      X IOERR,IOLOG,
289.      X LENMA,LENMY,M,MAPA,MAXM,MAXN,MEMORY,N,NTYPE2,
290.      X STATUS,XBZERO,Z,UZERO,ROWNAM,COLNAM,SLACKL,SLACKH,TMAX)
291.      IF(TERMIN.EQ.3) STOP
292.      RETURN
293.      END
294.      SUBROUTINE LPOUT(VAL,ALAM,BASIS,BNDTYP,BOUND,B,
295.      C*****THIS ROUTINE READS THE LP SOLUTION.
296.      C
297.      X IOERR,IOLOG,
298.      X LENMA,LENMY,M,MAPA,MAXM,MAXN,MEMORY,N,NTYPE2,
299.      X STATUS,XBZERO,Z,UZERO,ROWNAM,COLNAM,SLACKL,SLACKH,TMAX)
300.      INTEGER LENMA,LENMY,MAXM,MAXN
301.      DOUBLE PRECISION BOUND,MEMORY(1),XBZERO(1),Z,Z1
302.      REAL*8 UZERO(1),ROWNAM(1),COLNAM(1),B(1)
303.      REAL*8 TMAX,TZ
304.      INTEGER BNDTYP,IOERR,IOLOG,M,MAPA(1),N,NTYPE2
305.      INTEGER SLACKL,SLACKH
306.      INTEGER*2 BASIS(1),STATUS(1)
307.      DOUBLE PRECISION LJ,UJ,VALUE
308.      INTEGER IX,J
309.      REAL*4 VAL(1),ALAM(1)
310.      NUP=SLACKL-1
311.      Z1=Z/TMAX
312.      C WRITE(50,776) Z1
313.      776 FORMAT(' OPTIMAL OBJECTIVE VALUE= ',E14.6)
314.      DO 10 I=1,M
315.      10 ALAM(I)=UZERO(I)/TMAX
316.      C WRITE(5,777) (I,ALAM(I),I=1,M)
317.      777 FORMAT(' DUALS'/(5(I5,E14.6)))
318.      DO 280 J=1,NUP
319.      IF(STATUS(J))200,250,260
320.      200 IF(STATUS(J).EQ.-2 .OR. STATUS(J).EQ.-3)GO TO 230
321.      IF(STATUS(J).EQ.-4)GO TO 250
322.      IF(BNDTYP.LT.3)GO TO 210
323.      CALL XGETUB(BNDTYP,IOERR,J,LENMA,LENMY,LJ,MAPA,MEMORY,UJ)
324.      VAL(J)=UJ
325.      GO TO 280
326.      210 IF(BNDTYP.LT.2)GO TO 220
327.      IF(J.GT.NTYPE2)GO TO 220
328.      VAL(J)=BOUND
329.      GO TO 280
330.      220 WRITE(IOLOG,905) J
331.      905 FORMAT(16H ERROR: VARIABLE,I6,16H IS AT ITS UPPER,
332.      X 20H BOUND OF +INFINITY.)
333.      GO TO 280
334.      230 DO 240 I=1,M
335.      IF(BASIS(I) .NE. J)GO TO 240

```

```
336.      VAL(J)=XBZERO(I)
337.      GO TO 280
338. 240 CONTINUE
339.      GO TO 280
340. 250 IF(BNDTYP .NE. 4)GO TO 280
341.      CALL XGETUB(BNDTYP,IOERR,J,LENMA,LENMY,LJ,MAPA,MEMORY,UJ)
342.      VAL(J)=LJ
343.      GO TO 280
344. 260 IX=STATUS(J)
345.      VAL(J)=XBZERO(IX)
346.      IF(VAL(J) .EQ. 0.0)GO TO 280
347. 280 CONTINUE
348. C      WRITE(50,778) (I,VAL(I),I=1,NUP)
349. 778 FORMAT(' VARS'/(5(I5,E14.6)))
350.      ITERMC=TERMIN
351.      RETURN
352.      END
```

5.0 NUREG.FORM1.FORT

NUFS requires historical base year financial statement information for each NCM region. To provide this input for private utilities, NUREG.FORM1.FORT has been created. The primary input is a data tape which contains the base year financial statements for every private utility. This tape is produced annually by the Energy Information Administration. The program aggregates the data for all utilities in a given region and creates a file for each NCM region containing the results. It is very similar in structure to programs created to aggregate data to the MEFS/DOE regions.* The aggregation technique is discussed in Appendix A of Volume 1.

The program consists of a main routine and one subroutine entitled FORM1. The main subroutine reads the tape and aggregates the financial accounts to NCM regions. Subroutine FORM1 then calculates ratios and creates files containing the results for NUFs. The remainder of the program is a series of job steps which create a partitioned data set containing the data sets for NUFs. A listing now follows.

* The user is referred to the user's guide for NUFs for additional information on running this program.

```
1. //MIZUFORM JOB (6376,D02,,999),'FORM1',TIME=(1,30),MSGCLASS=A
2. //FPC EXEC FORTGCG,REGION=900K
3. //FORT.SYSIN DD *
4.     DIMENSION ISTATE(60),INFO(300),IEXCP(110),IREGS(110,4),
5.     * PERCEN(110,4),NOREG(110)
6.     DOUBLE PRECISION AMNT,AMNT1,AMOUNT(45,300),AMNT2(300)
7.     REAL*4 ACODE,JTYP,KTYP,LTYP,MTYP,NTYP,OTYP,PTYP,QTYP,
8.     * RTYP,RBKTYP,NOTYP,N1TYP,N2TYP,N3TYP,N4TYP,N5TYP,N6TYP,
9.     * N7TYP,N8TYP,N9TYP
10.    DATA JTYP/'J'/
11.    DATA KTYP/'K'/
12.    DATA LTYP/'L'/
13.    DATA MTYP/'M'/
14.    DATA NTYP/'N'/
15.    DATA OTYP/'O'/
16.    DATA PTYP/'P'/
17.    DATA QTYP/'Q'/
18.    DATA RTYP/'R'/
19. C   DATA RBKTYP/'3'/
20.    DATA NOTYP/'0'/
21.    DATA N1TYP/'1'/
22.    DATA N2TYP/'2'/
23.    DATA N3TYP/'3'/
24.    DATA N4TYP/'4'/
25.    DATA N5TYP/'5'/
26.    DATA N6TYP/'6'/
27.    DATA N7TYP/'7'/
28.    DATA N8TYP/'8'/
29.    DATA N9TYP/'9'/
30. C***NUREG.FORM1.FORT. THIS PROGRAM READS DATA FROM THE FORM 1 TAPE AND
31. C***WRITES OUT DATA NEEDED FOR THE NATIONAL UTILITY REGULATORY
32. C***MODEL (NUREG).
33. C***
34. C***WRITTEN BY MARK R. INGLIS, ICF INC. DEC 31,1980
35. C***
36. C***FIRST, A USER SUPPLIED INPUT FILE IS READ. THIS FILE CONTAINS STATE
37. C***AND ACCOUNT CODES.
38. C***** NSTATE=# OF STATES
39. C***** NINFO= # OF ACCOUNTS TO BE ADDED OVER REGIONS
40. C***** ISTATE(I)=DOE REGION THAT STATE I IS IN
41. C***** INFO(I)= 6 DIGIT ACCOUNT CODE
42. C***** NEXCP=# OF UTILITIES WHICH ARE SPLIT ACROSS REGIONS
43. C***** IEXCP= ID # OF SPLIT UTILITY
44. C***** NOREG= # OF NCM REGIONS WHICH UTILITY SPLITS ACROSS
45. C***** (IREGS(I,J),J=1,NOREG(I))= THE CODES OF THE REGIONS WHICH
46. C***** SPLIT THE UTILITY.
47. C***** (PERCEN(I,J),J=1,NOREG(I))= THE % SPLITS CORRESPONDING TO
48. C***** IREGS REGIONS.
49.     READ(9,*)NSTATE
50.     DO 77 J=1,NSTATE
51. 77   READ(9,*) I,ISTATE(I)
52.     READ(9,*) NINFO
53.     DO 88 I=1,NINFO
54. 88   READ (9,802) INFO(I)
55.     802 FORMAT(I6)
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56.      READ(9,*) NEXCP
57.      DO 78 I=1,NEXCP
58.      READ(9,*) IEXCP(I),J,(IREGS(I,K),PERCEN(I,K),K=1,J)
59.      78   NOREG(I)=J
60.      C***INITIALIZE AMOUNT, THE MATRIX WHICH CONTAINS TOTALS FOR EACH REGION
61.      C***IE., AMOUNT(J,I)=AMOUNT OF ACCOUNT I SUMMED OVER ALL UTILITIES IN
62.      C***REGION J. (REGION 45 = NATION)
63.      DO 91 J=1,45
64.      DO 91 I=1,300
65.      91   AMOUNT(J,I)=0.0
66.      IDPAST=0
67.      C***NOW THE FORM 1 TAPE IS READ. EACH RECORD CONTAINS THE TOTAL FOR
68.      C***FOR THE GIVEN ACCOUNT FOR THE GIVEN UTILITY. IF THE RECORD CONTAINS
69.      C***AN ACCOUNT WHICH WAS READ INTO INFO(I), THEN THE TOTAL IS ADDED IN
70.      C***TO THE PROPER REGION. IF NOT, THE NEXT RECORD IS READ.
71.      C*****JSTATE = STATE CODE
72.      C*****JUTIL=UTILITY CODE
73.      C*****JINFO = ACCOUNT CODE
74.      C
75.      3020 READ(8,1001,END=3030) JSTATE,JUTIL,JINFO,JAMNT1,JAMNT,ACODE
76.      1001 FORMAT(I2,I4,I6,I1,I6,I5,A1)
77.      50   DO 60 ICOUNT=1,NINFO
78.      IF(JINFO.LE.INFO(ICOUNT)) GO TO 70
79.      60   CONTINUE
80.      70   IF (JINFO.NE. INFO(ICOUNT)) GO TO 3020
81.      C***IT MUST BE DETERMINED WHAT NCM REGION THE INFORMATION IS RELEVANT TO.
82.      ID=JSTATE*10000+JUTIL
83.      C***FIRST, A CHECK IS MADE TO SEE IF IT IS THE SAME AS THE PREVIOUSLY READ
84.      C***RECORD.
85.      IF (ID .EQ. IDPAST) GO TO 65
86.      C***IF NOT, A CHECK IS MADE TO SEE IF IT IS A SPLIT UTILITY. IN THIS CASE,
87.      C***JEXCP IS POINTED TO ITS POSITION IN IEXCP.
88.      DO 401 I=1,NEXCP
89.      IF (ID .LE. IEXCP(I)) GO TO 402
90.      401   CONTINUE
91.      402   IF (ID .NE. IEXCP(I)) GO TO 403
92.      JEXCP=I
93.      GO TO 55
94.      C***IF IT IS NOT A SPLIT THEN IT SHOULD BE ASSIGNED ACCORDING TO ITS STATE
95.      C***CODE. IF ITS STATE CODE IS ZERO, THEN IT MEANS THAT IT IS NOT IN
96.      C***ANY NCM REGION (PUERTO RICO, ETC.).
97.      403   IF (ISTATE(JSTATE) .EQ. 0) GO TO 3100
98.      JEXCP=0
99.      JREG=ISTATE(JSTATE)
100.      55   IFAIL=0
101.      IDPAST=ID
102.      C***THE TOTAL FOR THE ACCOUNT IS WRITTEN IN 'CODE', SOMETIMES CONTAINING
103.      C***LETTERS. THIS NEXT SECTION CONVERTS THE ACCOUNT INTO A REAL NUMBER.
104.      C
105.      65   IF (IFAIL .EQ. 1) GO TO 3020
106.      IF(ACODE.EQ.JTYP) GO TO 100
107.      IF(ACODE.EQ.KTYP) GO TO 101
108.      IF(ACODE.EQ.LTYP) GO TO 102
109.      IF(ACODE.EQ.MTYP) GO TO 103
110.      IF(ACODE.EQ.NTYP) GO TO 104
111.      IF(ACODE.EQ.OTYP) GO TO 105

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112.      IF(ACODE.EQ.PTYP) GO TO 106
113.      IF(ACODE.EQ.QTYP) GO TO 107
114.      IF(ACODE.EQ.RTYP) GO TO 108
115.      C      IF(ACODE.EQ.RBKTYT) GO TO 109
116.      IF(ACODE.EQ.NOTYP) GO TO 110
117.      IF(ACODE.EQ.N1TYP) GO TO 111
118.      IF(ACODE.EQ.N2TYP) GO TO 112
119.      IF(ACODE.EQ.N3TYP) GO TO 113
120.      IF(ACODE.EQ.N4TYP) GO TO 114
121.      IF(ACODE.EQ.N5TYP) GO TO 115
122.      IF(ACODE.EQ.N6TYP) GO TO 116
123.      IF(ACODE.EQ.N7TYP) GO TO 117
124.      IF(ACODE.EQ.N8TYP) GO TO 118
125.      IF(ACODE.EQ.N9TYP) GO TO 119
126.      GO TO 109
127.      C
128.      100  JAMNT=-10*JAMNT-1
129.      GO TO 900
130.      101  JAMNT=-10*JAMNT-2
131.      GO TO 900
132.      102  JAMNT=-10*JAMNT-3
133.      GO TO 900
134.      103  JAMNT=-10*JAMNT-4
135.      GO TO 900
136.      104  JAMNT=-10*JAMNT-5
137.      GO TO 900
138.      105  JAMNT=-10*JAMNT-6
139.      GO TO 900
140.      106  JAMNT=-10*JAMNT-7
141.      GO TO 900
142.      107  JAMNT=-10*JAMNT-8
143.      GO TO 900
144.      108  JAMNT=-10*JAMNT-9
145.      GO TO 900
146.      109  JAMNT=-10*JAMNT
147.      GO TO 900
148.      110  JAMNT=10*JAMNT
149.      GO TO 900
150.      111  JAMNT=10*JAMNT+1
151.      GO TO 900
152.      112  JAMNT=10*JAMNT+2
153.      GO TO 900
154.      113  JAMNT=10*JAMNT+3
155.      GO TO 900
156.      114  JAMNT=10*JAMNT+4
157.      GO TO 900
158.      115  JAMNT=10*JAMNT+5
159.      GO TO 900
160.      116  JAMNT=10*JAMNT+6
161.      GO TO 900
162.      117  JAMNT=10*JAMNT+7
163.      GO TO 900
164.      118  JAMNT=10*JAMNT+8
165.      GO TO 900
166.      119  JAMNT=10*JAMNT+9
167.      GO TO 900
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168. C
169. 900 AMNT=FLOAT(JAMNT)
170. IF(JAMNT1.EQ.0) GO TO 6010
171. AMNT1=FLOAT(JAMNT1)
172. AMNT=AMNT+AMNT1*10.0**6
173. 6010 CONTINUE
174. C***THE CONVERTED AMOUNT IS NOW ADDED INTO THE PROPER REGION, AND THE
175. C***NEXT RECORD IS READ
176. IF (JEXCP .NE. 0) GO TO 40
177. AMOUNT(JREG,ICOUNT)=AMOUNT(JREG,ICOUNT)+AMNT
178. GO TO 35
179. 40 J=NOREG(JEXCP)
180. DO 45 JREG=1,J
181. 45 AMOUNT(IREGS(JEXCP,JREG),ICOUNT)=AMOUNT(IREGS(JEXCP,JREG),ICOUNT)
182. * +PERCEN(JEXCP,JREG)*AMNT
183. 35 AMOUNT(45,ICOUNT)=AMOUNT(45,ICOUNT)+AMNT
184. 30 CONTINUE
185. GO TO 3020
186. C***UTILITY NOT IN ANY REGION
187. 3100 IFAIL=1
188. IDPAST=ID
189. WRITE(6,3110) ID
190. 3110 FORMAT(' ERROR IN UTILITY:',I6)
191. GO TO 3020
192. 3030 CONTINUE
193. C
194. C***AFTER THE WHOLE TAPE HAS BEEN READ, SUBROUTINE FORM1 IS CALLED FOR
195. C***EACH REGION. THIS SUBROUTINE WRITES OUT THE DATA NECESSARY FOR THE
196. C***NUFS MODEL.
197. DO 950 IREG=1,45
198. DO 940 I=1,NINFO
199. 940 AMNT2(I)=AMOUNT(IREG,I)
200. CALL FORM1(IREG,AMNT2)
201. 950 CONTINUE
202. 5000 STOP
203. END
204. SUBROUTINE FORM1(IREG,AMOUNT)
205. C
206. C*****
207. C* *
208. C* SUBROUTINE FORM1 *
209. C* THIS SUBROUTINE TAKES THE TOTALS FROM THE MAIN *
210. C* PROGRAM FOR EACH REGION AND WRITES OUT FILES CON-*
211. C* TAINING THE DATA NEEDED BY NUFS. IT ALSO PRINTS *
212. C* OUT VARIOUS QUANTITIES OF INTEREST TO UNIT 6. *
213. C* (UNIT 6=LINE PRINTER) *
214. C*****
215. C
216. C
217. DOUBLE PRECISION FM1BS(83),FM1IS(56),FM1SU(47)
218. DOUBLE PRECISION FM1EPS(10),FM1DEP(11),FM1FUL(3)
219. DOUBLE PRECISION FM1PIS(2),AMOUNT(300)
220. DOUBLE PRECISION TEMP5,TEMP6,EPPOR
221. DIMENSION ZA1(10)
222. GTXRT=0
223. RTBSBN=0

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224.      RTPEQ=0
225.      C***FIRST, PUT DATA INTO MATRICES BY SCHEDULE:
226.      C***          FM1BS=BALANCE SHEET
227.      C***          FM1IS=INCOME SHEET
228.      C***          FM1SU=SOURCES AND USES
229.      C***          FM1EPS=ELECTRIC PLANT IN SERVICE
230.      C***          ETC.
231.      ICOUNT=0
232.      DO 100 I=1,83
233.      ICOUNT=ICOUNT+1
234.      100  FM1BS(I)=AMOUNT(ICOUNT)/1000000.
235.      DO 160 I=1,2
236.      ICOUNT=ICOUNT+1
237.      160  FM1PIS(I)=AMOUNT(ICOUNT)/1000000.
238.      DO 110 I=1,56
239.      ICOUNT=ICOUNT+1
240.      110  FM1IS(I)=AMOUNT(ICOUNT)/1000000.
241.      DO 130 I=1,10
242.      ICOUNT=ICOUNT+1
243.      130  FM1EPS(I)=AMOUNT(ICOUNT)/1000000.
244.      ICOUNT=ICOUNT+1
245.      SALES=AMOUNT(ICOUNT)/1.0E09
246.      DO 150 I=1,3
247.      ICOUNT=ICOUNT+1
248.      150  FM1FUL(I)=AMOUNT(ICOUNT)/1000000.
249.      DO 140 I=1,11
250.      ICOUNT=ICOUNT+1
251.      140  FM1DEP(I)=AMOUNT(ICOUNT)/1000000.
252.      ICOUNT=ICOUNT+1
253.      GENER=AMOUNT(ICOUNT)/1.0E09
254.      DO 120 I=1,47
255.      ICOUNT=ICOUNT+1
256.      120  FM1SU(I)=AMOUNT(ICOUNT)/1000000.
257.      C
258.      WRITE(6,11)IREG
259.      11  FORMAT(' THE TOTALS FOR REGION ',I2,':')
260.      C
261.      C*****NOW STRIP OFF RELEVANT AMOUNTS FOR NUFIS AND INTEREST. (IE. THIS
262.      C*****ROUTINE CAN BE MODIFIED TO PRINT OUT ANY ACCOUNT.)
263.      C
264.      WRITE(6,311)
265.      311  FORMAT(' THE VALUES FOR FM1EPS ARE:')
266.      DO 9011 J=1,10
267.      9011  WRITE(6,2015)FM1EPS(J)
268.      2015  FORMAT(5X,F10.2)
269.      ZA1(1)=FM1EPS(1)
270.      ZA1(2)=FM1EPS(2)
271.      ZA1(3)=FM1EPS(3)
272.      ZA1(4)=FM1EPS(4)
273.      ZA1(5)=0.0
274.      ZA1(6)=FM1EPS(5)
275.      ZA1(7)=FM1EPS(7)
276.      ZA1(8)=FM1EPS(8)
277.      ZA1(9)=FM1EPS(9)
278.      ZA1(10)=0.0
279.      WRITE(6,2014)
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280. 2014 FORMAT(' THE VALUES FOR ZA(I) ARE')
281.      DO 9015 J=1,10
282. 9015      WRITE(6,2015) ZA1(J)
283.      C
284. C***** FIND RELATIVE ERROR FOR ASSET TOTALS.
285.      C      RE1-RE3 = RELATIVE ERRORS
286.      C
287.          IF (FM1EPS(6).EQ.0.OR.FM1EPS(10).EQ.0.OR.FM1PIS(1).EQ.0)GO TO 1000
288.          TEMP5=0.0
289.          DO 9007 J=1,5
290. 9007      TEMP5=TEMP5+FM1EPS(J)
291.          C
292.          RE1=(FM1EPS(6)-TEMP5)/FM1EPS(6)
293.          WRITE(6,2000)RE1
294. 2000      FORMAT(' R.E. FOR FM1EPS(6) IS: ',F10.8)
295.          C
296.          TEMP6=0.0
297.          DO 9008 J=7,9
298. 9008      TEMP6=TEMP6+FM1EPS(J)
299.          TEMP6=TEMP6+TEMP5
300.          C
301.          RE2=(FM1EPS(10)-TEMP6)/FM1EPS(10)
302.          WRITE(6,2001)RE2
303. 2001      FORMAT(' R.E. FOR FM1EPS(10) IS: ',F10.8)
304.          C
305.          RE3=(FM1PIS(2)-FM1EPS(10))/FM1PIS(2)
306.          WRITE(6,2018)RE3
307. 2018      FORMAT(' R.E. FOR FM1PIS(2) & FM1EPS(10) IS: ',F10.8)
308.          C
309. C***** COST OF EMBEDDED DEBT
310.      C
311. 1000      IF (FM1BS(57).EQ.0) GO TO 4000
312.          RTBSBN=FM1IS(39)/FM1BS(57)
313.          WRITE(6,2002)RTBSBN
314. 2002      FORMAT(' RTBSBN= ',F10.4)
315.          C
316. C***** GENERAL TAX RATE
317. C*** (NOTE: THIS INCLUDES STATE INCOME TAXES FOR NUF'S PURPOSES)
318. 1000      IF (FM1IS(1).EQ.0) GO TO 9000
319.          GTXRT=(FM1IS(9)+FM1IS(11))/FM1IS(1)
320.          WRITE(6,2003)GTXRT
321. 2003      FORMAT(' GTXRT= ',F10.4)
322.          C
323. C***** ELECTRIC PORTION OF TOTAL PLANT
324. C*** (NOTE: MANY OF THESE ACCOUNTS INCLUDE GAS UTILITIES. THIS IS
325. C*** NETTED OUT BY MULTIPLYING BY THIS RATIO.)
326.          EPPOR=FM1EPS(10)/(FM1BS(1)+FM1BS(17))
327.          WRITE(6,2017)EPPOR
328. 2017      FORMAT(' EPPOR= ',D10.2)
329.          C
330. C***** RETAINED EARNINGS
331.          RE=FM1BS(53)
332.          WRITE(6,2004)RE
333. 2004      FORMAT(' RETAINED EARNINGS= ',F10.2)
334.          RE=RE+EPPOR
335.          C
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336. C***** STOCK OF OUTSTANDING BONDS PRE-BASE YEAR
337. C
338.      OB=FM1BS(62)
339.      WRITE(6,2005)OB
340. 2005 FORMAT(' OUTSTANDING BONDS= ',F10.2)
341.      OB=OB*EPPOR
342. C*****SHORT TERM DEBT PRE-BASE YEAR.
343.      STDEBT=FM1BS(63)*EPPOR
344.      WRITE(6,2050) STDEBT
345. 2050 FORMAT(' SHORT TERM DEBT= ',F10.2)
346. C
347. C***** REVENUES PRE-BASE YEAR
348. C
349.      REVS=FM1IS(1)
350.      WRITE(6,2006) REVS
351. 2006 FORMAT(' ELECTRIC REVENUES= ',F10.2)
352. C
353. C***** CAPITAL STRUCTURE
354. C
355.      TEMP7=FM1BS(56)+FM1BS(62)+FM1BS(63)
356.      W1=FM1BS(62)/TEMP7
357.      WRITE(6,2007) W1
358. 2007 FORMAT(' W1= ',F10.4)
359.      W2=FM1BS(63)/TEMP7
360.      WRITE(6,2008) W2
361. 2008 FORMAT(' W2= ',F10.4)
362.      W3=(FM1BS(56)-FM1BS(45))/TEMP7
363.      WRITE(6,2009) W3
364. 2009 FORMAT(' W3= ',F10.4)
365.      W4=FM1BS(45)/TEMP7
366.      WRITE(6,2010) W4
367. 2010 FORMAT(' W4= ',F10.4)
368. C
369. C***** TOTAL ACCUMULATED DEFERRED ITC
370. C
371.      TDITC=FM1BS(76)
372.      WRITE(6,2011)TDITC
373. 2011 FORMAT(' TOTAL DEFERRED ITC= ',F10.2)
374.      TUITC=TDITC*EPPOR
375. C
376. C***** ACCUMULATED DEFERRED I/T
377.      PRODEF=FM1BS(80)
378.      WRITE(6,2012)PRODEF
379. 2012 FORMAT(' PROVISION FOR DEFERRED INCOME TAXES= ',F10.2)
380.      PRODEF=PRODEF*EPPOR
381. C
382. C***** FUEL & O&M COSTS ADJUSTED FOR TAXES
383.      TXFUEL=(FM1IS(2)+FM1IS(3))
384.      WRITE(6,2013)TXFUEL
385. 2013 FORMAT(' FUEL PLUS O & M= ',F10.2)
386.      TXFUEL=TXFUEL/(1-GTXRT)
387. C
388. C***** DIVIDEND PAYOUT RATIO
389. C*** (NOTE: THIS IS % OF EARNINGS AVAILABLE TO COMMON, NOT NET INCOME)
390.      DIVRAT=FM1IS(56)/(FM1IS(54)-FM1IS(55))
391.      WRITE(6,2023) DIVRAT

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392. 2023 FORMAT(' DIVIDEND PAYOUT RATIO= ',F10.4)
393. C
394. C***** WORKING CAPITAL
395. C
396. WC=(FM1BS(31)-FM1BS(74))
397. WRITE(6,2021) WC
398. 2021 FORMAT(' WORKING CAPITAL= ',F10.4)
399. WC=WC*EPPOR
400. C
401. C***** COMMON STOCK PRE-BASE YEAR
402. C
403. COMSTK=(FM1BS(56)-FM1BS(53)-FM1BS(45))
404. WRITE(6,2022) COMSTK
405. 2022 FORMAT(' COMMON STOCK= ',F10.4)
406. COMSTK=COMSTK*EPPOR
407. C
408. C***** PREFERRED STOCK PRE-BASE YEAR
409. C
410. PRESTK=FM1BS(45)
411. WRITE(6,2024) PRESTK
412. 2024 FORMAT(' PREFERRED STOCK= ',F10.4)
413. PRESTK=PRESTK*EPPOR
414. C
415. C***** RETURN ON PREFERRED EQUITY
416. C
417. IF (FM1BS(45).EQ.0) GO TO 3000
418. RTPEQ=FM1IS(55)/FM1BS(45)
419. WRITE(6,2020) RTPEQ
420. 2020 FORMAT(' RETURN ON PREFERRED EQUITY= ',F10.4)
421. C
422. C***** CONSTRUCTION WORK IN PROGRESS ACCOUNT
423. C
424. 3000 WRITE(6,2025) FM1BS(2)
425. 2025 FORMAT(' CWIP ACCOUNT:',F10.2,'1')
426. C
427. C***** NET INCOME
428. C***** ESHRI=ELECTRIC SHARE OF INCOME
429. ESHRI=FM1IS(18)/FM1IS(19)
430. WRITE(6,2026) ESHRI
431. 2026 FORMAT(' ESHRI=',1X,F10.4)
432. ENETIN=ESHRI*FM1IS(54)
433. WRITE(6,2028) ENETIN
434. 2028 FORMAT(' ELECTRIC NET INCOME (NET OF GAS)= ',F10.4)
435. C***
436. C***NOW WRITE RESULTS TO FILES FOR NUFS.
437. C***
438. 9000 NNN=IREG+19
439. C***WRITE OUT BASE YEAR GENERATION
440. WRITE(NNN,200) GENER
441. 200 FORMAT(E15.9,5X,'GENERATION')
442. WRITE(6,200) GENER
443. C***WRITE OUT BASE YEAR SALES
444. WRITE(NNN,210) SALES
445. 210 FORMAT(E15.9,5X,'SALES TO ULTIMATE')
446. WRITE(6,210) SALES
447. C***WRITE OUT EXISTING ASSET BASE
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448.      WRITE(NNN,220)(ZAI(I),I=1,10)
449. 220  FORMAT(E15.9,5X,'INTANGIBLE (EXISTING)'/E15.9,5X,'STEAM PRODU',
450.      1 'CTION'/E15.9,5X,'NUCLEAR PRODUCTION'/E15.9,5X,'HYDRO CONV'/
451.      2 E15.9,5X,'PUMPED STORAGE'/E15.9,5X,'OTHER PRODUCTION'/E15.9,
452.      3 5X,'TRANSMISSION'/E15.9,5X,'DISTRIBUTION'/E15.9,5X,'GENERAL'/
453.      4 E15.9,5X,'COMMON-ELEC')
454. C***WRITE OUT BASE YEAR STOCK OF BONDS
455.      WRITE(NNN,230) OB
456. 230  FORMAT(E15.9,5X,'OUTSTANDING BONDS')
457. C***WRITE OUT BASE YEAR SHORT TERM DEBT
458.      WRITE(NNN,240) STDEBT
459. 240  FORMAT(E15.9,5X,'SHORT TERM DEBT')
460. C***WRITE OUT BASE YEAR COMMON STOCK
461.      WRITE(NNN,250) COMSTK
462. 250  FORMAT(E15.9,5X,'COMMON STOCK')
463. C***WRITE OUT BASE YEAR PREFERRED STOCK
464.      WRITE(NNN,260) PRESTK
465. 260  FORMAT(E15.9,5X,'PREFERRED STOCK')
466. C***WRITE OUT BASE YEAR RETAINED EARNINGS
467.      WRITE(NNN,270) RE
468. 270  FORMAT(E15.9,5X,'RETAINED EARNINGS')
469. C***WRITE OUT BASE YEAR EMBEDDED COST OF LONG TERM DEBT
470.      WRITE(NNN,280) RTBSBN
471. 280  FORMAT(E15.9,5X,'COST OF EMBEDDED DEBT')
472. C***WRITE OUT BASE YEAR EMBEDDED COST OF PREFERRED STOCK
473.      WRITE(NNN,285) RTPEQ
474. 285  FORMAT(E15.9,5X,'EMBEDDED COST OF PREFERRED')
475. C***WRITE OUT BASE YEAR TOTAL ELECTRIC REVENUES
476.      WRITE(NNN,290) REVS
477. 290  FORMAT(E15.9,5X,'ELECTRIC REVENUES')
478. C***WRITE OUT BASE YEAR NET INCOME
479.      WRITE(NNN,300) ENETIN
480. 300  FORMAT(E15.9,5X,'NET INCOME')
481. C***WRITE OUT BASE YEAR WORKING CAPITAL
482.      WRITE(NNN,310) WC
483. 310  FORMAT(E15.9,5X,'WORKING CAPITAL')
484. C***WRITE OUT BASE YEAR ACCUMULATED DEFERRED ITC
485.      WRITE(NNN,320) TDITC
486. 320  FORMAT(E15.9,5X,'DEFERRED ITC')
487. C***WRITE OUT BASE YEAR ACCUMULATED DEFERRED INCOME TAXES
488.      WRITE(NNN,330) PRODEF
489. 330  FORMAT(E15.9,5X,'DEFERRED INCOME TAXES')
490. C***WRITE OUT BASE YEAR FUEL AND O&M COSTS ADJUSTED FOR TAXES
491.      WRITE(NNN,340) TXFUEL
492. 340  FORMAT(E15.9,5X,'FUEL ADJUSTED FOR TAXES')
493. C***WRITE OUT BASE YEAR GENERAL TAX RATE
494.      WRITE(NNN,350) GTXRT
495. 350  FORMAT(E15.9,5X,'GENERAL TAX RATE')
496.      RETURN
497.      END
498. //GO.FT08F001 DD DSN=CN8922.PRJ.FM1T778.DATA,DISP=(OLD,KEEP),
499. //      VOL=SER=FE4698,UNIT=TAPE9,LABEL=(,IN)
500. //GO.FT09F001 DD *
501. 56      NUMBER OF STATES
502. 1 42      STATE NUMBER, NCM REGION NUMBER
503. 2 0      IF STATE IS A SPLIT STATE (IE. MORE THAN ONE REGION),

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504. 3 0 THEN ENTER ZERO.

505. 4 27

506. 5 44

507. 6 0

508. 7 0

509. 8 24

510. 9 2

511. 10 38

512. 11 38

513. 12 0

514. 13 5

515. 14 0

516. 15 0

517. 16 23

518. 17 9

519. 18 10

520. 19 19

521. 20 18

522. 21 0

523. 22 44

524. 23 1

525. 24 38

526. 25 2

527. 26 8

528. 27 17

529. 28 42

530. 29 20

531. 30 21

532. 31 18

533. 32 26

534. 33 1

535. 34 33

536. 35 28

537. 36 0

538. 37 4

539. 38 16

540. 39 0

541. 40 44

542. 41 29

543. 42 0

544. 43 0

545. 44 2

546. 45 4

547. 46 16

548. 47 0

549. 48 43

550. 49 25

551. 50 1

552. 51 37

553. 52 0

554. 53 29

555. 54 0

556. 55 11

557. 56 22

558. 214 NUMBER OF ACCOUNTS TO BE ADDED

559. 010021 ACCOUNT NUMBERS WHICH ARE TO BE AGGREGATED

(ENTER CODES FOUND ON TAPE)

560.	010031
561.	010041
562.	010051
563.	010061
564.	010071
565.	010081
566.	010091
567.	010101
568.	010111
569.	010121
570.	010141
571.	010151
572.	010161
573.	010171
574.	010181
575.	010191
576.	010201
577.	010211
578.	010221
579.	010231
580.	010241
581.	010251
582.	010261
583.	010271
584.	010281
585.	010291
586.	010301
587.	010311
588.	010321
589.	010331
590.	010341
591.	010351
592.	010361
593.	010371
594.	010381
595.	010391
596.	010401
597.	010411
598.	010421
599.	010431
600.	010441
601.	010451
602.	020011
603.	020021
604.	020031
605.	020041
606.	020051
607.	020061
608.	020071
609.	020081
610.	020091
611.	020101
612.	020111
613.	020121
614.	020131
615.	020141

616.	020151
617.	020161
618.	020171
619.	020181
620.	020191
621.	020201
622.	020211
623.	020221
624.	020231
625.	020241
626.	020251
627.	020261
628.	020271
629.	020281
630.	020291
631.	020301
632.	020311
633.	020321
634.	020331
635.	020341
636.	020351
637.	020361
638.	020371
639.	020381
640.	020391
641.	020401
642.	030031
643.	030039
644.	040021
645.	040041
646.	040051
647.	040061
648.	040071
649.	040081
650.	040091
651.	040101
652.	040111
653.	040121
654.	040131
655.	040141
656.	040151
657.	040161
658.	040171
659.	040181
660.	040191
661.	040211
662.	040219
663.	040269
664.	040279
665.	040289
666.	040299
667.	040309
668.	040319
669.	040339
670.	040349
671.	040359

672.	040369
673.	040389
674.	040399
675.	040409
676.	040419
677.	040429
678.	040439
679.	040449
680.	040459
681.	040469
682.	040489
683.	040499
684.	040509
685.	040519
686.	040529
687.	040539
688.	040549
689.	040569
690.	040579
691.	040589
692.	040609
693.	040619
694.	040629
695.	040639
696.	040649
697.	040659
698.	041299
699.	041369
700.	070056
701.	070156
702.	070236
703.	070326
704.	070416
705.	070426
706.	070536
707.	070696
708.	070836
709.	070886
710.	090102
711.	100051
712.	100241
713.	100621
714.	110011
715.	110021
716.	110031
717.	110041
718.	110051
719.	110061
720.	110071
721.	110081
722.	110091
723.	110101
724.	110111
725.	120091
726.	140021
727.	140041

728.	140051
729.	140061
730.	140071
731.	140081
732.	140091
733.	140101
734.	140121
735.	140141
736.	140151
737.	140161
738.	140171
739.	140181
740.	140191
741.	140201
742.	140211
743.	140221
744.	140231
745.	140241
746.	140251
747.	140261
748.	140271
749.	140281
750.	140321
751.	140331
752.	140341
753.	140351
754.	140361
755.	140371
756.	140381
757.	140391
758.	140401
759.	140421
760.	140431
761.	140441
762.	140451
763.	140461
764.	140471
765.	140481
766.	140491
767.	140501
768.	140511
769.	140521
770.	140531
771.	140541
772.	140551
773.	99 NO. OF EXCEPTIONS, IE. NO. OF UTILITIES SPLIT ACROSS NCM REGIONS
774.	011700 2 05 .50 42 .50 *UTILITY CODE, NUMBER OF REGIONS THAT
775.	040540 3 27 .56 23 .04 01 .19 *THE UTILITY SPLITS ACROSS, NCM REGION
776.	050160 2 44 .42 20 .58 *NUMBER, PERCENTAGE ALLOTTED TO REGION
777.	050220 1 44 1.0
778.	061090 1 30 1.0
779.	061240 1 31 1.0
780.	061490 1 31 1.0
781.	090450 2 01 .13 02 .87
782.	110250 2 38 .98 37 .02
783.	120290 1 06 1.0

784.	120380	2	06 .06	07 .94	
785.	120560	1	07 1.0		
786.	120650	1	06 1.0		
787.	121190	1	06 1.0		
788.	170590	1	13 1.0		
789.	180250	2	09 .98	10 .02	
790.	180450	1	40 1.0		
791.	180570	2	08 .15	10 .85	
792.	190820	3	09 .05	19 .80	17 .15
793.	190890	1	19 1.0		
794.	190900	2	09 .35	19 .65	
795.	190970	2	19 .99	16 .01	
796.	200320	2	24 .47	18 .53	
797.	210850	1	12 1.0		
798.	210910	2	12 .28	13 .72	
799.	211270	1	13 1.0		
800.	211900	1	13 1.0		
801.	220690	2	44 .58	43 .42	
802.	230600	2	01 .32	02 .68	
803.	230960	2	01 .60	02 .40	
804.	241050	3	38 .72	37 .13	35 .15
805.	241470	2	32 .96	38 .04	
806.	250270	2	01 .03	02 .97	
807.	250570	1	02 1.0		
808.	250590	1	02 1.0		
809.	250850	1	02 1.0		
810.	250960	2	01 .02	02 .98	
811.	251800	2	01 .28	02 .71	
812.	260580	2	08 .15	10 .85	
813.	261310	1	08 1.0		
814.	271210	2	17 .89	16 .11	
815.	290460	3	44 .06	18 .11	20 .83
816.	290700	2	18 .31	20 .69	
817.	291500	3	09 .17	19 .07	20 .76
818.	301130	1	21 1.0		
819.	321460	2	30 .14	26 .86	
820.	331230	1	01 1.0		
821.	360350	1	03 1.0		
822.	360400	1	33 1.0		
823.	360870	1	33 1.0		
824.	361000	1	03 1.0		
825.	361050	1	03 1.0		
826.	361150	2	03 .98	33 .02	
827.	361350	1	03 1.0		
828.	370360	1	04 1.0		
829.	370690	1	04 1.0		
830.	380800	3	21 .28	16 .62	22 .10
831.	381150	2	17 .47	16 .53	
832.	390430	2	41 .70	40 .30	
833.	390470	1	39 1.0		
834.	390500	2	41 .02	40 .98	
835.	390560	1	40 1.0		
836.	391330	2	40 .79	39 .21	
837.	391370	2	41 .23	40 .67	
838.	391410	2	41 .23	40 .67	
839.	391470	1	40 1.0		

840. 391680 2 40 .80 39 .20
841. 400970 1 44 1.0
842. 410250 4 30 .18 26 .15 29 .48 25 .19
843. 411270 4 29 .74 22 .19 21 .03 30 .04
844. 420350 1 32 1.0
845. 420520 1 34 1.0
846. 420850 1 32 1.0
847. 421140 1 32 1.0
848. 421330 2 34 .92 32 .08
849. 421350 1 34 1.0
850. 421370 1 32 1.0
851. 421440 1 32 1.0
852. 421660 2 32 .67 38 .33
853. 421820 1 32 1.0
854. 421870 1 34 1.0
855. 460240 3 21 .05 16 .85 22 .10
856. 470940 1 14 1.0
857. 480340 2 28 .12 43 .88
858. 480450 2 28 .19 43 .81
859. 481200 2 43 .45 44 .55
860. 481320 3 28 .14 44 .02 43 .84
861. 491450 3 23 .22 25 .77 22 .01
862. 501300 3 01 .83 02 .12 33 .05
863. 501350 2 01 .82 02 .18
864. 511520 3 37 .94 04 .05 36 .01
865. 531630 2 23 .40 29 .60
866. 540120 2 37 .48 36 .52
867. 540950 2 41 .07 35 .93
868. 541900 1 35 1.0
869. 550680 2 08 .18 11 .82
870. 551710 2 08 .03 11 .97
871. 551820 1 11 1.0
872. 551850 1 11 1.0
873. //GO.FT20F001 DD DSN=*&TEMPMV,DISP=(NEW,PASS),
874. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
875. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
876. //GO.FT21F001 DD DSN=*&TEMPMC,DISP=(NEW,PASS),
877. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
878. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
879. //GO.FT22F001 DD DSN=*&TEMPNU,DISP=(NEW,PASS),
880. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
881. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
882. //GO.FT23F001 DD DSN=*&TEMPCA,DISP=(NEW,PASS),
883. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
884. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
885. //GO.FT24F001 DD DSN=*&TEMPGA,DISP=(NEW,PASS),
886. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
887. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
888. //GO.FT25F001 DD DSN=*&TEMPNF,DISP=(NEW,PASS),
889. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
890. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
891. //GO.FT26F001 DD DSN=*&TEMPSF,DISP=(NEW,PASS),
892. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
893. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
894. //GO.FT27F001 DD DSN=*&TEMPMI,DISP=(NEW,PASS),
895. // UNIT=SYSDA,SPACE=(TRK,(1,1)),

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896. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
897. //GO.FT28F001 DD DSN=&&TEMPIL,DISP=(NEW,PASS),
898. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
899. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
900. //GO.FT29F001 DD DSN=&&TEMPIN,DISP=(NEW,PASS),
901. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
902. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
903. //GO.FT30F001 DD DSN=&&TEMPWI,DISP=(NEW,PASS),
904. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
905. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
906. //GO.FT31F001 DD DSN=&&TEMPEK,DISP=(NEW,PASS),
907. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
908. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
909. //GO.FT32F001 DD DSN=&&TEMPWK,DISP=(NEW,PASS),
910. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
911. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
912. //GO.FT33F001 DD DSN=&&TEMPET,DISP=(NEW,PASS),
913. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
914. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
915. //GO.FT34F001 DD DSN=&&TEMPWT,DISP=(NEW,PASS),
916. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
917. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
918. //GO.FT35F001 DD DSN=&&TEMPDK,DISP=(NEW,PASS),
919. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
920. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
921. //GO.FT36F001 DD DSN=&&TEMPMN,DISP=(NEW,PASS),
922. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
923. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
924. //GO.FT37F001 DD DSN=&&TEMPKN,DISP=(NEW,PASS),
925. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
926. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
927. //GO.FT38F001 DD DSN=&&TEMPIA,DISP=(NEW,PASS),
928. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
929. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
930. //GO.FT39F001 DD DSN=&&TEMPMO,DISP=(NEW,PASS),
931. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
932. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
933. //GO.FT40F001 DD DSN=&&TEMPMT,DISP=(NEW,PASS),
934. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
935. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
936. //GO.FT41F001 DD DSN=&&TEMPWY,DISP=(NEW,PASS),
937. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
938. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
939. //GO.FT42F001 DD DSN=&&TEMPID,DISP=(NEW,PASS),
940. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
941. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
942. //GO.FT43F001 DD DSN=&&TEMPCO,DISP=(NEW,PASS),
943. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
944. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
945. //GO.FT44F001 DD DSN=&&TEMPUT,DISP=(NEW,PASS),
946. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
947. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
948. //GO.FT45F001 DD DSN=&&TEMPNV,DISP=(NEW,PASS),
949. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
950. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
951. //GO.FT46F001 DD DSN=&&TEMPAZ,DISP=(NEW,PASS),
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952. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
953. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
954. //GO.FT47F001 DD DSN=&&TEMPNM,DISP=(NEW,PASS),
955. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
956. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
957. //GO.FT48F001 DD DSN=&&TEMPW0,DISP=(NEW,PASS),
958. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
959. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
960. //GO.FT49F001 DD DSN=&&TEMPCN,DISP=(NEW,PASS),
961. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
962. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
963. //GO.FT50F001 DD DSN=&&TEMPCS,DISP=(NEW,PASS),
964. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
965. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
966. //GO.FT51F001 DD DSN=&&TEMPEP,DISP=(NEW,PASS),
967. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
968. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
969. //GO.FT52F001 DD DSN=&&TEMPJY,DISP=(NEW,PASS),
970. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
971. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
972. //GO.FT53F001 DD DSN=&&TEMPWP,DISP=(NEW,PASS),
973. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
974. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
975. //GO.FT54F001 DD DSN=&&TEMPNW,DISP=(NEW,PASS),
976. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
977. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
978. //GO.FT55F001 DD DSN=&&TEMPSW,DISP=(NEW,PASS),
979. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
980. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
981. //GO.FT56F001 DD DSN=&&TEMPVA,DISP=(NEW,PASS),
982. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
983. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
984. //GO.FT57F001 DD DSN=&&TEMPDM,DISP=(NEW,PASS),
985. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
986. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
987. //GO.FT58F001 DD DSN=&&TEMPOH,DISP=(NEW,PASS),
988. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
989. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
990. //GO.FT59F001 DD DSN=&&TEMPOM,DISP=(NEW,PASS),
991. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
992. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
993. //GO.FT60F001 DD DSN=&&TEMPOS,DISP=(NEW,PASS),
994. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
995. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
996. //GO.FT61F001 DD DSN=&&TEMPAM,DISP=(NEW,PASS),
997. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
998. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
999. //GO.FT62F001 DD DSN=&&TEMPTX,DISP=(NEW,PASS),
1000. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
1001. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
1002. //GO.FT63F001 DD DSN=&&TEMPAO,DISP=(NEW,PASS),
1003. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
1004. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
1005. //GO.FT64F001 DD DSN=&&TEMPNA,DISP=(NEW,PASS),
1006. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
1007. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
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1008. //DELD EXEC PGM=IEFBR14,REGION=10K
1009. //DD1 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78,DISP=(MOD,DELETE),
1010. // UNIT=DASD,SPACE=(TRK,(7,1,3))
1011. //DELD EXEC PGM=IEFBR14,REGION=10K
1012. //DD1 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78,DISP=(NEW,CATLG),
1013. // UNIT=DASD,
1014. // SPACE=(TRK,(7,1,3)),DCB=(DSORG=PO,RECFM=FB,BLKSIZE=6160,LRECL=80)
1015. //GENER EXEC PGM=IEBGENER
1016. //SYSPRINT DD DUMMY
1017. //SYSUT1 DD DSN=&&TEMPMV,DISP=(OLD,DELETE)
1018. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(MV),DISP=(OLD,KEEP)
1019. //SYSIN DD DUMMY
1020. //GENER EXEC PGM=IEBGENER
1021. //SYSPRINT DD DUMMY
1022. //SYSUT1 DD DSN=&&TEMPMC,DISP=(OLD,DELETE)
1023. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(MC),DISP=(OLD,KEEP)
1024. //SYSIN DD DUMMY
1025. //GENER EXEC PGM=IEBGENER
1026. //SYSPRINT DD DUMMY
1027. //SYSUT1 DD DSN=&&TEMPNU,DISP=(OLD,DELETE)
1028. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(NU),DISP=(OLD,KEEP)
1029. //SYSIN DD DUMMY
1030. //GENER EXEC PGM=IEBGENER
1031. //SYSPRINT DD DUMMY
1032. //SYSUT1 DD DSN=&&TEMPCA,DISP=(OLD,DELETE)
1033. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(CA),DISP=(OLD,KEEP)
1034. //SYSIN DD DUMMY
1035. //GENER EXEC PGM=IEBGENER
1036. //SYSPRINT DD DUMMY
1037. //SYSUT1 DD DSN=&&TEMPGA,DISP=(OLD,DELETE)
1038. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(GA),DISP=(OLD,KEEP)
1039. //SYSIN DD DUMMY
1040. //GENER EXEC PGM=IEBGENER
1041. //SYSPRINT DD DUMMY
1042. //SYSUT1 DD DSN=&&TEMPNF,DISP=(OLD,DELETE)
1043. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(NF),DISP=(OLD,KEEP)
1044. //SYSIN DD DUMMY
1045. //GENER EXEC PGM=IEBGENER
1046. //SYSPRINT DD DUMMY
1047. //SYSUT1 DD DSN=&&TEMPSF,DISP=(OLD,DELETE)
1048. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(SF),DISP=(OLD,KEEP)
1049. //SYSIN DD DUMMY
1050. //GENER EXEC PGM=IEBGENER
1051. //SYSPRINT DD DUMMY
1052. //SYSUT1 DD DSN=&&TEMPMI,DISP=(OLD,DELETE)
1053. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(MI),DISP=(OLD,KEEP)
1054. //SYSIN DD DUMMY
1055. //GENER EXEC PGM=IEBGENER
1056. //SYSPRINT DD DUMMY
1057. //SYSUT1 DD DSN=&&TEMPIL,DISP=(OLD,DELETE)
1058. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IL),DISP=(OLD,KEEP)
1059. //SYSIN DD DUMMY
1060. //GENER EXEC PGM=IEBGENER
1061. //SYSPRINT DD DUMMY
1062. //SYSUT1 DD DSN=&&TEMPIN,DISP=(OLD,DELETE)
1063. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IN),DISP=(OLD,KEEP)
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```
1064. //SYSIN DD DUMMY
1065. //GENER EXEC PGM=IEBGENER
1066. //SYSPRINT DD DUMMY
1067. //SYSUT1 DD DSN=&&TEMPWI,DISP=(OLD,DELETE)
1068. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(WI),DISP=(OLD,KEEP)
1069. //SYSIN DD DUMMY
1070. //GENER EXEC PGM=IEBGENER
1071. //SYSPRINT DD DUMMY
1072. //SYSUT1 DD DSN=&&TEMPEK,DISP=(OLD,DELETE)
1073. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(EK),DISP=(OLD,KEEP)
1074. //SYSIN DD DUMMY
1075. //GENER EXEC PGM=IEBGENER
1076. //SYSPRINT DD DUMMY
1077. //SYSUT1 DD DSN=&&TEMPWK,DISP=(OLD,DELETE)
1078. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(WK),DISP=(OLD,KEEP)
1079. //SYSIN DD DUMMY
1080. //GENER EXEC PGM=IEBGENER
1081. //SYSPRINT DD DUMMY
1082. //SYSUT1 DD DSN=&&TEMPET,DISP=(OLD,DELETE)
1083. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(ET),DISP=(OLD,KEEP)
1084. //SYSIN DD DUMMY
1085. //GENER EXEC PGM=IEBGENER
1086. //SYSPRINT DD DUMMY
1087. //SYSUT1 DD DSN=&&TEMPWT,DISP=(OLD,DELETE)
1088. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(WT),DISP=(OLD,KEEP)
1089. //SYSIN DD DUMMY
1090. //GENER EXEC PGM=IEBGENER
1091. //SYSPRINT DD DUMMY
1092. //SYSUT1 DD DSN=&&TEMPDK,DISP=(OLD,DELETE)
1093. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(DK),DISP=(OLD,KEEP)
1094. //SYSIN DD DUMMY
1095. //GENER EXEC PGM=IEBGENER
1096. //SYSPRINT DD DUMMY
1097. //SYSUT1 DD DSN=&&TEMPMN,DISP=(OLD,DELETE)
1098. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(MN),DISP=(OLD,KEEP)
1099. //SYSIN DD DUMMY
1100. //GENER EXEC PGM=IEBGENER
1101. //SYSPRINT DD DUMMY
1102. //SYSUT1 DD DSN=&&TEMPKN,DISP=(OLD,DELETE)
1103. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(KN),DISP=(OLD,KEEP)
1104. //SYSIN DD DUMMY
1105. //GENER EXEC PGM=IEBGENER
1106. //SYSPRINT DD DUMMY
1107. //SYSUT1 DD DSN=&&TEMPIA,DISP=(OLD,DELETE)
1108. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(IA),DISP=(OLD,KEEP)
1109. //SYSIN DD DUMMY
1110. //GENER EXEC PGM=IEBGENER
1111. //SYSPRINT DD DUMMY
1112. //SYSUT1 DD DSN=&&TEMPMO,DISP=(OLD,DELETE)
1113. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(MO),DISP=(OLD,KEEP)
1114. //SYSIN DD DUMMY
1115. //GENER EXEC PGM=IEBGENER
1116. //SYSPRINT DD DUMMY
1117. //SYSUT1 DD DSN=&&TEMPMT,DISP=(OLD,DELETE)
1118. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(MT),DISP=(OLD,KEEP)
1119. //SYSIN DD DUMMY
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1120. //GENER EXEC PGM=IEBGENER
1121. //SYSPRINT DD DUMMY
1122. //SYSUT1 DD DSN=&&TEMPWY,DISP=(OLD,DELETE)
1123. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(WY),DISP=(OLD,KEEP)
1124. //SYSIN DD DUMMY
1125. //GENER EXEC PGM=IEBGENER
1126. //SYSPRINT DD DUMMY
1127. //SYSUT1 DD DSN=&&TEMPID,DISP=(OLD,DELETE)
1128. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(ID),DISP=(OLD,KEEP)
1129. //SYSIN DD DUMMY
1130. //GENER EXEC PGM=IEBGENER
1131. //SYSPRINT DD DUMMY
1132. //SYSUT1 DD DSN=&&TEMPCO,DISP=(OLD,DELETE)
1133. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(CO),DISP=(OLD,KEEP)
1134. //SYSIN DD DUMMY
1135. //GENER EXEC PGM=IEBGENER
1136. //SYSPRINT DD DUMMY
1137. //SYSUT1 DD DSN=&&TEMPUT,DISP=(OLD,DELETE)
1138. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(UT),DISP=(OLD,KEEP)
1139. //SYSIN DD DUMMY
1140. //GENER EXEC PGM=IEBGENER
1141. //SYSPRINT DD DUMMY
1142. //SYSUT1 DD DSN=&&TEMPCV,DISP=(OLD,DELETE)
1143. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(NV),DISP=(OLD,KEEP)
1144. //SYSIN DD DUMMY
1145. //GENER EXEC PGM=IEBGENER
1146. //SYSPRINT DD DUMMY
1147. //SYSUT1 DD DSN=&&TEMPAZ,DISP=(OLD,DELETE)
1148. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(AZ),DISP=(OLD,KEEP)
1149. //SYSIN DD DUMMY
1150. //GENER EXEC PGM=IEBGENER
1151. //SYSPRINT DD DUMMY
1152. //SYSUT1 DD DSN=&&TEMPNM,DISP=(OLD,DELETE)
1153. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(NM),DISP=(OLD,KEEP)
1154. //SYSIN DD DUMMY
1155. //GENER EXEC PGM=IEBGENER
1156. //SYSPRINT DD DUMMY
1157. //SYSUT1 DD DSN=&&TEMPWO,DISP=(OLD,DELETE)
1158. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(WO),DISP=(OLD,KEEP)
1159. //SYSIN DD DUMMY
1160. //GENER EXEC PGM=IEBGENER
1161. //SYSPRINT DD DUMMY
1162. //SYSUT1 DD DSN=&&TEMPCN,DISP=(OLD,DELETE)
1163. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(CN),DISP=(OLD,KEEP)
1164. //SYSIN DD DUMMY
1165. //GENER EXEC PGM=IEBGENER
1166. //SYSPRINT DD DUMMY
1167. //SYSUT1 DD DSN=&&TEMPCS,DISP=(OLD,DELETE)
1168. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(CS),DISP=(OLD,KEEP)
1169. //SYSIN DD DUMMY
1170. //GENER EXEC PGM=IEBGENER
1171. //SYSPRINT DD DUMMY
1172. //SYSUT1 DD DSN=&&TEMPEP,DISP=(OLD,DELETE)
1173. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(EP),DISP=(OLD,KEEP)
1174. //SYSIN DD DUMMY
1175. //GENER EXEC PGM=IEBGENER
```

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1176. //SYSPRINT DD DUMMY
1177. //SYSUT1 DD DSN= &&TEMPJY, DISP=(OLD,DELETE)
1178. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(JY), DISP=(OLD,KEEP)
1179. //SYSIN DD DUMMY
1180. //GENER EXEC PGM=IEBGENER
1181. //SYSPRINT DD DUMMY
1182. //SYSUT1 DD DSN= &&TEMPWP, DISP=(OLD,DELETE)
1183. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(WP), DISP=(OLD,KEEP)
1184. //SYSIN DD DUMMY
1185. //GENER EXEC PGM=IEBGENER
1186. //SYSPRINT DD DUMMY
1187. //SYSUT1 DD DSN= &&TEMPNW, DISP=(OLD,DELETE)
1188. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(NW), DISP=(OLD,KEEP)
1189. //SYSIN DD DUMMY
1190. //GENER EXEC PGM=IEBGENER
1191. //SYSPRINT DD DUMMY
1192. //SYSUT1 DD DSN= &&TEMPSW, DISP=(OLD,DELETE)
1193. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(SW), DISP=(OLD,KEEP)
1194. //SYSIN DD DUMMY
1195. //GENER EXEC PGM=IEBGENER
1196. //SYSPRINT DD DUMMY
1197. //SYSUT1 DD DSN= &&TEMPVA, DISP=(OLD,DELETE)
1198. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(VA), DISP=(OLD,KEEP)
1199. //SYSIN DD DUMMY
1200. //GENER EXEC PGM=IEBGENER
1201. //SYSPRINT DD DUMMY
1202. //SYSUT1 DD DSN= &&TEMPDM, DISP=(OLD,DELETE)
1203. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(DM), DISP=(OLD,KEEP)
1204. //SYSIN DD DUMMY
1205. //GENER EXEC PGM=IEBGENER
1206. //SYSPRINT DD DUMMY
1207. //SYSUT1 DD DSN= &&TEMPON, DISP=(OLD,DELETE)
1208. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(ON), DISP=(OLD,KEEP)
1209. //SYSIN DD DUMMY
1210. //GENER EXEC PGM=IEBGENER
1211. //SYSPRINT DD DUMMY
1212. //SYSUT1 DD DSN= &&TEMPOM, DISP=(OLD,DELETE)
1213. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(OM), DISP=(OLD,KEEP)
1214. //SYSIN DD DUMMY
1215. //GENER EXEC PGM=IEBGENER
1216. //SYSPRINT DD DUMMY
1217. //SYSUT1 DD DSN= &&TEMPOS, DISP=(OLD,DELETE)
1218. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(OS), DISP=(OLD,KEEP)
1219. //SYSIN DD DUMMY
1220. //GENER EXEC PGM=IEBGENER
1221. //SYSPRINT DD DUMMY
1222. //SYSUT1 DD DSN= &&TEMPAM, DISP=(OLD,DELETE)
1223. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(AM), DISP=(OLD,KEEP)
1224. //SYSIN DD DUMMY
1225. //GENER EXEC PGM=IEBGENER
1226. //SYSPRINT DD DUMMY
1227. //SYSUT1 DD DSN= &&TEMPTX, DISP=(OLD,DELETE)
1228. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(TX), DISP=(OLD,KEEP)
1229. //SYSIN DD DUMMY
1230. //GENER EXEC PGM=IEBGENER
1231. //SYSPRINT DD DUMMY
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1232. //SYSUT1 DD DSN=##TEMPAQ,DISP=(OLD,DELETE)
1233. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(AQ),DISP=(OLD,KEEP)
1234. //SYSIN DD DUMMY
1235. //GENER EXEC PGM=IEBGENER
1236. //SYSPRINT DD DUMMY
1237. //SYSUT1 DD DSN=##TEMPNA,DISP=(OLD,DELETE)
1238. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1.PDS78(NA),DISP=(OLD,KEEP)
1239. //SYSIN DD DUMMY

6.0 NUREG FORM1M.FORT

This program calculates historical base year financial statistics for public utilities. It is very similar in structure to NUREG.FORM1.FORT. A listing now follows.

```

1. //MI2UFORM JOB (6376,D02,,999),'FORM1M',TIME=(0,14),MSGCLASS=A
2. //FPC EXEC FORTGCG,REGION=800K
3. //FORT.SYSIN DD *
4.     DIMENSION ISTATE(60),INFO(100),IEXCP(150),IREGS(150,13),
5.     * PERCEN(150,13),NOREG(150)
6.     DOUBLE PRECISION AMNT,AMNT1,AMOUNT(45,100),AMNT2(100)
7.     REAL*4 ACODE,JTYP,KTYP,LTYP,MTYP,NTYP,OTYP,PTYP,QTYP,
8.     * RTYP,RBKTYP,NOTYP,N1TYP,N2TYP,N3TYP,N4TYP,N5TYP,N6TYP,
9.     * N7TYP,N8TYP,N9TYP
10.    DATA JTYP/'J'/
11.    DATA KTYP/'K'/
12.    DATA LTYP/'L'/
13.    DATA MTYP/'M'/
14.    DATA NTYP/'N'/
15.    DATA OTYP/'O'/
16.    DATA PTYP/'P'/
17.    DATA QTYP/'Q'/
18.    DATA RTYP/'R'/
19.    C DATA RBKTYP/'/'/
20.    DATA NOTYP/'O'/
21.    DATA N1TYP/'1'/
22.    DATA N2TYP/'2'/
23.    DATA N3TYP/'3'/
24.    DATA N4TYP/'4'/
25.    DATA N5TYP/'5'/
26.    DATA N6TYP/'6'/
27.    DATA N7TYP/'7'/
28.    DATA N8TYP/'8'/
29.    DATA N9TYP/'9'/
30.    C***NUREG.FORM1M.FORT. THIS PROGRAM READS DATA FROM THE FORM 1M TAPE AND
31.    C***WRITES OUT DATA NEEDED FOR THE NATIONAL UTILITY REGULATORY
32.    C***MODEL (NUREG).
33.    C***
34.    C***WRITTEN BY MARK R. INGLIS, ICF INC. DEC 31,1980
35.    C***
36.    C***FIRST, A USER SUPPLIED INPUT FILE IS READ. THIS FILE CONTAINS STATE
37.    C***AND ACCOUNT CODES.
38.    C***** NSTATE=# OF STATES
39.    C***** NINFO= # OF ACCOUNTS TO BE ADDED OVER REGIONS
40.    C***** ISTATE(I)=DOE REGION THAT STATE I IS IN
41.    C***** INFO(I)= 6 DIGIT ACCOUNT CODE
42.    C***** NEXCP=# OF UTILITIES WHICH ARE SPLIT ACROSS REGIONS
43.    C***** OR ARE FEDERAL PROJECTS.
44.    C***** IEXCP= ID # OF SPLIT UTILITY
45.    C***** NOREG= # OF NCM REGIONS WHICH UTILITY SPLITS ACROSS
46.    C***** (IREGS(I,J),J=1,NOREG(I))= THE CODES OF THE REGIONS WHICH
47.    C***** SPLIT THE UTILITY.
48.    C***** (PERCEN(I,J),J=1,NOREG(I))= THE % SPLITS CORRESPONDING TO
49.    C***** IREGS REGIONS.
50.    READ(9,*)NSTATE
51.    DO 77 J=1,NSTATE
52.    77 READ(9,*) I,ISTATE(I)
53.    READ(9,*) NINFO
54.    DO 88 I=1,NINFO
55.    88 READ (9,802) INFO(I)

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56.      802  FORMAT(I6)
57.      READ(9,*) NEXCP
58.      WRITE(6,311) NEXCP
59.      DO 78 I=1,NEXCP
60.      READ(9,*) IEXCP(I),J,(IREGS(I,K),PERCEN(I,K),K=1,J)
61.      WRITE(6,311) I,IEXCP(I),J,(IREGS(I,K),PERCEN(I,K),K=1,J)
62.      311  FORMAT(' ',I2,'DEBUG:',I6,1X,I2,1X,13(I2,1X,F4.2,1X))
63.      78   NOREG(I)=J
64.      C***INITIALIZE AMOUNT, THE MATRIX WHICH CONTAINS TOTALS FOR EACH REGION
65.      C***IE., AMOUNT(J,I)=AMOUNT OF ACCOUNT I SUMMED OVER ALL UTILITIES IN
66.      C***REGION J. (REGION 45 = NATION)
67.      DO 91 J=1,45
68.      DO 91 I=1,100
69.      91   AMOUNT(J,I)=0.0
70.      IDPAST=0
71.      C***NOW THE FORM 1M TAPE IS READ. EACH RECORD CONTAINS THE TOTAL FOR
72.      C***FOR THE GIVEN ACCOUNT FOR THE GIVEN UTILITY. IF THE RECORD CONTAINS
73.      C***AN ACCOUNT WHICH WAS READ INTO INFO(I), THEN THE TOTAL IS ADDED IN
74.      C***TO THE PROPER REGION. IF NOT, THE NEXT RECORD IS READ.
75.      C*****JSTATE = STATE CODE
76.      C*****JUTIL=UTILITY CODE
77.      C*****JINFO = ACCOUNT CODE
78.      C
79.      3020 READ(8,1001,END=3030) JSTATE,JUTIL,JINFO,JAMNT1,JAMNT,ACODE
80.      1001 FORMAT(I2,I4,I6,1X,I6,I5,A1)
81.      50   DO 60 ICOUNT=1,NINFO
82.      IF(JINFO.LE.INFO(ICOUNT)) GO TO 70
83.      60   CONTINUE
84.      70   IF (JINFO.NE. INFO(ICOUNT)) GO TO 3020
85.      C***IT MUST BE DETERMINED WHAT NCM REGION THE INFORMATION IS RELEVANT TO.
86.      ID=JSTATE*10000+JUTIL
87.      C***FIRST, A CHECK IS MADE TO SEE IF IT IS THE SAME AS THE PREVIOUSLY READ
88.      C***RECORD.
89.      IF (ID.EQ. IDPAST) GO TO 65
90.      C***IF NOT, A CHECK IS MADE TO SEE IF IT IS A SPLIT UTILITY. IN THIS CASE,
91.      C***JEXCP IS POINTED TO ITS POSITION IN IEXCP.
92.      DO 401 I=1,NEXCP
93.      IF (ID.LE. IEXCP(I)) GO TO 402
94.      401  CONTINUE
95.      402  IF (ID.NE. IEXCP(I)) GO TO 403
96.      JEXCP=I
97.      GO TO 55
98.      C***IF IT IS NOT A SPLIT THEN IT SHOULD BE ASSIGNED ACCORDING TO ITS STATE
99.      C***CODE. IF ITS STATE CODE IS ZERO, THEN IT MEANS THAT IT IS NOT IN
100.     C***ANY NCM REGION (PUERTO RICO, ETC.).
101.     403  IF (ISTATE(JSTATE).EQ. 0) GO TO 3100
102.     IF (ISTATE(JSTATE).EQ. 60) GO TO 3100
103.     JEXCP=0
104.     JREG=ISTATE(JSTATE)
105.     55   IFAIL=0
106.     IDPAST=ID
107.     C***THE TOTAL FOR THE ACCOUNT IS WRITTEN IN 'CODE', SOMETIMES CONTAINING
108.     C***LETTERS. THIS NEXT SECTION CONVERTS THE ACCOUNT INTO A REAL NUMBER.
109.     C
110.     65   IF (IFAIL.EQ. 1) GO TO 3020
111.     IF(ACODE.EQ.JTYP) GO TO 100

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112. IF(ACODE.EQ.KTYP) GO TO 101
113. IF(ACODE.EQ.LTYP) GO TO 102
114. IF(ACODE.EQ.MTYP) GO TO 103
115. IF(ACODE.EQ.NTYP) GO TO 104
116. IF(ACODE.EQ.OTYP) GO TO 105
117. IF(ACODE.EQ.PTYP) GO TO 106
118. IF(ACODE.EQ.QTYP) GO TO 107
119. IF(ACODE.EQ.RTYP) GO TO 108
120. C IF(ACODE.EQ.RBKTYTYP) GO TO 109
121. IF(ACODE.EQ.NOTYP) GO TO 110
122. IF(ACODE.EQ.N1TYP) GO TO 111
123. IF(ACODE.EQ.N2TYP) GO TO 112
124. IF(ACODE.EQ.N3TYP) GO TO 113
125. IF(ACODE.EQ.N4TYP) GO TO 114
126. IF(ACODE.EQ.N5TYP) GO TO 115
127. IF(ACODE.EQ.N6TYP) GO TO 116
128. IF(ACODE.EQ.N7TYP) GO TO 117
129. IF(ACODE.EQ.N8TYP) GO TO 118
130. IF(ACODE.EQ.N9TYP) GO TO 119
131. GO TO 109
132. C
133. 100 JAMNT=-10*JAMNT-1
134. GO TO 900
135. 101 JAMNT=-10*JAMNT-2
136. GO TO 900
137. 102 JAMNT=-10*JAMNT-3
138. GO TO 900
139. 103 JAMNT=-10*JAMNT-4
140. GO TO 900
141. 104 JAMNT=-10*JAMNT-5
142. GO TO 900
143. 105 JAMNT=-10*JAMNT-6
144. GO TO 900
145. 106 JAMNT=-10*JAMNT-7
146. GO TO 900
147. 107 JAMNT=-10*JAMNT-8
148. GO TO 900
149. 108 JAMNT=-10*JAMNT-9
150. GO TO 900
151. 109 JAMNT=-10*JAMNT
152. GO TO 900
153. 110 JAMNT=10*JAMNT
154. GO TO 900
155. 111 JAMNT=10*JAMNT+1
156. GO TO 900
157. 112 JAMNT=10*JAMNT+2
158. GO TO 900
159. 113 JAMNT=10*JAMNT+3
160. GO TO 900
161. 114 JAMNT=10*JAMNT+4
162. GO TO 900
163. 115 JAMNT=10*JAMNT+5
164. GO TO 900
165. 116 JAMNT=10*JAMNT+6
166. GO TO 900
167. 117 JAMNT=10*JAMNT+7

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168.      GO TO 900
169. 118  JAMNT=10*JAMNT+8
170.      GO TO 900
171. 119  JAMNT=10*JAMNT+9
172.      GO TO 900
173.      C
174. 900  AMNT=FLOAT(JAMNT)
175.      IF(JAMNT1.EQ.0) GO TO 6010
176.      AMNT1=FLOAT(JAMNT1)
177.      AMNT=AMNT+AMNT1*10.0**6
178. 6010  CONTINUE
179.  C***THE CONVERTED AMOUNT IS NOW ADDED INTO THE PROPER REGION, AND THE
180.  C***NEXT RECORD IS READ
181.      IF (JEXCP .NE. 0) GO TO 40
182.      AMOUNT(JREG,ICOUNT)=AMOUNT(JREG,ICOUNT)+AMNT
183.      GO TO 35
184. 40    J=NOREG(JEXCP)
185.      DO 45 JREG=1,J
186. 45    AMOUNT(IREGS(JEXCP,JREG),ICOUNT)=AMOUNT(IREGS(JEXCP,JREG),ICOUNT)
187.      *          +PERCENT(JEXCP,JREG)*AMNT
188. 35    AMOUNT(45,ICOUNT)=AMOUNT(45,ICOUNT)+AMNT
189. 30    CONTINUE
190.      GO TO 3020
191.  C***UTILITY NOT IN ANY REGION
192. 3100  IFAIL=1
193.      IDPAST=ID
194.      WRITE(6,3110) ID
195. 3110  FORMAT(' ERROR IN UTILITY:',I6)
196.      GO TO 3020
197. 3030  CONTINUE
198.      C
199.  C***AFTER THE WHOLE TAPE HAS BEEN READ, SUBROUTINE FORM1M IS CALLED FOR
200.  C***EACH REGION. THIS SUBROUTINE WRITES OUT THE DATA NECESSARY FOR THE
201.  C***NUFS MODEL.
202.      DO 950 IREG=1,45
203.      DO 940 I=1,NINFO
204. 940  AMNT2(I)=AMOUNT(IREG,I)
205.      CALL FORM1M(IREG,AMNT2)
206. 950  CONTINUE
207. 5000  STOP
208.      END
209.      SUBROUTINE FORM1M(IREG,AMOUNT)
210.      C
211.      C
212.  C*****
213.  C* *
214.  C*      SUBROUTINE FORM1M *
215.  C*      THIS SUBROUTINE TAKES THE TOTALS FROM THE MAIN *
216.  C*      PROGRAM FOR EACH REGION AND WRITES OUT FILES CON- *
217.  C*      TAINING THE DATA NEEDED BY NUFS. IT ALSO PRINTS *
218.  C*      OUT VARIOUS QUANTITIES OF INTEREST TO UNIT 6. *
219.  C*      (UNIT 6=LINE PRINTER) *
220.  C*****
221.      C
222.      C
223.      DOUBLE PRECISION FM3BS(49),FM3IS(21)

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224.      DOUBLE PRECISION FM3EPS(17),FM3DEP(3)
225.      DOUBLE PRECISION TEMP5,TEMP6,EPPOR,AMOUNT(100)
226.      DIMENSION ZA1(10)
227.      C***FIRST, PUT DATA INTO MATRICES BY SCHEDULE:
228.      C***          FM3BS=BALANCE SHEET
229.      C***          FM3IS=INCOME SHEET
230.      C***          FM3EPS=ELECTRIC PLANT IN SERVICE
231.      C***          ETC.
232.      ICOUNT=0
233.      DO 12 I=1,49
234.      ICOUNT=ICOUNT+1
235.      12  FM3BS(I)=AMOUNT(ICOUNT)/1000000.
236.      DO 20 I=1,21
237.      ICOUNT=ICOUNT+1
238.      20  FM3IS(I)=AMOUNT(ICOUNT)/1000000.
239.      ICOUNT=ICOUNT+1
240.      SALES=AMOUNT(ICOUNT)/1.0E09
241.      DO 30 I=1,17
242.      ICOUNT=ICOUNT+1
243.      30  FM3EPS(I)=AMOUNT(ICOUNT)/1000000.
244.      DO 40 I=1,3
245.      ICOUNT=ICOUNT+1
246.      40  FM3DEP(I)=AMOUNT(ICOUNT/1000000.)
247.      GENER=AMOUNT(ICOUNT+1)/1.0E09
248.      C
249.      WRITE(6,11)IREG
250.      11  FORMAT(' THE TOTALS FOR REGION ',I2,':')
251.      C
252.      C*****NOW STRIP OFF RELEVANT AMOUNTS FOR NUFS AND INTEREST. (IE. THIS
253.      C*****ROUTINE CAN BE MODIFIED TO PRINT OUT ANY ACCOUNT.)
254.      C
255.      WRITE(6,311)
256.      311  FORMAT(' THE VALUES FOR FM3EPS ARE:')
257.      DO 9011 J=1,17
258.      9011 WRITE(6,2015)FM3EPS(J)
259.      2015 FORMAT(5X,F10.2)
260.      ZA1(1)=FM3EPS(1)
261.      ZA1(2)=FM3EPS(2)
262.      ZA1(3)=FM3EPS(3)
263.      ZA1(4)=FM3EPS(4)
264.      ZA1(5)=0.0
265.      ZA1(6)=FM3EPS(5)
266.      ZA1(7)=FM3EPS(7)
267.      ZA1(8)=FM3EPS(8)
268.      ZA1(9)=FM3EPS(9)
269.      ZA1(10)=0.0
270.      WRITE(6,2014)
271.      2014 FORMAT(' THE VALUES FOR ZA(I) ARE')
272.      DO 9015 J=1,10
273.      9015  WRITE(6,2015) ZA1(J)
274.      IF (FM3EPS(6).EQ.0.OR.FM3EPS(10).EQ.0)GO TO 1000
275.      C
276.      C*****FIND RELATIVE ERROR FOR ASSET TOTALS.
277.      C          RE1-RE2 = RELATIVE ERRORS
278.      C
279.      TEMP5=0.0

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```

280.      DO 9007 J=1,5
281.      9007 TEMP5=TEMP5+FM3EPS(J)
282.      C
283.      RE1=(FM3EPS(6)-TEMP5)/FM3EPS(6)
284.      WRITE(6,2000)RE1
285.      2000 FORMAT(' R.E. FOR FM3EPS(6) IS: ',F10.8)
286.      C
287.      TEMP6=0.0
288.      DO 9008 J=7,9
289.      9008 TEMP6=TEMP6+FM3EPS(J)
290.      TEMP6=TEMP6+TEMP5
291.      C
292.      RE2=(FM3EPS(10)-TEMP6)/FM3EPS(10)
293.      WRITE(6,2001)RE2
294.      2001 FORMAT(' R.E. FOR FM3EPS(10) IS: ',F10.8)
295.      C
296.      C***** COST OF EMBEDDED DEBT
297.      C
298.      1000 IF (FM3BS(31).EQ.0) GO TO 4000
299.      RTBSBN=FM3IS(15)/FM3BS(31)
300.      WRITE(6,2002)RTBSBN
301.      2002 FORMAT(' RTBSBN= ',F10.4)
302.      C
303.      C***** GENERAL TAX RATE
304.      C
305.      4000 IF (FM3IS(1).EQ.0) GO TO 9000
306.      GTXRT=FM3IS(5)/FM3IS(1)
307.      WRITE(6,2003)GTXRT
308.      2003 FORMAT(' GTXRT= ',F10.4)
309.      C
310.      C***** ELECTRIC PORTION OF TOTAL PLANT
311.      C***{NOTE: MANY OF THESE ACCOUNTS INCLUDE GAS UTILITIES. THIS IS
312.      C***NETTED OUT BY MULTIPLYING BY THIS RATIO.)
313.      EPPOR=FM3EPS(10)/(FM3EPS(17)-FM3EPS(12)+FM3BS(7))
314.      WRITE(6,2017)EPPOR
315.      2017 FORMAT(' EPPOR= ',D10.2)
316.      C
317.      C***** RETAINED EARNINGS
318.      RE=FM3BS(24)
319.      WRITE(6,2004)RE
320.      2004 FORMAT(' RETAINED EARNINGS= ',F10.2)
321.      RE=RE+EPPOR
322.      C
323.      C***** STOCK OF OUTSTANDING BONDS PRE-BASE YEAR
324.      C
325.      OB=FM3BS(31)
326.      WRITE(6,2005)OB
327.      2005 FORMAT(' OUTSTANDING BONDS= ',F10.2)
328.      OB=OB+EPPOR
329.      C
330.      C***** REVENUES PRE-BASE YEAR
331.      C
332.      REVS=FM3IS(1)
333.      WRITE(6,2006) REVS
334.      2006 FORMAT(' ELECTRIC REVENUES= ',F10.2)
335.      C

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```

336. C***** CAPITAL STRUCTURE
337. C
338.     TEMP7=FM3BS(25)+FM3BS(31)+FM3BS(33)
339.     W1=FM3BS(31)/TEMP7
340.     WRITE(6,2007) W1
341. 2007 FORMAT(' W1= ',F10.4)
342.     W2=FM3BS(33)/TEMP7
343.     WRITE(6,2008) W2
344. 2008 FORMAT(' W2= ',F10.4)
345.     W3=FM3BS(25)/TEMP7
346.     WRITE(6,2009) W3
347. 2009 FORMAT(' W3= ',F10.4)
348.     W4=0.0
349.     WRITE(6,2010) W4
350. 2010 FORMAT(' W4= ',F10.4)
351. C
352. C***** FUEL & O&M COSTS ADJUSTED FOR TAXES
353.     TXFUEL=(FM3IS(2)+FM3IS(3))
354.     WRITE(6,2013)TXFUEL
355. 2013 FORMAT(' FUEL PLUS O & M= ',F10.2)
356.     TXFUEL=TXFUEL/(1-GTXRT)
357. C
358. C***** WORKING CAPITAL
359. C
360.     WC=(FM3BS(15)-FM3BS(39))
361.     WRITE(6,2021) WC
362. 2021 FORMAT(' WORKING CAPITAL= ',F10.4)
363.     WC=WC*EPPOR
364. C
365. C***** COMMON STOCK PRE-BASE YEAR
366. C
367.     COMSTK=(FM3BS(25)-FM3BS(24))
368.     WRITE(6,2022) COMSTK
369. 2022 FORMAT(' COMMON STOCK= ',F10.4)
370.     COMSTK=COMSTK*EPPOR
371. C
372. C***** CONSTRUCTION WORK IN PROGRESS ACCOUNT
373. C
374.     WRITE(6,2025) FM3EPS(12)
375. 2025 FORMAT(' CWIP ACCOUNT:',F10.2,'1')
376. C
377. C*****NET INCOME
378. C
379.     ENETIN=FM3IS(21)
380.     WRITE(6,2028) ENETIN
381. 2028 FORMAT(' NET INCOME=',F10.4)
382. C**
383. C***NOW WRITE RESULTS TO FILES FOR NUF.
384. C**
385. 9000 NNN=IREG+19
386. C***WRITE OUT BASE YEAR GENERATION
387.     WRITE(NNN,200) GENER
388. 200 FORMAT(E15.9,5X,'GENERATION')
389.     WRITE(6,200) GENER
390. C***WRITE OUT BASE YEAR SALES
391.     WRITE(NNN,210) SALES

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392. 210  FORMAT(E15.9,5X,'SALES TO ULTIMATE')
393.      WRITE(6,210) SALES
394. C***WRITE OUT EXISTING ASSET BASE
395.      WRITE(NNN,220)(ZA1(I),I=1,10)
396. 220  FORMAT(E15.9,5X,'INTANGIBLE (EXISTING)'/E15.9,5X,'STEAM PRODU'
397.      1 'CTION'/E15.9,5X,'NUCLEAR PRODUCTION'/E15.9,5X,'HYDRO CONV'/
398.      2 E15.9,5X,'PUMPED STORAGE'/E15.9,5X,'OTHER PRODUCTION'/E15.9,
399.      3 5X,'TRANSMISSION'/E15.9,5X,'DISTRIBUTION'/E15.9,5X,'GENERAL'/
400.      4 E15.9,5X,'COMMON-ELEC')
401. C***WRITE OUT BASE YEAR STOCK OF BONDS
402.      WRITE(NNN,230) OB
403. 230  FORMAT(E15.9,5X,'OUTSTANDING BONDS')
404. C***WRITE OUT BASE YEAR COMMON STOCK
405.      WRITE(NNN,250) COMSTK
406. 250  FORMAT(E15.9,5X,'COMMON STOCK')
407. C***WRITE OUT BASE YEAR RETAINED EARNINGS
408.      WRITE(NNN,270) RE
409. 270  FORMAT(E15.9,5X,'RETAINED EARNINGS')
410. C***WRITE OUT BASE YEAR EMBEDDED COST OF LONG TERM DEBT
411.      WRITE(NNN,280) RTBSBN
412. 280  FORMAT(E15.9,5X,'COST OF EMBEDDED DEBT')
413. C***WRITE OUT BASE YEAR TOTAL ELECTRIC REVENUES
414.      WRITE(NNN,290) REVS
415. 290  FORMAT(E15.9,5X,'ELECTRIC REVENUES')
416. C***WRITE OUT BASE YEAR NET INCOME
417.      WRITE(NNN,300) ENETIN
418. 300  FORMAT(E15.9,5X,'NET INCOME')
419. C***WRITE OUT BASE YEAR WORKING CAPITAL
420.      WRITE(NNN,310) WC
421. 310  FORMAT(E15.9,5X,'WORKING CAPITAL')
422. C***WRITE OUT BASE YEAR FUEL AND O&M COSTS ADJUSTED FOR TAXES
423.      WRITE(NNN,340) TXFUEL
424. 340  FORMAT(E15.9,5X,'FUEL ADJUSTED FOR TAXES')
425. C***WRITE OUT BASE YEAR GENERAL TAX RATE
426.      WRITE(NNN,350) GTXRT
427. 350  FORMAT(E15.9,5X,'GENERAL TAX RATE')
428.      RETURN
429.      END
430. //GO.FT08F001 DD DSN=CN8922.PRJ.FM3T778.DATA,DISP=(OLD,KEEP),
431. //      VOL=SER=F14225,UNIT=TAPE9,LABEL=(,IN)
432. //GO.FT09F001 DD *
433. 56      NUMBER OF STATES
434. 1 42      STATE NUMBER, NCM REGION NUMBER
435. 2 0      IF STATE IS A SPLIT STATE (IE. MORE THAN ONE REGION),
436. 3 0      THEN ENTER ZERO.
437. 4 27
438. 5 44
439. 6 0
440. 7 0
441. 8 24
442. 9 2
443. 10 38
444. 11 38
445. 12 0
446. 13 5
447. 14 0
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448. 15 0
449. 16 23
450. 17 9
451. 18 10
452. 19 19
453. 20 18
454. 21 0
455. 22 44
456. 23 1
457. 24 38
458. 25 2
459. 26 8
460. 27 17
461. 28 42
462. 29 20
463. 30 21
464. 31 18
465. 32 26
466. 33 1
467. 34 33
468. 35 28
469. 36 0
470. 37 4
471. 38 16
472. 39 0
473. 40 44
474. 41 29
475. 42 0
476. 43 0
477. 44 2
478. 45 4
479. 46 16
480. 47 0
481. 48 43
482. 49 25
483. 50 1
484. 51 37
485. 52 0
486. 53 29
487. 54 0
488. 55 11
489. 56 22
490. 92
491. 010021
492. 010041
493. 010051
494. 010091
495. 010101
496. 010111
497. 010121
498. 010141
499. 010151
500. 010181

501. 010191
502. 010201

NUMBER OF ACCOUNTS

ACCOUNT NUMBERS WHICH ARE TO BE AGGREGATED
(ENTER CODES FOUND ON TAPE)

503.	010211
504.	010221
505.	010231
506.	010251
507.	010261
508.	010271
509.	010291
510.	010301
511.	010371
512.	020021
513.	020031
514.	020041
515.	020051
516.	020071
517.	020081
518.	020091
519.	020101
520.	020111
521.	020121
522.	020141
523.	020151
524.	020161
525.	020171
526.	020181
527.	020191
528.	020201
529.	020211
530.	020231
531.	020241
532.	020251
533.	020261
534.	020281
535.	020291
536.	020301
537.	020311
538.	020321
539.	020371
540.	030011
541.	030021
542.	030031
543.	030041
544.	030051
545.	030061
546.	030071
547.	030081
548.	030091
549.	030101
550.	030121
551.	030131
552.	030141
553.	030151
554.	030161
555.	030171
556.	030181
557.	030191
558.	030201

559.	030211				
560.	030221				
561.	040462				
562.	060011				
563.	060021				
564.	060031				
565.	060041				
566.	060051				
567.	060061				
568.	060071				
569.	060081				
570.	060091				
571.	060101				
572.	060111				
573.	060121				
574.	060131				
575.	060141				
576.	060151				
577.	060161				
578.	060181				
579.	070211				
580.	070221				
581.	070251				
582.	090051				
583.	126	NO. OF EXCEPTIONS, IE. NO. OF UTILITIES WHICH SPLIT ACROSS NCM REGIONS			
584.	065100	1	30	1.0	*UTILITY CODE, NUMBER OF NCM REGIONS WHICH THE
585.	065170	1	31	1.0	*UTILITY SPLITS ACROSS, NCM REGION NUMBER,
586.	065240	1	31	1.0	*PERCENTAGE ALLOTTED TO REGION
587.	065450	1	31	1.0	
588.	065730	1	31	1.0	
589.	065900	1	31	1.0	
590.	065940	1	30	1.0	
591.	066080	1	31	1.0	
592.	066170	1	30	1.0	
593.	066220	1	30	1.0	
594.	066290	1	31	1.0	
595.	066320	1	30	1.0	
596.	066430	1	31	1.0	
597.	066520	1	30	1.0	
598.	066550	1	30	1.0	
599.	066570	1	30	1.0	
600.	066590	1	30	1.0	
601.	067000	1	30	1.0	
602.	067860	1	30	1.0	
603.	125410	1	07	1.0	
604.	125470	1	07	1.0	
605.	125600	1	07	1.0	
606.	125900	1	07	1.0	
607.	125970	1	06	1.0	
608.	126030	1	06	1.0	
609.	126340	1	06	1.0	
610.	126400	1	06	1.0	
611.	126890	1	06	1.0	
612.	126950	1	07	1.0	
613.	215470	1	13	1.0	
614.	215690	1	13	1.0	

615. 215950 1 13 1.0
616. 365780 1 33 1.0
617. 366240 1 03 1.0
618. 366680 1 03 1.0
619. 366750 1 33 1.0
620. 395470 1 40 1.0
621. 395680 1 40 1.0
622. 395720 1 40 1.0
623. 396050 1 40 1.0
624. 396890 1 40 1.0
625. 425440 1 32 1.0
626. 476490 1 14 1.0
627. 485410 1 43 1.0
628. 485470 1 43 1.0
629. 485700 1 43 1.0
630. 485780 1 43 1.0
631. 485960 1 43 1.0
632. 486150 1 43 1.0
633. 486440 1 43 1.0
634. 486460 1 43 1.0
635. 486570 1 43 1.0
636. 486640 1 43 1.0
637. 600010 2 21 .12 29 .88
638. 600020 2 21 .12 29 .88
639. 600025 2 21 .12 29 .88
640. 600030 2 21 .12 29 .88
641. 600040 2 21 .12 29 .88
642. 600050 2 21 .12 29 .88
643. 600060 2 21 .12 29 .88
644. 600065 2 21 .12 29 .88
645. 600070 2 21 .12 29 .88
646. 600072 2 21 .12 29 .88
647. 600075 2 21 .12 29 .88
648. 600080 2 21 .12 29 .88
649. 600085 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
650. 15 .18 37 .04 42 .21
651. 600090 2 21 .12 29 .88
652. 600100 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
653. 15 .18 37 .04 42 .21
654. 600102 2 21 .12 29 .88
655. 600105 2 21 .12 29 .88
656. 600110 2 21 .12 29 .88
657. 600112 2 21 .12 29 .88
658. 600115 2 21 .12 29 .88
659. 600120 2 21 .12 29 .88
660. 600130 2 21 .12 29 .88
661. 600160 13 16 .09 17 .13 18 .07 19 .05 21 .02 22 .03 24 .08 25 .05 26 .04
662. 27 .09 28 .03 30 .16 31 .16
663. 600175 13 16 .09 17 .13 18 .07 19 .05 21 .02 22 .03 24 .08 25 .05 26 .04
664. 27 .09 28 .03 30 .16 31 .16
665. 600200 13 16 .09 17 .13 18 .07 19 .05 21 .02 22 .03 24 .08 25 .05 26 .04
666. 27 .09 28 .03 30 .16 31 .16
667. 600240 13 16 .09 17 .13 18 .07 19 .05 21 .02 22 .03 24 .08 25 .05 26 .04
668. 27 .09 28 .03 30 .16 31 .16
669. 600270 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
670. 15 .18 37 .04 42 .21

671. 600280 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
672. 15 .18 37 .04 42 .21
673. 600285 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
674. 15 .18 37 .04 42 .21
675. 600290 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
676. 15 .18 37 .04 42 .21
677. 600300 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
678. 15 .18 37 .04 42 .21
679. 600310 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
680. 15 .18 37 .04 42 .21
681. 600320 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
682. 15 .18 37 .04 42 .21
683. 600325 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
684. 15 .18 37 .04 42 .21
685. 600330 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
686. 15 .18 37 .04 42 .21
687. 600340 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
688. 15 .18 37 .04 42 .21
689. 600350 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
690. 15 .18 37 .04 42 .21
691. 600360 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
692. 15 .18 37 .04 42 .21
693. 600365 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
694. 15 .18 37 .04 42 .21
695. 600370 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
696. 15 .18 37 .04 42 .21
697. 600380 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
698. 15 .18 37 .04 42 .21
699. 600385 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
700. 15 .18 37 .04 42 .21
701. 600390 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
702. 15 .18 37 .04 42 .21
703. 600395 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
704. 15 .18 37 .04 42 .21
705. 600400 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
706. 15 .18 37 .04 42 .21
707. 600410 4 18 .01 20 .37 43 .08 44 .54
708. 600415 4 18 .01 20 .37 43 .08 44 .54
709. 600420 4 18 .01 20 .37 43 .08 44 .54
710. 600425 4 18 .01 20 .37 43 .08 44 .54
711. 600430 4 18 .01 20 .37 43 .08 44 .54
712. 600435 4 18 .01 20 .37 43 .08 44 .54
713. 600436 4 18 .01 20 .37 43 .08 44 .54
714. 600440 4 18 .01 20 .37 43 .08 44 .54
715. 600445 4 18 .01 20 .37 43 .08 44 .54
716. 600450 4 18 .01 20 .37 43 .08 44 .54
717. 600460 4 18 .01 20 .37 43 .08 44 .54
718. 600461 4 18 .01 20 .37 43 .08 44 .54
719. 600462 12 04 .11 05 .22 06 .01 07 .01 09 .01 10 .01 12 .04 13 .06 14 .10
720. 15 .18 37 .04 42 .21
721. 600465 4 18 .01 20 .37 43 .08 44 .54
722. 600470 4 18 .01 20 .37 43 .08 44 .54
723. 600480 4 18 .01 20 .37 43 .08 44 .54
724. 600483 4 18 .01 20 .37 43 .08 44 .54
725. 600485 4 18 .01 20 .37 43 .08 44 .54
726. 600488 4 18 .01 20 .37 43 .08 44 .54

727. 600490 4 18 .01 20 .37 43 .08 44 .54
728. 600500 4 18 .01 20 .37 43 .08 44 .54
729. 600505 4 18 .01 20 .37 43 .08 44 .54
730. 600510 4 18 .01 20 .37 43 .08 44 .54
731. 600530 3 31 .45 26 .27 27 .28
732. 600540 2 21 .12 29 .88
733. 600550 13 16 .09 17 .13 18 .07 19 .05 21 .02 22 .03 24 .08 25 .05 26 .04
734. 27 .09 28 .03 30 .16 31 .16
735. 600576 1 08 1.0
736. 600580 6 05 .02 12 .02 13 .06 14 .23 15 .41 42 .26
737. //GO.FT20F001 DD DSN=&&TEMPMV,DISP=(NEW,PASS),
738. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
739. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
740. //GO.FT21F001 DD DSN=&&TEMPMC,DISP=(NEW,PASS),
741. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
742. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
743. //GO.FT22F001 DD DSN=&&TEMPNU,DISP=(NEW,PASS),
744. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
745. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
746. //GO.FT23F001 DD DSN=&&TEMPCA,DISP=(NEW,PASS),
747. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
748. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
749. //GO.FT24F001 DD DSN=&&TEMPGA,DISP=(NEW,PASS),
750. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
751. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
752. //GO.FT25F001 DD DSN=&&TEMPNF,DISP=(NEW,PASS),
753. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
754. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
755. //GO.FT26F001 DD DSN=&&TEMPSF,DISP=(NEW,PASS),
756. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
757. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
758. //GO.FT27F001 DD DSN=&&TEMPMI,DISP=(NEW,PASS),
759. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
760. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
761. //GO.FT28F001 DD DSN=&&TEMPIL,DISP=(NEW,PASS),
762. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
763. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
764. //GO.FT29F001 DD DSN=&&TEMPIN,DISP=(NEW,PASS),
765. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
766. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
767. //GO.FT30F001 DD DSN=&&TEMPWI,DISP=(NEW,PASS),
768. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
769. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
770. //GO.FT31F001 DD DSN=&&TEMPEK,DISP=(NEW,PASS),
771. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
772. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
773. //GO.FT32F001 DD DSN=&&TEMPWK,DISP=(NEW,PASS),
774. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
775. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
776. //GO.FT33F001 DD DSN=&&TEMPET,DISP=(NEW,PASS),
777. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
778. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
779. //GO.FT34F001 DD DSN=&&TEMPWT,DISP=(NEW,PASS),
780. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
781. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
782. //GO.FT35F001 DD DSN=&&TEMPDK,DISP=(NEW,PASS),

783. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
784. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
785. //GO.FT36F001 DD DSN=&&TEMPMN,DISP=(NEW,PASS),
786. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
787. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
788. //GO.FT37F001 DD DSN=&&TEMPKN,DISP=(NEW,PASS),
789. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
790. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
791. //GO.FT38F001 DD DSN=&&TEMPIA,DISP=(NEW,PASS),
792. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
793. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
794. //GO.FT39F001 DD DSN=&&TEMPMO,DISP=(NEW,PASS),
795. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
796. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
797. //GO.FT40F001 DD DSN=&&TEMPMT,DISP=(NEW,PASS),
798. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
799. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
800. //GO.FT41F001 DD DSN=&&TEMPWY,DISP=(NEW,PASS),
801. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
802. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
803. //GO.FT42F001 DD DSN=&&TEMPID,DISP=(NEW,PASS),
804. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
805. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
806. //GO.FT43F001 DD DSN=&&TEMPCO,DISP=(NEW,PASS),
807. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
808. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
809. //GO.FT44F001 DD DSN=&&TEMPUT,DISP=(NEW,PASS),
810. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
811. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
812. //GO.FT45F001 DD DSN=&&TEMPNV,DISP=(NEW,PASS),
813. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
814. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
815. //GO.FT46F001 DD DSN=&&TEMPAZ,DISP=(NEW,PASS),
816. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
817. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
818. //GO.FT47F001 DD DSN=&&TEMPNM,DISP=(NEW,PASS),
819. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
820. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
821. //GO.FT48F001 DD DSN=&&TEMPWQ,DISP=(NEW,PASS),
822. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
823. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
824. //GO.FT49F001 DD DSN=&&TEMPCN,DISP=(NEW,PASS),
825. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
826. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
827. //GO.FT50F001 DD DSN=&&TEMPCS,DISP=(NEW,PASS),
828. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
829. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
830. //GO.FT51F001 DD DSN=&&TEMPEP,DISP=(NEW,PASS),
831. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
832. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
833. //GO.FT52F001 DD DSN=&&TEMPJY,DISP=(NEW,PASS),
834. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
835. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
836. //GO.FT53F001 DD DSN=&&TEMPWP,DISP=(NEW,PASS),
837. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
838. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)

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839. //GO.FT54F001 DD DSN=&&TEMPNW,DISP=(NEW,PASS),
840. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
841. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
842. //GO.FT55F001 DD DSN=&&TEMPSW,DISP=(NEW,PASS),
843. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
844. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
845. //GO.FT56F001 DD DSN=&&TEMPVA,DISP=(NEW,PASS),
846. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
847. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
848. //GO.FT57F001 DD DSN=&&TEMPDM,DISP=(NEW,PASS),
849. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
850. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
851. //GO.FT58F001 DD DSN=&&TEMPOH,DISP=(NEW,PASS),
852. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
853. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
854. //GO.FT59F001 DD DSN=&&TEMPOM,DISP=(NEW,PASS),
855. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
856. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
857. //GO.FT60F001 DD DSN=&&TEMPOS,DISP=(NEW,PASS),
858. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
859. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
860. //GO.FT61F001 DD DSN=&&TEMPAM,DISP=(NEW,PASS),
861. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
862. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
863. //GO.FT62F001 DD DSN=&&TEMPTX,DISP=(NEW,PASS),
864. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
865. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
866. //GO.FT63F001 DD DSN=&&TEMPAO,DISP=(NEW,PASS),
867. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
868. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
869. //GO.FT64F001 DD DSN=&&TEMPNA,DISP=(NEW,PASS),
870. // UNIT=SYSDA,SPACE=(TRK,(1,1)),
871. // DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=6160)
872. //DELD EXEC PGM=IEFBR14,REGION=10K
873. //DD1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78,DISP=(MOD,DELETE),
874. // UNIT=DASD,SPACE=(TRK,(7,1,3))
875. //DELD EXEC PGM=IEFBR14,REGION=10K
876. //DD1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78,DISP=(NEW,CATLG),
877. // UNIT=DASD,
878. // SPACE=(TRK,(7,1,3)),DCB=(DSORG=PO,RECFM=FB,BLKSIZE=6160,LRECL=80)
879. //GENER EXEC PGM=IEBGENER
880. //SYSPRINT DD DUMMY
881. //SYSUT1 DD DSN=&&TEMPMV,DISP=(OLD,DELETE)
882. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(MV),DISP=(OLD,KEEP)
883. //SYSIN DD DUMMY
884. //GENER EXEC PGM=IEBGENER
885. //SYSPRINT DD DUMMY
886. //SYSUT1 DD DSN=&&TEMPMC,DISP=(OLD,DELETE)
887. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(MC),DISP=(OLD,KEEP)
888. //SYSIN DD DUMMY
889. //GENER EXEC PGM=IEBGENER
890. //SYSPRINT DD DUMMY
891. //SYSUT1 DD DSN=&&TEMPNU,DISP=(OLD,DELETE)
892. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NU),DISP=(OLD,KEEP)
893. //SYSIN DD DUMMY
894. //GENER EXEC PGM=IEBGENER
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895. //SYSPRINT DD DUMMY
896. //SYSUT1 DD DSN=*&TEMPCA,DISP=(OLD,DELETE)
897. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(CA),DISP=(OLD,KEEP)
898. //SYSIN DD DUMMY
899. //GENER EXEC PGM=IEBGENER
900. //SYSPRINT DD DUMMY
901. //SYSUT1 DD DSN=*&TEMPGA,DISP=(OLD,DELETE)
902. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(GA),DISP=(OLD,KEEP)
903. //SYSIN DD DUMMY
904. //GENER EXEC PGM=IEBGENER
905. //SYSPRINT DD DUMMY
906. //SYSUT1 DD DSN=*&TEMPNF,DISP=(OLD,DELETE)
907. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NF),DISP=(OLD,KEEP)
908. //SYSIN DD DUMMY
909. //GENER EXEC PGM=IEBGENER
910. //SYSPRINT DD DUMMY
911. //SYSUT1 DD DSN=*&TEMPSF,DISP=(OLD,DELETE)
912. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(SF),DISP=(OLD,KEEP)
913. //SYSIN DD DUMMY
914. //GENER EXEC PGM=IEBGENER
915. //SYSPRINT DD DUMMY
916. //SYSUT1 DD DSN=*&TEMPMI,DISP=(OLD,DELETE)
917. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(MI),DISP=(OLD,KEEP)
918. //SYSIN DD DUMMY
919. //GENER EXEC PGM=IEBGENER
920. //SYSPRINT DD DUMMY
921. //SYSUT1 DD DSN=*&TEMPIL,DISP=(OLD,DELETE)
922. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IL),DISP=(OLD,KEEP)
923. //SYSIN DD DUMMY
924. //GENER EXEC PGM=IEBGENER
925. //SYSPRINT DD DUMMY
926. //SYSUT1 DD DSN=*&TEMPIN,DISP=(OLD,DELETE)
927. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(IN),DISP=(OLD,KEEP)
928. //SYSIN DD DUMMY
929. //GENER EXEC PGM=IEBGENER
930. //SYSPRINT DD DUMMY
931. //SYSUT1 DD DSN=*&TEMPWI,DISP=(OLD,DELETE)
932. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WI),DISP=(OLD,KEEP)
933. //SYSIN DD DUMMY
934. //GENER EXEC PGM=IEBGENER
935. //SYSPRINT DD DUMMY
936. //SYSUT1 DD DSN=*&TEMPEK,DISP=(OLD,DELETE)
937. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(EK),DISP=(OLD,KEEP)
938. //SYSIN DD DUMMY
939. //GENER EXEC PGM=IEBGENER
940. //SYSPRINT DD DUMMY
941. //SYSUT1 DD DSN=*&TEMPWK,DISP=(OLD,DELETE)
942. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WK),DISP=(OLD,KEEP)
943. //SYSIN DD DUMMY
944. //GENER EXEC PGM=IEBGENER
945. //SYSPRINT DD DUMMY
946. //SYSUT1 DD DSN=*&TEMPET,DISP=(OLD,DELETE)
947. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(ET),DISP=(OLD,KEEP)
948. //SYSIN DD DUMMY
949. //GENER EXEC PGM=IEBGENER
950. //SYSPRINT DD DUMMY
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951. //SYSUT1 DD DSN=##TEMPWT,DISP=(OLD,DELETE)
952. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WT),DISP=(OLD,KEEP)
953. //SYSIN DD DUMMY
954. //GENER EXEC PGM=IEBGENER
955. //SYSPRINT DD DUMMY
956. //SYSUT1 DD DSN=##TEMPDK,DISP=(OLD,DELETE)
957. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(DK),DISP=(OLD,KEEP)
958. //SYSIN DD DUMMY
959. //GENER EXEC PGM=IEBGENER
960. //SYSPRINT DD DUMMY
961. //SYSUT1 DD DSN=##TEMPMN,DISP=(OLD,DELETE)
962. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(MN),DISP=(OLD,KEEP)
963. //SYSIN DD DUMMY
964. //GENER EXEC PGM=IEBGENER
965. //SYSPRINT DD DUMMY
966. //SYSUT1 DD DSN=##TEMPKN,DISP=(OLD,DELETE)
967. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(KN),DISP=(OLD,KEEP)
968. //SYSIN DD DUMMY
969. //GENER EXEC PGM=IEBGENER
970. //SYSPRINT DD DUMMY
971. //SYSUT1 DD DSN=##TEMP1A,DISP=(OLD,DELETE)
972. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(1A),DISP=(OLD,KEEP)
973. //SYSIN DD DUMMY
974. //GENER EXEC PGM=IEBGENER
975. //SYSPRINT DD DUMMY
976. //SYSUT1 DD DSN=##TEMPMO,DISP=(OLD,DELETE)
977. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(MO),DISP=(OLD,KEEP)
978. //SYSIN DD DUMMY
979. //GENER EXEC PGM=IEBGENER
980. //SYSPRINT DD DUMMY
981. //SYSUT1 DD DSN=##TEMPMT,DISP=(OLD,DELETE)
982. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(MT),DISP=(OLD,KEEP)
983. //SYSIN DD DUMMY
984. //GENER EXEC PGM=IEBGENER
985. //SYSPRINT DD DUMMY
986. //SYSUT1 DD DSN=##TEMPWY,DISP=(OLD,DELETE)
987. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WY),DISP=(OLD,KEEP)
988. //SYSIN DD DUMMY
989. //GENER EXEC PGM=IEBGENER
990. //SYSPRINT DD DUMMY
991. //SYSUT1 DD DSN=##TEMPID,DISP=(OLD,DELETE)
992. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(ID),DISP=(OLD,KEEP)
993. //SYSIN DD DUMMY
994. //GENER EXEC PGM=IEBGENER
995. //SYSPRINT DD DUMMY
996. //SYSUT1 DD DSN=##TEMPCO,DISP=(OLD,DELETE)
997. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(CO),DISP=(OLD,KEEP)
998. //SYSIN DD DUMMY
999. //GENER EXEC PGM=IEBGENER
1000. //SYSPRINT DD DUMMY
1001. //SYSUT1 DD DSN=##TEMPUT,DISP=(OLD,DELETE)
1002. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(UT),DISP=(OLD,KEEP)
1003. //SYSIN DD DUMMY
1004. //GENER EXEC PGM=IEDGENER
1005. //SYSPRINT DD DUMMY
1006. //SYSUT1 DD DSN=##TEMPNV,DISP=(OLD,DELETE)
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1007. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NV),DISP=(OLD,KEEP)
1008. //SYSIN DD DUMMY
1009. //GENER EXEC PGM=IEBGENER
1010. //SYSPRINT DD DUMMY
1011. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(AZ),DISP=(OLD,DELETE)
1012. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(AZ),DISP=(OLD,KEEP)
1013. //SYSIN DD DUMMY
1014. //GENER EXEC PGM=IEBGENER
1015. //SYSPRINT DD DUMMY
1016. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NM),DISP=(OLD,DELETE)
1017. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NM),DISP=(OLD,KEEP)
1018. //SYSIN DD DUMMY
1019. //GENER EXEC PGM=IEBGENER
1020. //SYSPRINT DD DUMMY
1021. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WO),DISP=(OLD,DELETE)
1022. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WO),DISP=(OLD,KEEP)
1023. //SYSIN DD DUMMY
1024. //GENER EXEC PGM=IEBGENER
1025. //SYSPRINT DD DUMMY
1026. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(CN),DISP=(OLD,DELETE)
1027. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(CN),DISP=(OLD,KEEP)
1028. //SYSIN DD DUMMY
1029. //GENER EXEC PGM=IEBGENER
1030. //SYSPRINT DD DUMMY
1031. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(CS),DISP=(OLD,DELETE)
1032. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(CS),DISP=(OLD,KEEP)
1033. //SYSIN DD DUMMY
1034. //GENER EXEC PGM=IEBGENER
1035. //SYSPRINT DD DUMMY
1036. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(EP),DISP=(OLD,DELETE)
1037. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(EP),DISP=(OLD,KEEP)
1038. //SYSIN DD DUMMY
1039. //GENER EXEC PGM=IEBGENER
1040. //SYSPRINT DD DUMMY
1041. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(JY),DISP=(OLD,DELETE)
1042. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(JY),DISP=(OLD,KEEP)
1043. //SYSIN DD DUMMY
1044. //GENER EXEC PGM=IEBGENER
1045. //SYSPRINT DD DUMMY
1046. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WP),DISP=(OLD,DELETE)
1047. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(WP),DISP=(OLD,KEEP)
1048. //SYSIN DD DUMMY
1049. //GENER EXEC PGM=IEBGENER
1050. //SYSPRINT DD DUMMY
1051. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NW),DISP=(OLD,DELETE)
1052. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NW),DISP=(OLD,KEEP)
1053. //SYSIN DD DUMMY
1054. //GENER EXEC PGM=IEBGENER
1055. //SYSPRINT DD DUMMY
1056. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(SW),DISP=(OLD,DELETE)
1057. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(SW),DISP=(OLD,KEEP)
1058. //SYSIN DD DUMMY
1059. //GENER EXEC PGM=IEBGENER
1060. //SYSPRINT DD DUMMY
1061. //SYSUT1 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=(OLD,DELETE)
1062. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(VA),DISP=(OLD,KEEP)
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1063. //SYSIN DD DUMMY
1064. //GENER EXEC PGM=IEBGENER
1065. //SYSPRINT DD DUMMY
1066. //SYSUT1 DD DSN=*&TEMPDM,DISP=(OLD,DELETE)
1067. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(DM),DISP=(OLD,KEEP)
1068. //SYSIN DD DUMMY
1069. //GENER EXEC PGM=IEBGENER
1070. //SYSPRINT DD DUMMY
1071. //SYSUT1 DD DSN=*&TEMPON,DISP=(OLD,DELETE)
1072. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(ON),DISP=(OLD,KEEP)
1073. //SYSIN DD DUMMY
1074. //GENER EXEC PGM=IEBGENER
1075. //SYSPRINT DD DUMMY
1076. //SYSUT1 DD DSN=*&TEMPOM,DISP=(OLD,DELETE)
1077. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(OM),DISP=(OLD,KEEP)
1078. //SYSIN DD DUMMY
1079. //GENER EXEC PGM=IEBGENER
1080. //SYSPRINT DD DUMMY
1081. //SYSUT1 DD DSN=*&TEMPOS,DISP=(OLD,DELETE)
1082. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(OS),DISP=(OLD,KEEP)
1083. //SYSIN DD DUMMY
1084. //GENER EXEC PGM=IEBGENER
1085. //SYSPRINT DD DUMMY
1086. //SYSUT1 DD DSN=*&TEMPAM,DISP=(OLD,DELETE)
1087. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(AM),DISP=(OLD,KEEP)
1088. //SYSIN DD DUMMY
1089. //GENER EXEC PGM=IEBGENER
1090. //SYSPRINT DD DUMMY
1091. //SYSUT1 DD DSN=*&TEMPTX,DISP=(OLD,DELETE)
1092. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(TX),DISP=(OLD,KEEP)
1093. //SYSIN DD DUMMY
1094. //GENER EXEC PGM=IEBGENER
1095. //SYSPRINT DD DUMMY
1096. //SYSUT1 DD DSN=*&TEMPAO,DISP=(OLD,DELETE)
1097. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(AO),DISP=(OLD,KEEP)
1098. //SYSIN DD DUMMY
1099. //GENER EXEC PGM=IEBGENER
1100. //SYSPRINT DD DUMMY
1101. //SYSUT1 DD DSN=*&TEMPNA,DISP=(OLD,DELETE)
1102. //SYSUT2 DD DSN=CN6376.MI2.NUREG.FORM1M.PDS78(NA),DISP=(OLD,KEEP)
1103. //SYSIN DD DUMMY
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