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**Fossil 2 Energy Policy Model
Documentation**

Fossil 2 Documentation

October 1980

Prepared for:

U.S. Department of Energy

Assistant Secretary for Policy and Evaluation

Office of Analytical Services

Under Contract No. AC01-79PE 70143

MASTER

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Office of Analytical Services

Washington, DC 20585

Prepared by:

Energy and Environmental Analysis, Inc.

Arlington, Virginia 22209

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20000 NOTE *****
20010 NOTE *****
20020 NOTE
20030 NOTE Energy Demand Sector of FOSSIL2
20040 NOTE
20050 NOTE
20060 NOTE Department of Energy
20070 NOTE Energy Transition Project
20080 NOTE
20090 NOTE Version Release Date:
20100 NOTE March 1980
20110 NOTE
20120 NOTE *****
20130 NOTE *****
20140 NOTE

20150 NOTE
 20160 NOTE *****
 20170 NOTE
 20180 NOTE Domestic Economy Subsector
 20190 NOTE
 20200 NOTE *****
 20210 NOTE
 20220 NOTE
 20230 NOTE
 20240 A DEGNP.K=DEPCNP.K*DEGNPM.K
 20250 A DEGNPM.K-SMOOTH((NEAP.K/NEAP50)^DEPE,DEPAT)
 20260 C DEPE=-.12
 20270 C DEPAT=1
 20280 NOTE
 20290 I DEPCNP.K=DEPCNP.J+(DT)*(DEGNPIR.JK)
 20300 N DEPCNP=DEGNPI
 20310 C DEGNPI=674E9
 20320 R DEGNPIR.KL=DEPCNP.K*(DELGGR.K+DERYGR.K)
 20330 A DELGGR.K=TARHL(DELGGR.TIME.K,1950,2030,5)*1E-2
 20340 T DELGGR.T=6.8/.9/3.8/5.5/1.7/2.3/3.45/3.3/3.1/2.5/2.2/
 20345 X 1.9/1.6/1.3/.9/0/0
 20350 A DERYGR.K=TARHL(DERYGR.TIME.K,1968,1987,1)*1E-2
 20360 T DERYGR.T=0/2.9/2.7/2.3/1/1/-8/1.5/2.2/2.2/1.9/-3.15/-3.32/
 20365 X 3.38/.76/1.14/1.52/2.2/0/0
 20370 A DEINF.K=CLIP(DEPINF,DEHINF,TIME.K,1968)
 20380 C DEHINF=.01
 20390 C DEPINF=.055
 20400 NOTE

GROSS NATIONAL PRODUCT	\$
GROSS NATIONAL PRODUCT MULTIPLIER	DIMENSIONLESS
PRICE ELASTICITY	DIMENSIONLESS
PRICE ADJUSTMENT TIME	YEAR
POTENTIAL GROSS NATIONAL PRODUCT	\$
POTENTIAL GROSS NATIONAL PRODUCT	\$
GROSS NATIONAL PRODUCT INITIAL	\$
GROSS NATIONAL PRODUCT INCREASE RATE	\$/YR
LONG TERM GNP GROWTH RATE	FRACTION/YR
LONG TERM GNP GROWTH RATE TABLE	TABLE
RECESSIONS YEAR GROWTH RATE	FRACTION/YR
RECESSION GROWTH RATE TABLE	TABLE
INFLATION RATE	FRACTION/YR
HISTORICAL RATE OF INFLATION	FRACTION/YR
POST 1968 RATE OF INFLATION	FRACTION/YR

20410 NOTE
 20420 NOTE *****
 20430 NOTE
 20440 NOTE Net Energy Demand Subsector
 20450 NOTE
 20460 NOTE *****
 20470 NOTE
 20480 NOTE
 20490 A $NECD.K = NED.K - NEDD.K$
 20500 A $NEDD.K = DSEUD.K$
 20510 A $NED.K = NEID.K * DLINF3(1-STEP(NEFCS, NECSY)/100, NECSDT)$
 20520 C $NEPCS = 4.4$
 20530 C $NECSY = 1979$
 20540 C $NECSDT = 5$
 20541 A $NEID.K = NED50 * NEDMI.K * NEDMP.K * NEDMA.K$
 20542 C $NED50 = 29.6E15$
 20543 A $NEPD.K = NECD.K * DLINF3(1-STEP(NEOCS, NEOCSY)/100, NECSDT)$
 20544 C $NEOCS = 2.4$
 20545 C $NEOCSY = 2200$
 20570 NOTE
 20580 A $NEDMI.K = (DEGNP.K / DEGNPI) ^ NEIE$
 20590 C $NEIE = .95$
 20600 NOTE
 20610 A $NEDHP.K = SMOOTH((NEDP.K / NEAP50) ^ (NEPE), NEDAT)$
 20620 C $NEDAT = 10$
 20630 C $NEPE = -.5$
 20640 NOTE
 20650 A $NEDMA.K = SMOOTH(NECDR.K, NEAAT)$
 20660 C $NEAAT = 5$
 20670 NOTE
 20680 A $NEDP.K = NEAP.K + STEP(NEPXT, NEXTY)$
 20690 C $NEPXT = 1.00E-6$
 20700 C $NEXTY = 2200$
 20710 A $NEAP.K = (TODP.K * TOCR.K + TGDP.K * TGCR.K + TEP.K * TECR.K +$
 20720 X $DCP.K * DCCR.K + DSP.K * DSCR.K) / NECR.K$
 20730 N $NEAP = NEAP50$
 20740 C $NEAP50 = 2.07E-6$
 20750 A $NECR.K = TOCR.K + TGCR.K + DCCR.K + TECR.K + DSCR.K$
 20760 A $TOCR.K = (TOEUD.K + DGCURO.K) * TOPER.K$
 20770 A $TGCR.K = TGEUD.K - DGCUR.K$
 20780 A $DCCR.K = (DCEUD.K + DGCURC.K) * DCPFR.K$
 20790 A $TECR.K = TEEUD.K * TEPDR.K$
 20800 A $DSCR.K = DSEUD.K$
 20810 A $NECDR.K = NECR.K / (NEPD.K + NEDD.K)$
 20820 N $NECDR = 1$
 20830 NOTE

CENTRALIZED DEMAND BTU/YR
 DECENTRALIZED DEMAND BTU/YR
 DEMAND BTU/YR
 POLICY CONSERVATION SAVINGS FRACTION/YR
 CONSERVATION SAVINGS INITIATION YEAR YEAR
 CONSERVATION SAVINGS DEVELOPMENT TIME YEAR
 INDICATED DEMAND BTU/YR
 DEMAND IN 195C BTU/YR
 POTENTIAL DEMAND BTU/YR
 OIL CONSERVATION SAVINGS FRACTION/YR
 OIL CONSERVATION SAVINGS YEAR YEAR
 DEMAND MULTIPLIER FROM INCOME DIMENSIONLESS
 INCOME ELASTICITY DIMENSIONLESS
 DEMAND MULTIPLIER FROM PRICE DIMENSIONLESS
 DEMAND ADJUSTMENT TIME YEAR
 PRICE ELASTICITY DIMENSIONLESS
 DEMAND MULTIPLIER FROM AVAILABILITY DIM'LESS
 AVAILABILITY AVERAGING TIME YEAR
 DELIVERED PRICE \$/BTU
 POLICY EXCISE TAX \$/RTU
 EXCISE TAX INITIATION YEAR YEAR
 AVERAGE PRICE \$/BTU
 AVERAGE PRICE \$/BTU
 AVERAGE PRICE IN 1950 \$/BTU
 CONSUMPTION RATE BTU/YR
 CONSUMPTION RATE BTU/YR
 CONSUMPTION RATE BTU/YR
 CONSUMPTION RATE BTU/YR
 CONSUMPTION RATE BTU/YR
 CONSUMPTION RATE BTU/YR
 CONSUMPTION DEMAND RATIO DIMENSIONLESS
 CONSUMPTION DEMAND RATIO DIMENSIONLESS

20840	NOTE			
20850	NOTE	*****		
20860	NOTE			
20870	NOTE	Interfuel Substitution -- Coal Demand Subsector		
20880	NOTE			
20890	NOTE	*****		
20900	NOTE			
20910	NOTE			
20920	NOTE			
20930	A	DCEUD.K=NECD.K*DCDMI.K*DCDNP.K*DCDMA.K	END-USE DEMAND	BTU/YR
20940	X	*DLINF3(1+STEP(DCPCS,DCCSY)/100,DCCSDT)		
20950	C	DCPCS=70	POLICY CONSERVATION SAVINGS	FRACTION/YR
20960	C	DCCSY=1979	CONSERVATION SAVINGS INITIATION YEAR	YEAR
20970	C	DCCSDT=10	CONSERVATION SAVINGS DEVELOPMENT TIME	YEAR
20980	NOTE			
20990	A	DCDMI.K=TABHL(DCDMIT,DEGHP.K/DEGNPI,1,4.6,.4)	DEMAND MULTIPLIER FROM INCOME	DIMENSIONLESS
21000	T	DCDMIT=.355/.15/.12/.065/.065/.065/.065/.065/.065/.065	DEMAND MULTIPLIER FROM INCOME TABLE	TABLE
21010	NOTE			
21020	A	DCDNP.K=SMOOTH(TABHL(DCDMPT,(DCP.K/TODP.K)/DCPR70,.5,1.5,.1),NEDAT)	DEMAND MULTIPLIER FROM PRICE	DIMENSIONLESS
21030	T	DCDMPT=1.4/1.29/1.2/1.12/1.05/1/.95/.91/.88/.85/.82	DENAND MULTIPLIER FROM PRICE TABLE	TABLE
21040	C	DCPR70=.30	PRICE RATIO IN 1970	\$/BTU
21050	NOTE			
21060	A	DCDMA.K=SMOOTH(DCPDR.K/TOPDR.K,NEAAT)	DEMAND MULTIPLIER FROM AVAILABILITY	DIM'LESS
21070	NOTE			

21080	NOTE			
21090	NOTE	*****		
21100	NOTE			
21110	NOTE	Interfuel Substitution -- Electricity Demand Subsector		
21120	NOTE			
21130	NOTE	*****		
21140	NOTE			
21150	NOTE			
21160	A	TEEUD.K=NECD.K*TEDMI.K*TEDNP.K*TEDMA.K	END-USE DEMAND	BTU/YR
21170	X	*SMOOTH(1-STEP(TEPCS,TECSY)/100,NECSDT)		
21180	C	TEPCS=0	POLICY CONSERVATION SAVINGS	FRACTION/YR
21190	C	TECSY=2200	CONSERVATION SAVINGS INITIATION YEAR	YEAR
21200	NOTE			
21210	A	TEDMI.K=TABHL(TEDMIT,DEGNP.3/DEGNPI,1,7.0,.4)	DEMAND MULTIPLIER FROM INCOME	DIMENSIONLESS
21220	T	TEDMIT=.043/.073/.085/.093/.1/.107/.114/.121/.126/.129/.133/ .137/.141/.145/.149/.153	DEMAND MULTIPLIER FROM INCOME TABLE	TABLE
21225	X			
21230	NOTE			
21240	A	TEDMP.K=SMOOTH(TABHL(TEDMPT,(TEP.K/TODP.K)/TEPR70,.5,1.5,.1),NEDAT)	DEMAND MULTIPLIER FROM PRICE	DIMENSIONLESS
21250	T	TEDMPT=2/1.67/1.43/1.25/1.11/1/.91/.83/.77/.71/.67	DEMAND MULTIPLIER FROM PRICE TABLE	TABLE
21260	C	TEPR70=2.84	PRICE RATIO IN 1970	\$/BTU
21270	NOTE			
21280	A	TEDMA.K=SMOOTH(TEPDR.K/TOPDR.K,NEAAT)	DEMAND MULTIPLIER FROM AVAILABILITY	DIM'LESS
21290	NOTE			

21300	NOTE			
21310	NOTE	*****		
21320	NOTE			
21330	NOTE	Interfuel Substitution -- Gas Demand Subsector		
21340	NOTE			
21350	NOTE	*****		
21360	NOTE			
21370	NOTE			
21380	A	TGEUD.K=NECD.K*TGDMP.K*TCDMI.K*TGDMA.K	END-USE DEMAND	BTU/YR
21390	X	*SMOOTH(1-STEP(TGPCS,TGCSY)/100,NECSDT)		
21400	C	TGPCS=0	POLICY CONSERVATION SAVINGS	FRACTION/YR
21410	C	TGCSY=2200	CONSERVATION SAVINGS INITIATION YEAR	YEAR
21420	NOTE			
21430	A	TGDHI.K-TABHL(TGDHIT,DEGNP.K/DEGNPI,1,7.0,.4)	DEMAND MULTIPLIER FROM INCOME	DIMENSIONLESS
21440	T	TGDHIT=.162/.25/.285/.3/.31/.325/.34/.36/.38/.397/ .406/.411/.414/.417/.419/.42	DEMAND MULTIPLIER FROM INCOME TABLE	TABLE
21445	X			
21450	NOTE			
21460	A	TGDMP.K-SMOOTH(TABHL(TGDMPT,(TGD.P.K/TODP.K)/TGPR70,.8,3.0,.2),NEDAT)	DEMAND MULTIPLIER FROM PRICE	DIMENSIONLESS
21470	T	TGDHPT=1.25/1/.83/.71/.63/.56/.50/.45/.42/.38/.36/.33	DEMAND MULTIPLIER FROM PRICE TABLE	TABLE
21480	C	TGPR70=.38	PRICE RATIO IN 1970	\$/BTU
21490	NOTE			
21500	A	TGDMA.K-SMOOTH(TGPDR.K/TOPDR.K,NEAAT)	DEMAND MULTIPLIER FROM AVAILABILITY	DIM'LESS
21510	NOTE			
21520	A	TGDP.K-TGP.K+STEP(TGPXT,TGXTY)	DELIVERED PRICE	\$/BTU
21610	C	TGPXT=.50E-6	POLICY EXCISE TAX	\$/BTU
21620	C	TGXTY=2200	EXCISE TAX INITIATION YEAR	YEAR
21630	NOTE			

21640	NOTE			
21650	NOTE	*****		
21660	NOTE			
21670	NOTE	Interfuel Substitution -- Oil Demand Subsector		
21680	NOTE			
21690	NOTE	*****		
21700	NOTE			
21710	NOTE			
21720	A	TOEUD.K=NEPD.K-DCEUD.K-TEEUD.K-TGEUD.K	END-USE DEMAND	BTU/YR
21730	NOTE			
21740	A	TODP.K=TOP.K+STEP(TOPXT,TOXTY)	DELIVERED PRICE	\$/BTU
21840	C	TOPXT=.50E-6	POLIC ² EXISE TAX	\$/BTU
21850	C	TOXTY=2200	EXISE TAX INITIATION YEAR	YEAR
21860	NOTE			

21870 NOTE
 21880 NOTE
 21890 NOTE *****
 21900 NOTE
 21910 NOTE Solar-Geothermal Energy Production Subsector
 21920 NOTE
 21930 NOTE *****
 21940 NOTE
 21950 NOTE
 21960 A DSEUD.K=NED.K*DSDMI.K*DSDMP.K
 21970 NOTE
 21980 A DSDMI.K=TABHL(DSDMIT,TIME.K,1950,2020,10)
 21990 T DSDMIT=0/0/0/0/.009/.014/.019/.023
 22000 NOTE
 22010 A DSDMP.K=SMOOTH(TABHL(DSDMPT,(DSP.K/(CEAP.K/CEEUE))/DSPTT,2,1.8,
 22015 X .2),NEDAT)
 22020 T DSDMPT=7/3.5/1.9/1.3/1/.83/.71/.63/.55
 22030 C CEEUE=.62
 22031 A DSP.K=TABHL(DSPTT,TIME.K,1950,2030,10)*1E-6
 22032 T DSPTT=20/20/20/16/14/13/12/11/10
 22033 C DSPTT=2.75
 22040 A CEAP.K=(TODP.K*TOCR.K+TGDP.K*TCCR.K+TEP.K*TECR.K+
 22050 X DCP.K*DCCR.K)/CECR.K
 22060 N CEAP=NEAP50
 22070 A CECR.K=TOCR.K+TCCR.K+DCCR.K+TECR.K
 22080 NOTE
 22120 NOTE

END-USE DEMAND	BTU/YR
DEMAND MULTIPLIER FROM INCOME	DIMENSIONLESS
DEMAND MULTIPLIER FROM INCOME TABLE	TABLE
DEMAND MULTIPLIER FROM PRICE	DIMENSIONLESS
DEMAND MULTIPLIER FROM PRICE TABLE	TABLE
END-USE EFFICIENCY	DIMENSIONLESS
PRICE	\$/BTU
PRICE TABLE	TABLE
PRICE RATIO IN 1975	\$/BTU
AVERAGE PRICE	\$/BTU
AVERAGE PRICE	\$/BTU
CONSUMPTION RATE	BTU/YR

30000 NOTE *****
30010 NOTE *****
30020 NOTE *****
30030 NOTE Gas Production Sector of FOSSIL2
30040 NOTE
30050 NOTE
30060 NOTE Department of Energy
30070 NOTE Energy Transition Project
30080 NOTE
30090 NOTE Version Release Date:
30100 NOTE March 1980
30110 NOTE
30120 NOTE *****
30130 NOTE *****
30140 NOTE

30150	NOTE			
30160	NOTE	*****		
30170	NOTE			
30180	NOTE	Gas Supply-Demand Balance: Capacity Utilization Subsector		
30190	NOTE			
30200	NOTE	*****		
30210	NOTE			
30220	NOTE			
30230	A	DGCUF.K=DGRCUF.K*DGDSU.K+DGUCUF.K*(1-DGDSU.K)	CAPACITY UTILIZATION FACTOR	FRACTION
30240	A	DGRCUF.K=MIN(DGRCUFM,DGUCUF.K)	REGULATED CAPACITY UTILIZATION FACTOR	FRACTION
30250	C	DGRCUFM=.8	REGULATED CUF MAXIMUM	FRACTION
30260	A	DGUCUF.K=TABLE(DGCUFT,(DGGD.K-PGCR.K-LNCR.K)/DGPC.K,0,1.1,.1)	UNREGULATED CUF	FRACTION
30270	T	DGCUFT=0/.1/.2/.3/.4/.5/.6/.7/.8/.9/.9	CAPACITY UTILIZATION FACTOR TABLE	TABLE
30280	A	DGDSU.K=SMOOTH(CLIP(0,1,TIME.K,DGDYI),DGEAT)	DEREGULATION SCHEDULE FOR CUF	FRACTION
30290	A	DGGD.K=TGGD.K-AGCR.K-SNCR.K	GROSS DEMAND	BTU/YR
30300	A	TGGD.K=TGND.K/TGDE	GROSS DEMAND	BTU/YR
30310	C	TGDE=1	DISTRIBUTIONAL EFFICIENCY	FRACTION
30320	A	TGND.K=TGEUD.K+OUDG.K	NET DEMAND	BTU/YR
30330	A	DGPC.K=CGPC.K+UGPC.K+MGPC.K+HGPC.K	PRODUCTION CAPACITY	BTU/YR
30340	A	TGPR.K=DGPR.K+AGCR.K+PGCR.K+LNCR.K+SNCR.K	PRODUCTION RATE	BTU/YR
30350	A	DGPR.K=CGPR.K+UGPR.K+HGPR.K+MGPR.K	PRODUCTION RATE	BTU/YR
30360	A	TGPDR.K=TGPR.K/TGGD.K	PRODUCTION DEMAND RATIO	DIMENSIONLESS
30370	A	TGPCR.K=TGPR.K/(TGGD.K-DGCR.K)	PRODUCTION-CONSUMPTION RATIO	DIMENSIONLESS
30380	N	TGPDR=1	PRODUCTION DEMAND RATIO	DIMENSIONLESS
30390	NOTE			
30400	A	DGCR.K=MAX(0,DGGD.K-PGCR.K-LNCR.K-DGCUF.K*DGPC.K)	CURTAILMENTS	BTU/YR
30410	A	DGCURO.K=DGCR.K*DGFD0	CURTAILMENTS TO OIL	BTU/YR
30420	C	DGFD0=.8	FRACTION DEMANDED AS OIL	FRACTION
30430	A	DGCRK.K=DGCR.K*(1-DGFD0)	CURTAILMENTS TO COAL	BTU/YR
30440	A	DGFEDP.K=TABHL(DGFEDPT,PGWP.K/LNWP.K,0,2,.2)	FRAC. OF IMPORT DEMAND TO PANAM SOURCES	FRAC.
30450	T	DGFEDPT=1/.98/.95/.9/.8/.5/.2/.1/.05/.02/0	FEDP TABLE	TABLE
30460	A	DGIMD.K=DGGD.K-PGCR.K-LNCR.K-.85*DGPC.K	IMPORT DEMAND	BTU/YR

30470	NOTE			
30480	NOTE	*****		
30490	NOTE			
30500	NOTE	Gas Supply-Demand Balance: Pricing Subsector		
30510	NOTE			
30520	NOTE	*****		
30530	NOTE			
30540	NOTE			
30550	A	$TGP.K = (DGWP.K * DGPR.K + AGWP.K * AGCR.K + PGWP.K * PGC.R.K + LNWP.K * LNCR.K$	PRICE	\$/BTU
30560	X	$+ SNWP.K * SNCR.K) / TGPR.K + TGDENG$		
30570	N	$TGP = .98E-6$	PRICE	\$/BTU
30580	C	$TGDCHG = .80E-6$	DELIVERY CHARGE	\$/BTU
30590	A	$DGWP.K = (DGUWP.K * DGDS.K + DGRWP.K * (1 - DGDS.K)) * (CGPR.K / DGPR.K) + DGUWP.K$	WELLHEAD PRICE	\$/BTU
30595	X	$* (1 - (CGPR.K / DGPR.K))$		
30600	N	$DGWP = .19E-6$	WELLHEAD PRICE	\$/BTU
30610	A	$DGDS.K = SMOOTH(CLIP(1, 0, TIME.K, DGDYI), DGBRT)$	DEREGULATION SCHEDULE	DIMENSIONLESS
30620	C	$DGDYI = 1979$	DEREGULATION YEAR INITIAL	YEAR
30630	C	$DGBRT = 6$	DEREGULATION ADJUSTMENT TIME	YEAR
30640	A	$DGUWP.K = MAX(DGCPS.K, DGPMN.K * DGPMH.K + DGACST.K)$	UNREGULATED WELLHEAD PRICE	\$/RTU
30650	A	$DGRWP.K = DGPMN.K + DGACST.K$	REGULATED WELLHEAD PRICE	\$/BTU
30660	A	$DGACST.K = DGCST.K / DGPR.K$	AVERAGE COST	\$/BTU
30670	A	$DGPMN.K = DGROEN.K * DGEQ.K / (DGPC.K * DGCUFN * (1 - DGTR))$	PROFIT MARGIN NORMAL	\$/BTU
30680	A	$DGROEN.K = CLIP(DGPROEN, DGHROEN, TIME.K, DGEPI) + DEINF.K$	NORMAL RETURN ON EQUITY	FRACTION/YR
30690	C	$DGHROEN = .10$	HISTORICAL RETURN ON EQUITY NORMAL	FRACTION/YR
30700	C	$DGPROEN = .25$	POLICY RETURN ON EQUITY NORMAL	FRACTION/YR
30710	C	$DGRPI = 2200$	ROI REGULATION POLICY INITIATION YEAR	YEAR
30720	A	$DGPMN.K = TABHL(DGPMHT, DGGD.K / (DGPC.K * DGCUFN), .6, 1.6, .2)$	PRICE MULTIPLIER	DIMENSIONLESS
30730	T	$DGPMHT = 0 / .3 / 1 / 1.7 / 2.8 / 5$	PRICE MULTIPLIER TABLE	TABLE
30740	C	$DGCUFN = .80$	CAFACITY UTILIZATION FACTOR NORMAL	FRACTION
30750	A	$DGCPS.K = CLIP(TABHL(DGCPST, TIME.K, 1978, 1985, 1) * 1E-6, 0, TIME.K, DGDYI)$	CEILING PRICE SCHEDULE	\$/BTU
30760	T	$DGCPST = 0 / 1.92 / 1.99 / 2.06 / 2.14 / 2.23 / 2.32 / 2.42$	CEILING PRICE SCHEDULE TABLE	TABLE
30770	NOTE			

30780	NOTE				
30790	NOTE	*****			
30800	NOTE				
30810	NOTE	Gas Financing: Source of Funds Subsector			
30820	NOTE				
30830	NOTE	*****			
30840	NOTE				
30850	NOTE				
30860	A	$DGNI.K = (1 - DGTR) * (DGREV.K - DGCST.K) + DGITC * DGNPC.K + UGNTC.K * UGPR.K$	NET INCOME		\$/YR
30870	C	$DGTR = .35$	TAX RATE		FRACTION
30880	C	$DGITC = .07$	INVESTMENT TAX CREDIT		FRACTION
30890	A	$DGREV.K = (DGWP.K + DGGS.K) * DGPR.K$	REVENUE		\$/YR
30900	A	$DGGS.K = (UGGS.K * UGPR.K) / DGPR.K + (MGGS.K * MGPR.K + HGG.S.K * HGPR.K) / DGPR.K$	GOVERNMENT SUBSIDY		\$/BTU
30910	A	$DGCST.K = CGCST.K + UGCST.K + HGCST.K + MGCST.K +$	COST		\$/YR
30920	X	$DGDEP.K + DGINT.K$			
30930	NOTE				
30940	L	$DGGA.K = DGGA.J + (DT) (DGINV.J - DGGAR.JK - DGVLI.JK)$	GROSS ASSETS		\$
30950	N	$DGGA = 3.2E9$	GROSS ASSETS		\$
30960	R	$DGGAR.KL = DGGA.K * DGARF.K$	GROSS ASSET RETIREMENTS		\$/YR
30970	A	$DGARF.K = (CGPA.K * CGARF + UGPA.K * UGARF + MGPA.K * MGARF + HGPA.K * HGARF) / DGPA.K$	ASSET RETIREMENT FACTOR		FRACTION/YR
30980	R	$DGVLI.KL = DGGA.K * DEINF.K * (1 - STEP(1, DGPLAY))$	VALUE LOSS DUE TO INFLATION		\$/YR
30990	C	$DGPLAY = 2200$	PRICE LEVEL ACCOUNTING INITIATION YEAR		YEAR
31000	NOTE				
31010	A	$DGNA.K = DGGA.K * DGADF$	NET ASSETS		\$
31020	C	$DGADF = .50$	ACCUMULATED DEPRECIATION FRACTION		FRACTION
31030	A	$DGEQ.K = DGNA.K * DGEF$	EQUITY		\$
31040	C	$DGEF = .95$	EQUITY FRACTION		FRACTION
31050	A	$DGDEBT.K = DGNA.K * DGDF$	DEBT		\$
31060	N	$DGDF = (30/70) * DGEF$	DEBT FRACTION		FRACTION
31070	A	$DGINT.K = DGIR.K * DGDEBT.K$	INTEREST		\$/YR
31080	A	$DGIR.K = DGIRN + DEINF.K$	INTEREST RATE		FRACTION/YR
31090	C	$DGIRN = .025$	INTEREST RATE NORMAL		FRACTION/YR
31100	A	$DGDRMT.K = DGDEBT.K / DGDL$	DEBT REPAYMENT		\$/YR
31110	C	$DGDL = 10$	DEBT LIFE		YEAR
31120	A	$DGDEP.K = DGGA.K / DGBLC$	DEPRECIATION		\$/YR
31130	C	$DGBLC = 17$	BOOK LIFE OF CAPITAL		YEAR
31140	NOTE				
31150	A	$DGIF.K = DCNI.K - DGDIV.K + DGDEP.K - DGDRMT.K$	INTERNAL FUNDS		\$/YR
31160	A	$DGDIV.K = TABHL(DGDPOT, DGROI.K / DGROIN.K, .8, 2, .4) * DGNI.K$	DIVIDENDS		\$/YR
31170	T	$DGDPOT = .6 / .5 / .35 / .25$	DIVIDEND PAYOUT TABLE		TABLE
31180	A	$DGROI.K = (DGNI.K + DGINT.K) / (DGEQ.K + DGDEBT.K)$	RETURN ON INVESTMENT		FRACTION/YR
31190	A	$DGROIN.K = DGROIR + SMOOTH(DEINF.K, DGEAT)$	RETURN ON INVESTMENT NORMAL		FRACTION/YR
31200	C	$DGROIR = .08$	RETURN ON INVESTMENT REAL		FRACTION/YR
31210	A	$DGROIX.K = SMOOTH(DGROI.K / DGROIN.K, DGEAT)$	RETURN ON INVESTMENT INDEX		DIMENSIONLESS
31220	C	$DGEAT = 5$	ECONOMIC AVERAGING TIME		YEAR

31230 NOTE
31240 A $DGFA.K = DGIF.K + DGEFA.K$
31250 A $DGEFA.K = DGGR.K * MAX(DGGA.K, DGPANI)$
31260 A $DGGR.K = TABHL(DGGRT, DGROIX.K, .3, .3, .3)$
31270 T $DGGRT = 0/.025/.052/.07/.09/.105/.12/.13/.14/.15/.15$
31280 NOTE
31290 A $DGFN.K = MAX(0, (DGFPK.K - DGPA.K - DGPUC.K + DGAFACT.K * DGARF.K$
31300 X $* (DGPA.K + DGFPK.K) / 2) / EGFCEN)$
31310 C $DGFCEN = .85$
31320 A $DGFPK.K = DGNPA.K * EXP(DGNPA.K / DGSPA.K - 1)$
31330 A $DGNPA.K = DGGD.K / DGCUFN * DGCC.K$
31340 L $DGSPA.K = DGSPA.J + (DT) (DGNPA.J - DGSPA.J) / DGAFACT.J$
31350 N $DGSPA = DGSPAI$
31360 C $DGSPAI = 1.8E9$
31370 A $DGCC.K = DGPA.K / DGPC.K$
31380 A $DGPA.K = CGPA.K + UGPA.K + HGPA.K + HGPA.K$
31390 A $DGPUC.K = CGPUC.K + UGPUC.K + HGPUC.K + HGPUC.K$
31400 A $DGAFACT.K = ((CGFCR.JK + UGFCR.JK) * NGFCT + MGFCR.JK * MGFCR.K$
31410 X $+ HGFCR.JK * HGFCR.K) / DGNPC.K$
31420 A $DGNPC.K = CGFCR.JK + UGFCR.JK + HGFCR.JK + HGFCR.JK$
31430 NOTE
31440 A $DGINV.K = MAX(0, MIN(DGFA.K, DGFN.K) * DGFCEN.K * DGCEL.K)$
31450 A $DGFCEN.K = TABHL(DGFCET, DGROIX.K, 0, 1.5, .3)$
31460 T $DGFCET = 0/.25/.4/.75/.85/.93$
31470 A $DGCEL.K = TABHL(DGCELT, DGGRI.K, .3, .35, .05)$
31480 T $DGCELT = 1/1/1/1/1/.8/.4/0$
31490 A $DGGRI.K = (DGAGR.K / SMOOTH(DGAGR.K, DGTGR) - 1) / DGTGR$
31500 A $DGAGR.K = DGPA.K + DGPUC.K$
31510 NOTE

FUNDS AVAILABLE \$/YR
EXTERNAL FUNDS AVAILABLE \$/YR
GROWTH RATE FRACTION/YR
GROWTH RATE TABLE TABLE
FUNDS NEEDED \$/YR
FRAC. TO CAPITAL EXPENDITURES NORMAL FRAC.
FUTURE PHYSICAL ASSETS \$
NORMAL PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS INITIAL \$
CAPITAL COST \$/(BTU/YR)
PHYSICAL ASSETS \$
PLANTS UNDER CONSTRUCTION \$
AVERAGE FACILITY CONSTRUCTION TIME YEAR
NEW PLANTS COMPLETED \$/YR
INVESTMENT \$/YR
FRACTION TO CAPITAL EXPENDITURES FRACTION
FRACTION TO CAPITAL EXPENDITURES TABLE TABLE
CAPITAL EXPENDITURE LIMIT FRACTION
CAPITAL EXPENDITURE LIMIT TABLE TABLE
GROWTH RATE INDICATED FRACTION/YR
ASSETS FOR GROWTH RATE \$

31520 NOTE
 31530 NOTE *****
 31540 NOTE
 31550 NOTE Gas Financing: Use of Funds Subsector
 31560 NOTE
 31570 NOTE *****
 31580 NOTE
 31590 NOTE
 31600 R CGINV.KL=DGINV.K*(CGAW.K/DGAU.K)
 31610 N CGINV=.4E9
 31620 A CGAW.K=(CGMCST.K*1E6)^DGWF
 31630 A CGMCST.K=CGCCR*CGSCC.K+CGOMC.K
 31640 C CGCCR=.151
 31650 A CGSCC.K=CGCC.K*CGSCH.K/DGCUFN
 31660 A CGSCH.K=TABHL(DGSCHT,CGGRI.K,.04,.20,.04)
 31670 T DGSCHT=1/1/1.5/2.1/3.0
 31680 A CGGRI.K=(CGAGR.K/SMOOTH(CGAGR.K,DGTGR)-1)/DGTGR
 31690 C DGTGR=2
 31700 A CGAGR.K=MAX(DGPAMI,CGPA.K+CGPUC.K)
 31710 NOTE
 31740 NOTE
 31750 R UGINV.KL=DGINV.K*(UGAW.K/DGAU.K)
 31760 N UGINV=0
 31770 A UGAW.K=(UGSP.K*1E6)^DGWF*STEP(1,UGCY)
 31780 C UGCY=1980
 31790 A UGSP.K=UGMCST.K-UGGS.K-UGNTC.K
 31800 A UGMCST.K=(UGCCR+UGEGR.K)*UGSCC.K+UGOMC.K
 31810 C UGCCR=.151
 31820 A UGEGR.K=UGCCRR*MAX(0,(DGPAMI-UGPA.K)/DGPAMI)
 31830 C UGCCRR=.068
 31840 A UGSCC.K=UGCC.K*UGSCH.K/DGCUFP
 31850 A UGSCH.K=TABHL(DGSCHT,UGGRI.K,.04,.20,.04)
 31860 A UGGRI.K=(UGAGR.K/SMOOTH(UGAGR.K,DGTGR)-1)/DGTGR
 31870 A UGAGR.K=MAX(DGPAMI,UGPA.K+UGPUC.K)
 31880 A UGGS.K=CLIP(0,STEP(MAX(0,UGSCST.K-DGWF.K),UGPSY),UGPR.K/TCPR.K,UGDMS)
 31890 C UGDMS=1
 31900 A UGSCST.K=(UGCCR+UGEGR.K)*(UGCC.K/DGCUFP)+UGOMC.K
 31910 C UGPSY=2200
 31920 A UGNTC.K=UGNTCM*TABHL(SHNTCT,OOP.K,3.11E-6,3.91E-6,.80E-6)*STEP(1,UGNTCY)
 31930 C UGNTCM=.40E-6
 31940 C UGNTCY=2200

INVESTMENT \$/YR
 INVESTMENT \$/YR
 ALLOCATION WEIGHT DIMENSIONLESS
 MARGINAL COST \$/BTU
 CAPITAL CHARGE RATE FRACTION/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 SECONDARY CONSTRAINT MULTIPLIER TABLE TABLE
 GROWTH RATE INDICATED FRACTION/YR
 TIME FOR GROWTH RATE YEAR
 ASSETS FOR GROWTH RATE \$
 INVESTMENT \$/YR
 INVESTMENT \$/YR
 ALLOCATION WEIGHT DIMENSIONLESS
 COMMERCIALIZATION YEAR YEAR
 SUPPORT PRICE \$/BTU
 MARGINAL COST \$/BTU
 CAPITAL CHARGE RATE FRACTION/YR
 EXCESS CHARGE DUE TO RISK FRACTION/YR
 CAPITAL CHARGE DUE TO RISK FRACTION/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 GROWTH RATE INDICATED FRACTION/YR
 ASSETS FOR GROWTH RATE \$
 GOVERNMENT SUBSIDY \$/BTU
 DESIRED MARKET SHARE FRACTION
 SUPPORT COST \$/BTU
 PRICE-SUPPORT YEAR YEAR
 NESS TAX CREDIT \$/BTU
 NESS TAX CREDIT MULTIPLIER DIMENSIONLESS
 NESS TAX CREDIT INITIATION YEAR YEAR

31950 NOTE

31960 R HGINV.KL=DGINV.K*(HGAW.K/DGAW.K)
 31970 N HGINV=0
 31980 A HGAW.K=(HGSP.K*1E6)^DGWF
 31990 A HGSP.K=HGMST.K-HGGS.K
 32000 A HGMST.K=(SGCCR+HGFCR.K+HGEIDC.K)*HGSCC.K+HGOMC+HGFCST.K
 32010 C SGCCR=.121
 32020 A HGEICR.K=SGCCRR*(1-STEP(1,HGLGY))*MAX(0,(DGPAMI-HGPA.K)/DGPAMI)
 32030 C SGCCRR=.059
 32040 C HGLGY=2200
 32050 A HGEIDC.K=SGCCRC*(1-STEP(1,HGCDY))
 32060 C SGCCRC=.004
 32070 A HGSCC.K=HGCC.K*HGSCM.K/DGCUFP
 32080 A HGSCM.K=TABHL(DGSCHT,HGGRI.K,.04,.20,.04)
 32090 A HGGRI.K=(HGAGR.K/SMOOTH(HGAGR.K,DGTGR)-1)/DGTGR
 32100 A HGAGR.K=MAX(DGPAMI,HGPA.K+HGPRC.K)
 32110 A HGGS.K=CLIP(0,STEP(MAX(0,HGSCST.K-DGWP.K),HGPSY),HGPR.K/TGPR.K,HGDMS)
 32120 C HGDMS=1
 32130 C HGPSY=2200
 32140 A HGSCST.K=(SGCCR+HGEICR.K+HGEIDC.K)*(HGCC.K/DGCUFP)+HGOMC+HGFCST.K

32150 NOTE

32160 R HGINV.KL=DGINV.K*(MGAW.K/DGAW.K)
 32170 N MGINV=0
 32180 A MGAW.K=(MGSP.K*1E6)^DGWF*MGMS.K
 32190 A MGMS.K=TABHL(HGMMST,MGPC.K/TGND.K,0,.15,.025)
 32200 T MGMMST=1/1/1/1/1/.8/0
 32210 A MGSP.K=HGMST.K-HGGS.K
 32220 A HGMST.K=(SGCCR+HGEICR.K+HGEIDC.K)*HGSCC.K+HGOMC+HGFCST.K
 32230 A HGEICR.K=SGCCRR*(1-STEP(1,HGLGY))*MAX(0,(DGPAMI-HGPA.K)/DGPAMI)
 32240 C HGLGY=2200
 32250 A HGEIDC.K=SGCCRC*(1-STEP(1,HGCDY))
 32260 A HGSCC.K=HGCC.K*HGSCM.K/DGCUFP
 32270 A HGSCM.K=TABHL(DGSCHT,MGGRI.K,.04,.20,.04)
 32280 A MGGRI.K=(MGAGR.K/SMOOTH(MGAGR.K,DGTGR)-1)/DGTGR
 32290 A MGAGR.K=MAX(DGPAMI,MGPA.K+MGPRC.K)
 32300 A MGGS.K=CLIP(0,STEP(MAX(0,HGSCST.K-DGWP.K),MGPSY),MGPR.K/TGPR.K,HGDMS)
 32310 C HGDMS=1
 32320 C MGPSY=2200
 32330 A HGSCST.K=(SGCCR+HGEICR.K+HGEIDC.K)*(MGCC.K/DGCUFP)+HGOMC+HGFCST.K

32340 NOTE

32350 A DGAW.K=CGAW.K+UGAW.K+HGAW.K+MGAW.K
 32360 C DGCUFP=.9
 32370 C DGPAMI=12.5E9
 32380 C DGWF=-10

INVESTMENT \$/YR
 INVESTMENT \$/YR
 ALLOCATION WEIGHT DIMENSIONLESS
 SUPPORT PRICE \$/BTU
 MARGINAL COST \$/BTU
 CAPITAL CHARGE RATE FRACTION/YR
 EXCESS CHARGE DUE TO RISK FRACTION/YR
 CAPITAL CHARGE DUE TO RISK FRACTION/YR
 LOAN GUARANTEE INITIATION YEAR YEAR
 EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 GROWTH RATE INDICATED FRACTION/YR
 ASSETS FOR GROWTH RATE \$
 GOVERNMENT SUBSIDY \$/BTU
 DESIRED MARKET SHARE FRACTION
 PRICE-SUPPORT YEAR YEAR
 SUPPORT COST \$/BTU

INVESTMENT \$/YR
 INVESTMENT \$/YR
 ALLOCATION WEIGHT DIMENSIONLESS
 MULTIPLIER FROM MARKET SHARE DIMENSIONLESS
 MULTIPLIER FROM MARKET SHARE TABLE TABLE
 SUPPORT PRICE \$/BTU
 MARGINAL COST \$/BTU
 EXCESS CHARGE DUE TO RISK FRACTION/YR
 LOAN GUARANTEE INITIATION YEAR YEAR
 EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 GROWTH RATE INDICATED FRACTION/YR
 ASSETS FOR GROWTH RATE \$
 GOVERNMENT SUBSIDY \$/BTU
 DESIRED MARKET SHARE FRACTION
 PRICE-SUPPORT YEAR YEAR
 SUPPORT COST \$/BTU

ALLOCATION WEIGHT DIMENSIONLESS
 CUF FOR PLANNING FRACTION
 PHYSICAL ASSETS OF A MATURE INDUSTRY \$
 WEIGHTING FACTOR DIMENSIONLESS

32390 NOTE *****
32400 NOTE
32410 NOTE Conventional Gas Production Subsector
32420 NOTE
32430 NOTE *****
32440 NOTE
32450 NOTE
32460 L CGPA.K=CGPA.J+(DT)(CGFCR.JK-CGPAR.JK)
32470 N CGPA=3.2E9
32480 R CGPAR.KL=CGPA.K*CGARF
32490 C CGARF=.045
32500 R CGFCR.KL=DELAY3P(CGINV.JK,NGFCT,CGPUC.K)
32510 C NGFCT=3
32520 NOTE
32530 L CGR.K=CGR.J+(DT)(-CGRER.J)
32540 N CGR=CGRI
32550 C CGRI=794E15
32560 A CGRER.K=CGCP.K*CGPA.K
32570 A CGCP.K=TABLE(CGDMT,CGR.K/CGRI,0,1,.1)*CGCPN
32580 T CGDMT=0/.025/.05/.1/.15/.25/.35/.65/.8/.9/1
32590 C CGCPN=4.2E6
32600 A CGCC.K=1/CGCP.K
32610 A CGEOMC.K=(CGECF+CGLBF.K)*CGCC.K
32620 C CGECF=.27
32630 A CGLBF.K=TABHL(CGLBFT,TIME.K,1950,1990,10)
32640 T CGLBFT=0/0/.1/.25/.25
32650 NOTE
32660 L CGURES.K=CGURES.J+(DT)(CGURA.JK-CGRX.JK)
32670 N CGURES=175E15
32680 R CGURA.KL=CGRER.K*CGRXF/CGPDF
32690 N CGRXF=CGPDF-1
32700 C CGPDF=3.5
32710 R CGRX.KL=CGURES.K/CGRXD
32720 C CGRXD=16
32730 A CGROMC.K=CGRXC*SMOOTH(CGCC.K,2)
32740 C CGRXC=.12
32750 NOTE
32760 L CGRES.K=CGRES.J+(DT)(CGDR.JK+CGRX.JK-CGRDR.JK)
32770 N CGRES=189E15
32780 R CGDR.KL=CGRER.K/CGPDF
32790 R CGRDR.KL=CGPR.K
32800 A CGPR.K=CGPC.K*DGCUF.K
32810 A CGPC.K=CGRES.K/CGMRPR.K
32820 A CGMRPR.K=TABLE(CGRPRT,TIME.K,1950,2030,10)
32830 T CGRPRT=23/16.5/10.0/9.5/9.5/9.5/9.5/9.5/9.5
32840 C CGPOMC=.03E-6
32850 NOTE
32860 A CCCST.K=CGDR.JK*CGEOMC.K+CGRX.JK*CGROMC.K
32870 X +CGPR.K*(CGPOMC+CGRP.K)
32880 A CGRP.K=TABHL(CGRPT,TIME.K,1950,1990,10)*SMOOTH(DGWP.K,2)
32890 T CGRPT=0/0/.15/.15/.15
32900 A CGOHC.K=CGEOMC.K+CGPOMC+CGRP.K
32910 NOTE

PHYSICAL ASSETS \$
PHYSICAL ASSETS \$
PHYSICAL ASSET RETIREMENTS \$/YR
ASSET RETIREMENT FACTOR FRACTION/YR
FACILITY COMPLETION RATE \$/YR
FACILITY CONSTRUCTION TIME YEAR

RESOURCES BTU
RESOURCES BTU
RESOURCES INITIAL BTU
RESOURCE EXTRACTION RATE BTU/YR
CAPITAL PRODUCTIVITY (BTU/YR)/\$
DEPLETION MULTIPLIER TABLE TABLE
CAPITAL PRODUCTIVITY NORMAL (BTU/YR)/\$
CAPITAL COST \$/(BTU/YR)
EXPLORATION O&M COST \$/BTU
EXPLORATION COST FACTOR FRACTION/YR
LEASE BONUS FACTOR FRACTION/YR
LEASE BONUS FACTOR TABLE TABLE

UNPROVEN RESERVES BTU
UNPROVEN RESERVES BTU
UNPROVEN RESERVE ADDITIONS BTU/YR
REVISION AND EXTENSION FACTOR DIMENSIONLESS
POTENTIAL DISCOVERY FACTOR DIMENSIONLESS
REVISIONS AND EXTENSIONS BTU/YR
REVISION AND EXTENSION DELAY TIME YEAR
REVISION AND EXTENSION O&M COST \$/BTU
REVISION AND EXTENSION COST FACTOR FRACTION/YR

PROVEN RESERVES BTU
PROVEN RESERVES BTU
DISCOVERY RATE BTU/YR
RESERVES DEPLETION RATE BTU/YR
PRODUCTION RATE BTU/YR
PRODUCTION CAPACITY BTU/YR
MINIMUM RESERVE PRODUCTION RATIO YEAR
RESERVE PRODUCTION RATE TABLE TABLE
PRODUCTION O&M COST \$/BTU

COST \$/YR

ROYALTY PAYMENTS \$/BTU
ROYALTY PAYMENT TABLE TABLE
OPERATING AND MAINTENANCE <O&M> COST \$/BTU

32920 NOTE
 32930 NOTE *****
 32940 NOTE
 32950 NOTE Unconventional Gas Recovery Subsector
 32960 NOTE
 32970 NOTE *****
 32980 NOTE
 32990 NOTE
 33000 L UGPA.K=UGPA.J+(DT)(UGFCR.JK-UGPAR.JK)
 33010 N UGPA=0
 33020 R UGPAR.KL=UGPA.K*UGARF
 33030 C UGARF=.045
 33040 R UGFCR.KL=DELAY3P(UGINV.JK,NGFCT,UGPUC.K)
 33050 NOTE
 33060 L UGR.K=UGR.J+(DT)(-UGRDR.JK)
 33070 N UGR=UGRI
 33080 C UGRI=135E15
 33090 R UGRDR.KL=UGPR.K
 33100 A UGPR.K=UGPC.K*DGCUF.K
 33110 A UGPC.K=UGCP.K*UGPA.K
 33120 A UGCP.K=TABLE(UGDMT,UGR.K/UGRI,0,1,.2)*UGCPN
 33130 T UGDMT=0/.1/.2/.36/.6/1
 33140 C UGCPN=.22E6
 33150 A UGCC.K=1/UGCP.K
 33160 A UGCST.K=UGPR.K*UGOMC.K
 33170 A UGOMC.K=UGCCF*UGCC.K
 33180 C UGCCF=.26
 33190 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
RESOURCES	BTU
RESOURCES	BTU
RESOURCES INITIAL	BTU
RESERVES DEPLETION RATE	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
CAPITAL PRODUCTIVITY	(BTU/YR)/\$
DEPLETION MULTIPLIER TABLE	TABLE
CAPITAL PRODUCTIVITY NORMAL	(BTU/YR)/\$
CAPITAL COST	\$(BTU/YR)
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
CAPITAL COST FACTOR	FRACTION/YR

33200 NOTE
 33210 NOTE *****
 33220 NOTE
 33230 NOTE Synthetic High-Btu Gas Production Subsector
 33240 NOTE
 33250 NOTE *****
 33260 NOTE
 33270 NOTE
 33280 L $HGPA.K = HGPA.J + (DT)(HGFCR.JK - HGPAR.JK)$
 33290 N $HGPA = 0$
 33300 R $HGPAR.KL = HGPA.K * HGARF$
 33310 C $HGARF = .026$
 33320 R $HGFCR.KL = DELAY3P(HGINV.JK, HGFCR.K, HGPUC.K)$
 33330 A $HGFCR.K = SMOOTH(CLIP(SGPFCT, SGHFCT, TIME.K, HGCDY), SGHFCT)$
 33340 C $SGHFCT = 7$
 33350 C $SGPFCT = 5$
 33360 C $HGCDY = 2200$
 33370 NOTE
 33380 A $HGDC.K = HGPC.K * DGCUF.K / HGCE$
 33390 C $HGCE = .74$
 33400 A $HGPR.K = HGPC.K * DGCUF.K * DCPDR.K$
 33410 A $HGPC.K = HGCP * HGPA.K$
 33420 C $HGCP = .101E6$
 33430 A $HGCC.K = 1 / HGCP$
 33440 A $HGCST.K = HGPR.K * (HGOMC + HGFCST.K)$
 33450 C $HGOMC = 1.10E-6$
 33460 A $HGFCST.K = DCMMP.K * .6 / HGCE$
 33470 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
HISTORICAL FACILITY CONSTRUCTION TIME	YEAR
POLICY FACILITY CONSTRUCTION TIME	YEAR
CONSTRUCTION DELAY CHANGE YEAR	YEAR
DEMAND FOR COAL	BTU/YR
CONVERSION EFFICIENCY	DIMENSIONLESS
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
CAPITAL PRODUCTIVITY	(BTU/YR)/\$
CAPITAL COST	\$/ (BTU/YR)
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU

33480 NOTE
 33490 NOTE *****
 33500 NOTE
 33510 NOTE Synthetic Medium-Btu Gas Production Subsector
 33520 NOTE
 33530 NOTE *****
 33540 NOTE
 33550 NOTE
 33560 L $MGPA.K = MGPA.J + (DT)(MGFCR.JK - MGPAR.JK)$
 33570 N $MGPA = 0$
 33580 R $MGPAR.KL = MGPA.K * MGARF$
 33590 C $MGARF = .026$
 33600 R $MGFCR.KL = DELAY3P(MGINV.JK, MGFCR.K, MGPUC.K)$
 33610 A $MGFCR.K = SMOOTH(CLIP(SCPFCT, SGHFCT, TIME.K, MGCDY), SGHFCT)$
 33620 C $MGCDY = 2200$
 33630 NOTE
 33640 A $MGDC.K = MGPC.K * DGCUF.K / MGCE$
 33650 C $MGCE = .80$
 33660 A $MGPR.K = MGPC.K * DGCUF.K * DCPDR.K$
 33670 A $MGPC.K = MGCP * MGPA.K$
 33680 C $MGCP = .155E6$
 33690 A $MGCC.K = 1 / MGCP$
 33700 A $MGCST.K = MGPR.K * (MGOMC + MGFCST.K)$
 33710 C $MGOMC = .43E-6$
 33720 A $MGFCST.K = (DCP.K - CEFCF) / MGCE$
 33730 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
CONSTRUCTION DELAY CHANGE YEAR	YEAR
DEMAND FOR COAL	BTU/YR
CONVERSION EFFICIENCY	DIMENSIONLESS
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
CAPITAL PRODUCTIVITY	(BTU/YR)/\$
CAPITAL COST	\$(BTU/YR)
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU

33 NOTE
 33750 NOTE *****
 33760 NOTE
 33770 NOTE Liquified Natural Gas Production Subsector
 33780 NOTE
 33790 NOTE *****
 33800 NOTE
 33810 NOTE
 33820 A LNCR.K=LNCRM.K+LNNLC.K
 33830 A LNCRM.K=TABLE(LNCRT,TIME.K,1950,2030,5)*1E15
 33840 T LNCRT=0/0/0/0/0/0/.3/.8/.8/.8/.8/.8/.8/.8/.8
 33850 L LNNLC.K=LNNLC.J+(DT)(LNL CIR.JK-LNLCER.JK)
 33860 N LNNLC=0
 33870 R LNL CIR.KL=CLIP(LNL CIR.K,0,TIME.K,1979)
 33880 A LNL CIR.K=MAX(0,LNNLC.K/LNCL+LNDALC.K/LNL CAT)
 33890 C LNLCAT=10
 33900 C LNCL=20
 33910 A LNDALC.K=(1-DGFEDP.K)*DGIMD.K
 33920 R LNLCER.KL=LNNLC.K/LNCL
 33930 A LNWP.K=MAX(TABLE(LNWP,TIME.K,1950,2030,10)*1E-6,OOP.K)
 33940 T LNWP=2.14/3.00/3.00/3.00/3.00/3.00/3.00/3.00
 33950 NOTE

CONSUMPTION RATE	BTU/YR
CONSUMPTION RATE MINIMUM	BTU/YR
CONSUMPTION RATE TABLE	TABLE
NEW LONG TERM CONTRACTS	BTU/YR
NEW LONG TERM CONTRACTS	BTU/YR
LONG TERM CONTRACT INITIATION RATE	(BTU/YR)/YR
INDICATED LONG TERM CONTRACT INIT. RATE	BTU/YR
LONG TERM CONTRACT ADJUSTMENT TIME	YEAR
CONTRACT LIFE	YEAR
DESIRED ADDITIONS TO LONG TERM CONTRACTS	BTU/YR
LONG TERM CONTRACT EXPIRATION RATE	(BTU/YR)/YR
WELLHEAD PRICE	\$/BTU
WELLHEAD PRICE TABLE	TABLE

33760 NOTE *****
 33970 NOTE
 33980 NOTE Synthetic Natural Gas (SNG) Production Subsector
 33990 NOTE
 34000 NOTE *****
 34010 NOTE
 34020 NOTE
 34030 A SNCR.K=SNPR.K
 34040 A SNPR.K=TABLE(SNPRT,TIME.K,1950,2030,5)*1E15
 34050 T SNPRT=0/0/0/0/0/0/.4/.55/.55/.55/.55/.55/.55/.55/.55/.55
 34060 A SNDO.K=SNPR.K/SNCE
 34070 C SNCE=.90
 34080 A SNWP.K=((TOP.K-OEFCF)/SNCE)+SNOMC
 34090 C SNOMC=.50E-6
 34100 NOTE

CONSUMPTION RATE	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION RATE TABLE	TABLE
DEMAND FOR OIL	BTU/YR
CONVERSION EFFICIENCY	DIMENSIONLESS
WELLHEAD PRICE	\$/BTU
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU

34110 NOTE
 34120 NOTE *****
 34130 NOTE
 34140 NOTE Alaskan Gas Supply Subsector
 34150 NOTE
 34160 NOTE *****
 34170 NOTE
 34180 NOTE
 34190 A AGCR.K=AGSSP.K+AGNSP.K
 34200 A AGNSP.K=STEP(.9E15,AGNSPY)
 34210 C AGNSPY=1986
 34220 A AGSSP.K=CLIP(AGSSP1.K,AGSSP2.K,TIME.K,1980)*1E15
 34230 A AGSSP1.K=TABHL(AGSSP1T,TIME.K,1980,2030,5)
 34240 T AGSSP1T=.2/.235/.38/.49/.49/.49/.49/.49/.49
 34250 A AGSSP2.K=TABHL(AGSSP2T,TIME.K,1972,1980,1)
 34260 T AGSSP2T=0/.1/.1/.1/.2/.2/.2/.2
 34270 A AGWP.K=OOP.K
 34280 NOTE

CONSUMPTION RATE	BTU/YR
NORTH SLOPE PRODUCTION	BTU/YR
NORTH SLOPE PRODUCTION INITIATION YEAR	YEAR
SOUTH SLOPE PRODUCTION	BTU/YR
SOUTH SLOPE PRODUCTION 1980-2030	BTU/YR
SSP1 TABLE	TABLE
SOUTH SLOPE PRODUCTION 1972-1980	BTU/YR
SSP2 TABLE	TABLE
WELLHEAD PRICE	\$/BTU

34290 NOTE *****
 34300 NOTE
 34310 NOTE Pan-American Gas Supply Subsector
 34320 NOTE
 34330 NOTE *****
 34340 NOTE
 34350 NOTE
 34360 A POCR.K=PGCRM.K+PGNLC.K
 34370 A PGRM.K=TABLE(PGCRT,TIME.K,1950,2030,5)*1E15
 34380 T PGCRT=0/0/.15/.4/.8/.8/.9/.2/.07/0/0/0/0/0/0/0
 34390 L PGNLC.K=PGNLC.J+(DT)(PGLCIR.JK-PGLCER.JK)
 34400 N PGNLC=0
 34410 R PGLCIR.KL=CLIP(PGILCIR.K,0,TIME.K,1979)
 34420 A PGILCIR.K=MAX(0,PGNLC.K/PGCL+PGDALC.K/PGLCAT)
 34430 C PGLCAT=10
 34440 C PGCL=20
 34450 A PGDALC.K=DOGFEDP.K*DGIND.K
 34460 R PGLCER.KL=PGNLC.K/PGCL
 34470 A PGWP.K=.96*OOP.K
 34480 NOTE

CONSUMPTION RATE	BTU/YR
CONSUMPTION RATE MINIMUM	BTU/YR
CONSUMPTION RATE TABLE	TABLE
NEW LONG TERM CONTRACTS	BTU/YR
NEW LONG TERM CONTRACTS	BTU/YR
LONG TERM CONTRACT INITIATION RATE	(BTU/YR)/YR
INDICATED LONG TERM CONTRACT INIT. RATE	BTU/YR
LONG TERM CONTRACT ADJUSTMENT TIME	YEAR
CONTRACT LIFE	YEAR
DESIRED ADDITIONS TO LONG TERM CONTRACTS	BTU/YR
LONG TERM CONTRACT EXPIRATION RATE	(BTU/YR)/YR
WELLHEAD PRICE	\$/BTU

34490 NOTE
34500 NOTE *****
34510 NOTE
34520 NOTE Supplementary Equations for Gas Demand for Coal
34530 NOTE
34540 NOTE *****
34550 NOTE
34560 NOTE
34570 A TGDC.K=HGDC.K+MGDC.K
34580 NOTE

DEMAND FOR COAL

BTU/YR

40000 NOTE *****
40010 NOTE *****
40020 NOTE
40030 NOTE Oil Production Sector of F03S1L2
40040 NOTE
40050 NOTE
40060 NOTE Department of Energy
40070 NOTE Energy Transition Project
40080 NOTE
40090 NOTE Version Release Date:
40100 NOTE March 12, 1979
40110 NOTE
40120 NOTE *****
40130 NOTE *****
40140 NOTE

40150	NOTE			
40160	NOTE	*****		
40170	NOTE			
40180	NOTE	Oil Supply-Demand Balance: Capacity Utilization Subsector		
40190	NOTE			
40200	NOTE	*****		
40210	NOTE			
40220	NOTE			
40230	A	DOCUF.K=TABHL(DOCUFT,MIN(DOGD.K,DOPC.K*DOCUFC.K)/DOPC.K,0,1,1,-1)	CAPACITY UTILIZATION FACTOR	FRACTION
40240	T	DOCUFT=0/.1/.2/.3/.4/.5/.6/.7/.8/.9/.9/.9	CAPACITY UTILIZATION FACTOR TABLE	TABLE
40250	A	DOGD.K=TOGD.K-AOPR.K	GROSS DEMAND	BTU/YR
40260	A	TOGD.K=TOND.K/TODE	GROSS DEMAND	BTU/YR
40270	C	TODE=.98	DISTRIBUTIONAL EFFICIENCY	FRACTION
40280	A	TOND.K=TOEUD.K+OUDO.K+DGCURO.K+SNDO.K	NET DEMAND	BTU/YR
40290	A	DOPC.K=COPC.K+EOPC.K+SHPC.K+CLPC.K	PRODUCTION CAPACITY	BTU/YR
40300	A	DOCUFC.K=TABHL(DOCFCT,SMOOTH((DOWP.K/CLIP(DOUWP.K,DODWP.K,TIME.K,DOCUFY)),2),.8,1,.05)	CONTROLLED CUF	FRACTION
40310	T	DOCFCT=.8/.8/.8/.85/.9	CONTROLLED CUF TABLE	TABLE
40320	N	DOCUFC=.8	CONTROLLED CAPACITY UTILIZATION FACTOR	FRACTION
40330	C	DOCUFY=2200	CAPACITY UTIL. CONTROL INITIATION YEAR	YEAR
40340	A	TOPR.K=DOPR.K+DICR.K+POPR.K+AOPR.K	PRODUCTION RATE	BTU/YR
40350	A	DOPR.K=COPR.K+EOPR.K+CLPR.K+SHPR.K	PRODUCTION RATE	BTU/YR
40360	A	TOPDR.K=TOPR.K/TOGD.K	PRODUCTION DEMAND RATIO	DIMENSIONLESS
40370	N	TOPDR=1	PRODUCTION DEMAND RATIO	DIMENSIONLESS
40380	NOTE			
40390	A	DICR.K=(DIIMD.K-POPR.K)*OOPDR.K	CONSUMPTION RATE	BTU/YR
40400	A	POPR.K=MIN(DIIMD.K,POPRM.K)	PRODUCTION RATE	BTU/YR
40410	A	DIIMD.K=MIN(DOGD.K-DOPR.K,DIQUOT.K)	IMPORT DEMAND	BTU/YR
40420	A	DIQUOT.K=CLIP(TABHL(DIQUOTT,TIME.K,1978,1990,2)*1E15,TOGD.K,TIME.K,DIQY)	QUOTA	BTU/YR
40430	T	DIQUOTT=99/18.1/18.1/18.1/18.1/18.1/18.1	QUOTA TABLE	TABLE
40440	C	DIQY=2200	QUOTA YEAR	YEAR
40450	NOTE			

40460	NOTE		
40470	NOTE	*****	
40480	NOTE		
40490	NOTE	Oil Supply-Demand Balance: Pricing Subsector	
40500	NOTE		
40510	NOTE	*****	
40520	NOTE		
40530	NOTE		
40540	A	TOP.K=TOAWP.K+TODCHG	PRICE \$/BTU
40550	N	TOP=2.92E-6	PRICE \$/BTU
40560	C	TODCHG=2.02E-6	DELIVERY CHARGE \$/BTU
40570	A	TOAWP.K=((DOAWP.K)*(DOPR.K+AOPR.K)+DIP.K*(DICR.K+POPR.K))/TOPR.K	AVERAGE WELLHEAD PRICE \$/BTU
40580	A	DOAWP.K=(DOWP.K*DOPR.K+AOWP.K*AOPR.K)/(DOPR.K+AOPR.K)	AVERAGE WELLHEAD PRICE \$/BTU
40590	A	DOWP.K=CLIP(MIN(DOIWP.K,DIP.K),DODWP.K,TOPDR.K,.995)	WELLHEAD PRICE \$/BTU
40600	N	DOWP=.90E-6	WELLHEAD PRICE \$/BTU
40610	A	DODWP.K=MAX((DOPMN.K+DOACST.K)*DOPMM.K,DOACST.K)	DESIRED WELLHEAD PRICE \$/BTU
40620	A	DOIWP.K=(DOUWP.K*DODS.K+DORWP.K*(1-DODS.K))*(COPR.K/DOPR.K)+DOUWP.K*(1-(COPR.K/DOPR.K))	INDICATED WELLHEAD PRICE \$/BTU
40630	A	DODS.K=CLIP(DODS2.K,DODS1.K,DODSS,1.5)*STEP(1,1978)	DEREGULATION SCHEDULE DIMENSIONLESS
40640	C	DODSS=2	DEREGULATION SCHEDULE SWITCH DIMENSIONLESS
40650	A	DODS1.K=TABHL(DODS1T,TIME.K,1975,2030,5)	DEREGULATION SCHEDULE OPTION 1 DIMENSIONLESS
40660	T	DODS1T=0/.15/.26/.32/.37/.42	DEREGULATION SCHEDULE 1 TABLE TABLE
40670	A	DODS2.K=TABHL(DODS2T,(TIME.K-DODYI)/DOERT,0,1,1)	DEREGULATION SCHEDULE OPTION 2 DIMENSIONLESS
40680	T	DODS2T=0/1	DEREGULATION SCHEDULE 2 TABLE TABLE
40690	C	DODRT=2	DEREGULATION ADJUSTMENT TIME YEAR
40700	C	DODYI=1979	DEREGULATION YEAR INITIAL YEAR
40710	A	DOUWP.K=CLIP(MIN(DODWP.K,DIP.K),DODWP.K,TOPDR.K,.995)	UNREGULATED WELLHEAD PRICE \$/BTU
40720	A	DORWP.K=CLIP(DOERWP.K,DORRWP.K,TIME.K,1978)	REGULATED WELLHEAD PRICE \$/BTU
40730	A	DOERWP.K=CLIP(DOEPKA2.K,DOEPKA1.K,TIME.K,1985)	EPCA REGULATED WELLHEAD PRICE \$/BTU
40740	A	DOEPKA1.K=TABHL(DOEP1T,TIME.K,1977,1985,2)*1E-6	EPCA WELLHEAD PRICE 1977-1985 \$/BTU
40750	T	DOEP1T=1.28/1.35/1.43/1.49/1.55	EPCA1 TABLE TABLE
40760	A	DOEPKA2.K=TABHL(DOEP2T,TIME.K,1985,2010,5)*1E-6	EPCA REGULATED PRICE 1985-2010 \$/BTU
40770	T	DOEP2T=1.55/1.66/1.73/1.76/1.8/1.8	EPCA2 TABLE TABLE
40780	A	DORRWP.K=DOPMN.K+DOACST.K	RETURN-REGULATED WELLHEAD PRICE \$/BTU
40790	A	DOACST.K=DOCST.K/DOPR.K	AVERAGE COST \$/BTU
40800	A	DOPMN.K=DOROEN.K*DOEQ.K/(DOPC.K*DOCUFN*(1-DOTR))	PROFIT MARGIN NORMAL \$/BTU
40810	A	DOROEN.K=CLIP(DOPROEN,DOHROEN,TIME.K,DORPY)+DEINF.K	NORMAL RETURN ON EQUITY FRACTION/YR
40820	C	DOHROEN=.10	HISTORICAL RETURN ON EQUITY NORMAL FRACTION/YR
40830	C	DOPROEN=.25	POLICY RETURN ON EQUITY NORMAL FRACTION/YR
40840	C	DORPY=2200	ROE REGULATION POLICY INITIATION YEAR YEAR
40850	A	DOPMM.K=TABHL(DOPMNT,DOGD.K/(DOPC.K*DOCUFN),.8,1.25,.05)	PRICE MULTIPLIER DIMENSIONLESS
40860	T	DOPMNT=.9/.925/.95/.975/1/1.15/1.3/1.7/2.1/2.4	PRICE MULTIPLIER TABLE TABLE
40870	C	DOCUFN=.8	CAPACITY UTILIZATION FACTOR NORMAL FRACTION
40880	NOTE		
40890	A	DIP.K=OOP.K+STEP(MAX(DIGP-OOP.K,0),DITARY)	PRICE \$/BTU
40900	C	DITARY=2200	TARIFF INITIATION YEAR YEAR
40910	C	DIGP=4.5E-6	GOAL PRICE \$/BTU
40920	NOTE		

LINE	UNIT	DESCRIPTION	UNIT	UNIT
40930	NOTE	*****		
40940	NOTE	*****		
40950	NOTE			
40960	NOTE	Oil Financing: Source of Funds Subsector		
40970	NOTE			
40980	NOTE	*****		
40990	NOTE			
41000	NOTE			
41010	A	$DONI.K = (1 - DOTR) * (DOREV.K - DOCST.K) + DOITC * DONPC.K + SHNTC.K * SHPR.K$	NET INCOME	\$/YR
41020	C	$DOTR = .35$	TAX RATE	FRACTION
41030	C	$DOITC = .07$	INVESTMENT TAX CREDIT	FRACTION
41040	A	$DOREV.K = DOPR.K * (DOWP.K + DOGS.K - (DOWET.K * (DOWPPR.K / DOPR.K)))$	REVENUE	\$/YR
41050	A	$DOGS.K = (EOGS.K * EOPR.K) / DOPR.K + ((SHGS.K * SHPR.K + CLGS.K * MIN(CLPR.K, 3.2E15)) / DOPR.K)$	GOVERNMENT SUBSIDY	\$/BTU
41060	A	$DOWET.K = MAX(0, (DOUWP.K - DIBP79.K) * .60) * STEP(DODS.K, DOWETY)$	WELLHEAD EXCESS PROFITS TAX	\$/BTU
41070	C	$DOWETY = 2200$	WELLHEAD EXCESS PROFITS TAX YEAR INITIAL	YEAR
41080	A	$DIBP79.K = 2.25E-6 * EXP(.02 * (TIME.K - 1979))$	BASE PRICE 1979	\$/BTU
41090	A	$DOWPPR.K = COPR.K + EOPR.K * (1 - STEP(1, EOWEY))$	WINDFALL PROFIT PRODUCTION	BTU/YR
41100	C	$EOWEY = 2200$	WELLHEAD EXCESS TAX FOR ENHANCED RECOVERY YR	YR
41110	A	$DOCST.K = COCST.K + EOCST.K + CLCST.K + SHCST.K +$	COST	\$/YR
41120	X	$DODEP.K + DOINT.K$		
41130	NOTE			
41140	L	$DOGA.K = DOGA.J + (DT) (DOINV.J - DOGAR.JK - DOVLI.JK)$	GROSS ASSETS	\$
41150	N	$DOGA = 25.6E9$	GROSS ASSETS	\$
41160	R	$DOGAR.KL = DOGA.K * DOARF.K$	GROSS ASSET RETIREMENTS	\$/YR
41170	A	$DOARF.K = (COPA.K * COARF + EOPA.K * EOARF + SHPA.K * SHARP + CLPA.K * CLARF) / DOPA.K$	ASSET RETIREMENT FACTOR	FRACTION/YR
41180	R	$DOVLI.KL = DOGA.K * DEINF.K * (1 - STEP(1, DOPLAY))$	VALUE LOSS DUE TO INFLATION	\$/YR
41190	C	$DOPLAY = 2200$	PRICE LEVEL ACCOUNTING INITIATION YEAR	YEAR
41200	NOTE			
41210	A	$DONA.K = DOGA.K * DOADF$	NET ASSETS	\$
41220	C	$DOADF = .50$	ACCUMULATED DEPRECIATION FRACTION	FRACTION
41230	A	$DOEQ.K = DONA.K * DOEK$	EQUITY	\$
41240	C	$DOEK = .95$	EQUITY FRACTION	FRACTION
41250	A	$DODEBT.K = DONA.K * DODF$	DEBT	\$
41260	N	$DODF = (30 / 70) * DOEK$	DEBT FRACTION	FRACTION
41270	A	$DOINT.K = DOIR.K * DODEBT.K$	INTEREST	\$/YR
41280	A	$DOIR.K = DOIRN + DEINF.K$	INTEREST RATE	FRACTION/YR
41290	C	$DOIRN = .025$	INTEREST RATE NORMAL	FRACTION/YR
41300	A	$DODRMT.K = DODEBT.K / DODL$	DEBT REPAYMENT	\$/YR
41310	C	$DODL = 10$	DEBT LIFE	YEAR
41320	A	$DODEP.K = DOGA.K / DOBLC$	DEPRECIATION	\$/YR
41330	C	$DOBLC = 17$	BOOK LIFE OF CAPITAL	YEAR
41340	NOTE			
41350	A	$DOIF.K = DONI.K - DODIV.K + DODEP.K - DODRMT.K$	INTERNAL FUNDS	\$/YR
41360	A	$DODIV.K = TABHL(DODPOT, DOROI.K / DOROIN.K, .8, 2, .4) * DONI.K$	DIVIDENDS	\$/YR
41370	T	$DODPOT = .6 / .5 / .35 / .25$	DIVIDEND PAYOUT TABLE	TABLE
41380	A	$DOROI.K = (DONI.K + DOINT.K) / (DOEQ.K + DODEBT.K)$	RETURN ON INVESTMENT	FRACTION/YR
41390	A	$DOROIN.K = DOROIR + SMOOTH(DEINF.K, DOEAT)$	RETURN ON INVESTMENT NORMAL	FRACTION/YR
41400	C	$DOROIR = .08$	RETURN ON INVESTMENT REAL	FRACTION/YR
41410	C	$DOEAT = 5$	ECONOMIC AVERAGING TIME	YEAR
41420	A	$DOROIX.K = SMOOTH(DOROI.K / DOROIN.K, DOEAT)$	RETURN ON INVESTMENT INDEX	DIMENSIONLESS
41430	NOTE			

41440 NOTE
 41450 A DOFA.K=DOIF.K+DOEFA.K
 41460 A DOEFA.K=DOGA.K*DOGR.K
 41470 A DOGR.K=TABHL(DOGR.T,DOROIX.K,.6,3.6,.3)
 41480 T DOGR.T=0/.02/.04/.06/.08/.1/.12/.13/.14/.145/.15
 41490 NOTE
 41500 A DOFN.K=MAX(0,(DOFPA.K-DOPA.K-DOPUC.K+DOAFCT.K*DOARF.K
 41510 X *(DOPA.K+DOFPA.K)/2)/DOFCEN)
 41520 C DOFCEN=.8
 41530 A DOFPA.K=DONPA.K*EXP(DONPA.K/DOSPA.K-1)
 41540 A DONPA.K=DOGD.K/DOCUFF*DOCC.K
 41550 C DOCUFF=.78
 41560 L DOSPA.K=DOSPA.J+(DT)(DONPA.J-DOSPA.J)/DOAFCT.J
 41570 N DOSPA=DOSPAI
 41580 C DOSPAI=22.7E9
 41590 A DOCC.K=DOPA.K/DOPC.K
 41600 A DOPA.K=COPA.K+EOPA.K+SHPA.K+CLPA.K
 41610 A DOPUC.K=COPUC.K+EOPUC.K+CLPUC.K+SHPUC.K
 41620 A DOAFCT.K=(COFCR.JK*COFCT+EOFCR.JK*EOFCT+SHFCR.JK*SHFCT.K
 41630 X +CLFCR.JK*CLFCT.K)/DONPC.K
 41640 A DONPC.K=COFCR.JK+EOFCR.JK+SHFCR.JK+CLFCR.JK
 41650 NOTE
 41660 A DOINV.K=MAX(0,MIN(DOFA.K,DOFN.K)*DOFCE.K)
 41670 N DOINV=3E9
 41680 A DOFCE.K=TABHL(DOFCET,DOROIX.K,.3,1.5,.3)
 41690 T DOFCET=0/.5/.75/.85/.93
 41700 NOTE

FUNDS AVAILABLE \$/YR
 EXTERNAL FUNDS AVAILABLE \$/YR
 GROWTH RATE FRACTION/YR
 GROWTH RATE TABLE TABLE
 FUNDS NEEDED \$/YR
 FRAC. TO CAPITAL EXPENDITURES NORMAL FRAC.
 FUTURE PHYSICAL ASSETS \$
 NORMAL PHYSICAL ASSETS \$
 CUF FOR FORECASTING FRACTION
 SMOOTHED PHYSICAL ASSETS \$
 SMOOTHED PHYSICAL ASSETS \$
 SMOOTHED PHYSICAL ASSETS INITIAL \$
 CAPITAL COST \$(BTU/YR)
 PHYSICAL ASSETS \$
 PLANTS UNDER CONSTRUCTION \$
 AVERAGE FACILITY CONSTRUCTION TIME YEAR
 NEW PLANTS COMPLETED \$/YR
 INVESTMENT \$/YR
 INVESTMENT \$/YR
 FRACTION TO CAPITAL EXPENDITURES FRACTION
 FRACTION TO CAPITAL EXPENDITURES TABLE TABLE

41720 NOTE
 41730 NOTE *****
 41740 NOTE
 41750 NOTE Oil Financing: Use of Funds Subsector
 41760 NOTE
 41770 NOTE *****
 41780 NOTE
 41790 NOTE
 41800 R $COINV.KL=DOINV.K*(COAW.K/DOAW.K)$
 41810 N $COINV=3E9$
 41820 A $COAW.K=(COMCST.K*1E6)^{DOWF}$
 41830 C $DOWF=-10$
 41840 A $COMCST.K=NOCCR*COSCC.K+COOMC.K+DOWET.K$
 41850 C $NOCCR=.151$
 41860 A $COSCC.K=COCC.K*COSCH.K/DOCUFN$
 41870 A $COSCH.K=TABHL(DOSCMT,COGR.K,.04,.20,.04)$
 41890 A $COGR.K=(COAGR.K/SMOOTH(COAGR.K,DOTGR)-1)/DOTGR$
 41900 C $DOTGR=2$
 41910 A $COAGR.K=MAX(DOPAMI,COPA.K+COPUC.K)$
 41930 NOTE
 41940 R $EOINV.KL=DOINV.K*(EOAW.K/DOAW.K)$
 41950 N $EOINV=0$
 41960 A $EOAW.K=(EOSP.K*1E6)^{DOWF*STEP(1,EOCY)}$
 41970 C $EOCY=1980$
 41980 A $EOSP.K=EOMCST.K-EOGS.K$
 41990 A $EOMCST.K=(EOCCR+EOECR.K)*EOSCC.K+EOOMC.K+DOWET.K*(1-STEP(1,EOWEY))$
 42000 C $EOCCR=.151$
 42010 A $EOECR.K=EOCCRR*(1-STEP(1,EOLGY))*MAX(0,(DOPAMI-EOPA.K)/DOPAMI)$
 42020 C $EOCCRR=.022$
 42030 C $EOLGY=2200$
 42040 A $EOSCC.K=EOCC.K*EOSCH.K/DOCUFN$
 42050 A $EOSCH.K=TABHL(DOSCMT,EAGR.K,.04,.20,.04)$
 42060 A $EAGR.K=(EOAGR.K/SMOOTH(EOAGR.K,DOTGR)-1)/DOTGR$
 42070 A $EOAGR.K=MAX(DOPAMI,EOPA.K+EOPUC.K)$
 42080 A $EOGS.K=STEP(MAX(0,EOMCST.K-DOWP.K),EOPSY)$
 42090 C $EOPSY=2200$

INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
WEIGHTING FACTOR	DIMENSIONLESS
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
SPECIFIC CAPITAL COST	\$/ (BTU/YR)
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
TIME FOR GROWTH RATE	YEAR
ASSETS FOR GROWTH RATE	\$
INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
COMMERCIALIZATION YEAR	YEAR
SUPPORT PRICE	\$/BTU
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
EXCESS CHARGE DUE TO RISK	FRACTION/YR
CAPITAL CHARGE DUE TO RISK	FRACTION/YR
LOAN GUARANTEE INITIATION YEAR	YEAR
SPECIFIC CAPITAL COST	\$/ (BTU/YR)
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
GOVERNMENT SUBSIDY	\$/BTU
PRICE-SUPPORT YEAR	YEAR

42100 NOTE

42110 P CLINV.KL=DOINV.K*(CLAW.K/DOAW.K)
 42120 N CLINV=0
 42130 A CLAW.K=(CLSP.K*1E6)^DOWF*STEP(1,CLCY)
 42140 C CLCY=1981
 42150 A CLSP.K=CLMCST.K-CLIP(0,CLGS.K,CLAMS.K,CLDMS)
 42160 C CLDMS=3.9E15
 42170 A CLMCST.K=(SOCCR+CLECR.K+CLEIDC.K)*CLSCC.K+CLOMC+CLFCST.K
 42180 A CLECR.K=SOCCRR*(1-STEP(1,CLLGY))*MAX(0,(DOPAMI-CLPA.K)/DOPAMI)
 42190 C CLLGY=2200
 42200 A CLEIDC.K=SOCCRC*(1-STEP(1,CLCDCY))
 42210 A CLSCC.K=CLCC.K*CLSCH.K/DOCUFF
 42220 A CLSCH.K=TABHL(DOSCMT,CLGR.K,.04,.20,.04)
 42230 A CLGR.K=(CLAGR.K/SMOOTH(CLAGR.K,DOTGR)-1)/DOTGR
 42240 A CLAGR.K=MAX(DOPAMI,CLPA.K+CLPUC.K)
 42250 A CLGS.K=STEP(MAX(0,CLSCST.K-DOWP.K),CLPSY)*(CLIP(1,0,DIIMD.K,1E15))
 42260 C CLPSY=2200
 42270 A CLSCST.K=(SOCCR+CLECR.K+CLEIDC.K)*(CLCC.K/DOCUFF)+CLOMC+CLFCST.K
 42280 A CLAMS.K=((CLPA.K+CLPUC.K)/CLCC.K)
 42290 NOTE
 42300 C SOCCR=.146
 42310 C SOCCRR=.078
 42320 C SOCCRC=.019
 42325 T DOSCMT=1/1/1.5/2.1/3.0
 42330 C DOPAMI=12.5E9

INVESTMENT \$/YR
 INVESTMENT \$/YR
 ALLOCATION WEIGHT DIMENSIONLESS
 COMMERCIALIZATION YEAR YEAR
 SUPPORT PRICE \$/BTU
 DESIRED MARKET SHARE FRACTION
 MARGINAL COST \$/BTU
 EXCESS CHARGE DUE TO RISK FRACTION/YR
 LOAN GUARANTEE INITIATION YEAR YEAR
 EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 GROWTH RATE FRACTION/YR
 ASSETS FOR GROWTH RATE \$
 GOVERNMENT SUBSIDY \$/BTU
 PRICE-SUPPORT YEAR YEAR
 SUPPORT COST \$/BTU
 ACTUAL MARKET SHARE FRACTION
 CAPITAL CHARGE RATE FRACTION/YR
 CAPITAL CHARGE DUE TO RISK FRACTION/YR
 CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 SECONDARY CONSTRAINT MULTIPLIER TABLE TABLE
 PHYSICAL ASSETS OF A MATURE INDUSTRY \$

42340 P SHINV.KL=DOINV.K*(SHAW.K/DOAW.K)
 42350 N SHINV=0
 42360 A SHAW.K=(SHSP.K*1E6)^DOWF*SHIMWC.K*STEP(1,SHCY)
 42370 C SHCY=1981
 42380 A SHSP.K=SHMCST.K-SHGS.K-SHNTC.K
 42390 A SHMCST.K=(SOCCR+SHECR.K+SHEIDC.K)*SHSCC.K+SHOMC.K
 42400 A SHECR.K=SOCCRR*(1-STEP(1,SHLGY))*MAX(0,(DOPAMI-SHPA.K)/DOPAMI)
 42410 C SHLGY=2200
 42420 A SHEIDC.K=SOCCRC*(1-STEP(1,SHCDY))
 42430 A SHSCC.K=SHCC.K*SHSCH.K/DOCUP
 42440 A SHSCH.K=TABHL(DOSCMT,SHGR.K,.04,.20,.04)
 42450 A SHGR.K=(SHAGR.K/SMOOTH(SHAGR.K,DOTGR)-1)/DOTGR
 42460 A SHAGR.K=MAX(DOPAMI,SHPA.K+SHPUC.K)
 42470 A SHGS.K=CLIP(0,STEP(MAX(0,SHMCST.K-DOWP.K),SHPSY),SHPR.K/TOPR.K,SHDMS)
 42480 C SHDMS=1
 42490 C SHPSY=2200
 42500 A SHNTC.K=SHNTCH*TABHL(SHNTCT,OOP.K,3.11E-6,3.91E-6,.80E-6)*STEP(1,SHNTCY)
 42510 T SHNTCT=1/0
 42520 C SHNTCH=.40E-6
 42530 C SHNTCY=2200
 42540 A SHIMWC.K=TABHL(SHIMWCT,(SHPA.K+SHPUC.K)/SHCC.K/SHPCWC,0,1,.2)
 42550 T SHIMWCT=1/1/1/1/.8/0
 42560 C SHPCWC=3.7E15
 42570 NOTE
 42580 A DOAW.K=COAW.K+EOAW.K+CLAW.K+SHAW.K
 42590 C DOCUP=.9
 42600 NOTE

INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
COMMERCIALIZATION YEAR	YEAR
SUPPORT PRICE	\$/BTU
MARGINAL COST	\$/BTU
EXCESS CHARGE DUE TO RISK	FRACTION/YR
LOAN GUARANTEE INITIATION YEAR	YEAR
EXCESS CHARGE DUE TO INT. UNDER CONST.	FRAC/YR
SPECIFIC CAPITAL COST	\$(BTU/YR)
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
GOVERNMENT SUBSIDY	\$/BTU
DESIRED MARKET SHARE	FRACTION
PRICE-SUPPORT YEAR	YEAR
NESS TAX CREDIT	\$/BTU
NESS TAX CREDIT TABLE	TABLE
NESS TAX CREDIT MULTIPLIER	DIMENSIONLESS
NESS TAX CREDIT INITIATION YEAR	YEAR
INVESTMENT MULT. FROM WATER CONSTRAINT	DIM'LESS
INVESTMENT MULT. WATER CONSTR. TABLE	TABLE
PROD. CAPACITY UNDER WATER CONSTRAINT	BTU/YR
ALLOCATION WEIGHT	DIMENSIONLESS
CUP FOR PLANNING	FRACTION

42610 NOTE
 42620 NOTE *****
 42630 NOTE
 42640 NOTE Conventional Oil Production Subsector
 42650 NOTE
 42660 NOTE ***
 42670 NOTE
 42680 NOTE
 42690 L COPA.K=COPA.J+(DT)(COFCR.JK-COPAR.JK)
 42700 N COPA=25.6E9
 42710 R COPAR.KL=COPA.K*COARF
 42720 C COARF=.045
 42730 R COFCR.KL=DELAY3P(COINV.JK,COFCT,COPUC.K)
 42740 C COFCT=3
 42750 NOTE
 42760 L COR.K=COR.J+(DT)(-CORER.J)
 42770 N COR=CORI
 42780 C CORI=727E15
 42790 A CORER.K=COC.P.K*COPA.K
 42800 A COCP.K=TABLE(CODMT,COR.K/CORI,-.5,1,.1)*COC.PN
 42810 T CODMT=0/0/0/0/0/0/0.05/.1/.15/-2/.3/.4/.5/.65/.8/1
 42820 C COCPN=.72E6
 42830 A COCC.K=1/COCP.K
 42840 A COEOMC.K=(COECF+COLBF.K)*COCC.K
 42850 C COECF=.12
 42860 A COLBF.K=TABHL(COLBFT,TIME.K,1950,2000,10)
 42870 T COLBFT=.03/.03/.03/.03/.05/.1
 42880 NOTE
 42890 L COURES.K=COURÉS.J+(DT)(COURA.JK-CORX.JK)
 42900 N COURES=COURES
 42910 C COURES=205E15
 42920 R COURA.KL=CORER.K*CORXF.K/COPDF
 42930 C COPDF=5.8
 42940 A CORXF.K=COPDF-1
 42950 R CORX.KL=COURES.K/CORXD
 42960 C CORXD=13
 42970 A COROMC.K=CORXCF*SMOOTH(COCC.K,2)
 42980 C CORXCF=.10
 42990 NOTE
 43000 L CORES.K=CORES.J+(DT)(CODR.JK+COPX.JK-CODR.JK)
 43010 N CORES=171E15
 43020 R CODR.KL=CORER.K/COPDF
 43030 R CODR.KL=COPR.K
 43040 A COPR.K=COPC.K*DOCUF.K
 43050 A COPC.K=CORES.K/COMRPR.K
 43060 A COMRPR.K=TABLE(CORPRT,TIME.K,1950,2030,10)
 43070 T CORPRT=11/10.6/7.5/7.5/7.5/7.5/7.5/7.5/7.5
 43080 C COPOMC=.05E-6
 43090 NOTE
 43100 A COCST.K=CODR.JK*COEOMC.K+CORN.JE*COROMC.K
 43110 X +COPR.K*(COPOMC+CORP.K)
 43120 A CORP.K=CORPF*SMOOTH(DOWP.K,2)
 43130 C CORPF=.15
 43140 A COOMC.K=COEOMC.K+COPOMC+CORP.K
 43150 NOTE

PHYSICAL ASSETS \$
 PHYSICAL ASSETS \$
 PHYSICAL ASSET RETIREMENTS \$/YR
 ASSET RETIREMENT FACTOR FRACTION/YR
 FACILITY COMPLETION RATE \$/YR
 FACILITY CONSTRUCTION TIME YEAR

 RESOURCES BTU
 RESOURCES BTU
 RESOURCES INITIAL BTU
 RESOURCE EXTRACTION RATE BTU/YR
 CAPITAL PRODUCTIVITY (BTU/YR)/\$
 DEPLETION MULTIPLIER TABLE TABLE
 CAPITAL PRODUCTIVITY NORMAL (BTU/YR)/\$
 CAPITAL COST \$(BTU/YR)
 EXPLORATION O&M COST \$/BTU
 EXPLORATION COST FACTOR FRACTION/YR
 LEASE BONUS FACTOR FRACTION/YR
 LEASE BONUS FACTOR TABLE TABLE

 UNPROVEN RESERVES BTU
 UNPROVEN RESERVES BTU
 UNPROVEN RESERVES INITIAL BTU
 UNPROVEN RESERVE ADDITIONS BTU/YR
 POTENTIAL DISCOVERY FACTOR DIMENSIONLESS
 REVISION AND EXTENSION FACTOR DIMENSIONLESS
 REVISIONS AND EXTENSIONS BTU/YR
 REVISION AND EXTENSION DELAY TIME YEAR
 REVISION AND EXTENSION O&M COST \$/BTU
 REVISION AND EXTENSION COST FACTOR FRACTION/YR

 PROVEN RESERVES BTU
 PROVEN RESERVES BTU
 DISCOVERY RATE BTU/YR
 RESERVES DEPLETION RATE BTU/YR
 PRODUCTION RATE BTU/YR
 PRODUCTION CAPACITY BTU/YR
 MINIMUM RESERVE PRODUCTION RATIO YEAR
 RESERVE PRODUCTION RATE TABLE TABLE
 PRODUCTION O&M COST \$/BTU

 COST \$/YR

 ROYALTY PAYMENTS \$/BTU
 ROYALTY PAYMENT FACTOR FRACTION/YR
 OPERATING AND MAINTENANCE <O&M> COST \$/BTU

43160 NOTE
 43170 NOTE *****
 43180 NOTE
 43190 NOTE Enhanced Oil Recovery Subsector
 43200 NOTE
 43210 NOTE *****
 43220 NOTE
 43230 NOTE
 43240 L EOPA.K=EOPA.J+(DT)(EOFCE.JK-EOPAR.JK)
 43250 N EOPA=0
 43260 R EOPAR.KL=EOPA.K*EOARF
 43270 C EOARF=.045
 43280 R EOFCE.KL=DELAY3P(EOINV.JK,EOFCE,EOPUC.K)
 43290 C EOFCE=3
 43300 NOTE
 43310 L EOR.K=EOR.J+(DT)(-EORDR.JK)
 43320 N EOR=EORI
 43330 C EORI=175E15
 43340 R EORDR.KL=EOPR.K
 43350 A EOPR.K=EOPC.K*DOCUF.K
 43360 A EOPC.K=EOPC.K*EOPA.K
 43370 A EOPC.K=TABLE(EODMT,EOR.K/EORI,0,1,.2)*EOCPN
 43380 T EODMT=0/.15/.30/.38/.45/1
 43390 C EOCPN=.11E6
 43400 A EOCC.K=1/EOPC.K
 43410 A EOOMC.K=EOCCF*EOCC.K
 43420 C EOCCF=.166
 43430 A EOCST.K=EOPR.K*EOOMC.K
 43440 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
RESOURCES	BTU
RESOURCES	BTU
RESOURCES INITIAL	BTU
RESERVES DEPLETION RATE	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
CAPITAL PRODUCTIVITY	(BTU/YR)/\$
DEPLETION MULTIPLIER TABLE	TABLE
CAPITAL PRODUCTIVITY NORMAL	(BTU/YR)/\$
CAPITAL COST	\$(BTU/YR)
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
CAPITAL COST FACTOR	FRACTION/YR
COST	\$/YR

43450 NOTE
 43460 NOTE *****
 43470 NOTE
 43480 NOTE Coal Liquefaction Subsector
 43490 NOTE
 43500 NOTE *****
 43510 NOTE
 43520 NOTE
 43530 L CLPA.K=CLPA.J+(DT)(CLFCR.JK-CLPAR.JK)
 43540 N CLPA=0
 43550 R CLPAR.KL=CLPA.K*CLARF
 43560 C CLARF=.026
 43570 R CLFCR.KL=DELAY3P(CLINV.JK,CLFCT.K,CLPUC.K)
 43580 A CLFCT.K=SMOOTH(CLIP(CLPPCT,CLHFCT,TIME.X,CLCDCY),CLHFCT)
 43590 C CLHFCT=10
 43600 C CLPPCT=5
 43610 C CLCDCY=2200
 43620 NOTE
 43630 A CLPR.K=CLPC.K*DOCUF.K*DCPDR.K
 43640 A CLPC.K=CLCP*CLPA.K
 43650 C CLCP=.096E6
 43660 A CLCC.K=1/CLCP
 43670 A CLCST.K=CLPR.K*(CLOMC+CLFCST.K)
 43680 C CLOMC=.88E-6
 43690 A CLFCST.K=(DCP.K-CEFCF)/CLCE
 43700 C CLCE=.70
 43710 A CLDC.K=CLPC.K*DOCUF.K/CLCE
 43720 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
HISTORICAL FACILITY CONSTRUCTION TIME	YEAR
POLICY FACILITY CONSTRUCTION TIME	YEAR
CONSTRUCTION DELAY CHANGE YEAR	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
CAPITAL PRODUCTIVITY	(BTU/YR)/\$
CAPITAL COST	\$(BTU/YR)
CCST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
CONVERSION EFFICIENCY	DIMENSIONLESS
DEMAND FOR COAL	BTU/YR

43730 NOTE
 43740 NOTE *****
 43750 NOTE
 43760 NOTE Shale Oil Subsector
 43770 NOTE
 43780 NOTE *****
 43790 NOTE
 43800 NOTE
 43810 L SHPA.K-SHPA.J+(DT)(SHFCR.JK-SHPAR.JK)
 43820 N SHPA=0
 43830 R SHPAR.KL-SHPA.K*SHARF
 43840 C SHARF=.026
 43850 R SHFCR.KL-DELAY3P(SHINV.JK,SHFCT.K,SHPUC.K)
 43860 A SHFCT.K-SMOOTH(CLIP(SHPPCT,SHHFCT,TIME.K,SHCDCY),SHHFCT)
 43870 C SHHFCT=10
 43880 C SHPPCT=5
 43890 C SHCDCY=2200
 43900 NOTE
 43910 L SHR.K-SHR.J+(DT)(-SHRDR.JK)
 43920 N SHR=SHRI
 43930 C SHRI=5800E15
 43940 R SHRDR.KL-SHPR.K
 43950 A SHPR.K-SHPC.K*DOCUF.K
 43960 A SHPC.K-SHCP.K*SHPA.K
 43970 A SHCP.K-TABLE(SHDMT,SHR.K/SHRI,0,1,.2)*SHCPN
 43980 T SHDMT=0/.25/.5/.7/.9/1
 43990 C SHCPN=.108E6
 44000 A SHCC.K=1/SHCP.K
 44010 A SHOMC.K-SHCCF*SHCC.K+SHST
 44020 C SHCCF=.157
 44030 C SHST=.73E-6
 44040 A SHCST.K-SHPR.K*SHOMC.K
 44050 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
HISTORICAL FACILITY CONSTRUCTION TIME	YEAR
POLICY FACILITY CONSTRUCTION TIME	YEAR
CONSTRUCTION DELAY CHANGE YEAR	YEAR
RESOURCES	BTU
RESOURCES	BTU
RESOURCES INITIAL	BTU
RESERVES DEPLETION RATE	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
CAPITAL PRODUCTIVITY	(BTU/YR)/\$
DEPLETION MULTIPLIER TABLE	TABLE
CAPITAL PRODUCTIVITY NORMAL	(BTU/YR)/\$
CAPITAL COST	\$(BTU/YR)
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
CAPITAL COST FACTOR	FRACTION/YR
SEVERENCE TAX	\$/BTU
COST	\$/YR

44060	NOTE			
44070	NOTE	*****		
44080	NOTE			
44090	NOTE	Alaskan Oil Supply Subsector		
44100	NOTE			
44110	NOTE	*****		
44120	NOTE			
44130	NOTE			
44140	A	AOPR.K=(AOSSP.K+AONSP.K)*1E15	PRODUCTION RATE	BTU/YR
44150	A	AOSSP.K=TABHL(AOSSPT,TIME.K,1950,2030,5)	SOUTH SLOPE PRODUCTION	BTU/YR
44160	T	AOSSPT=0/0/0/.23/.46/.43/.51/.52/1.07/1.22/1.34/1.23/.85/.4/0/0/0	SOUTH SLOPE PRODUCTION TABLE	TABLE
44170	A	AONSP.K=AOONS.K+AONNS.K	NORTH SLOPE PRODUCTION	BTU/YR
44180	A	AOONS.K=CLIP(AOONS2.K,AOONS1.K,TIME.K,1980)	OLD NORTH SLCPE PRODUCTION	BTU/YR
44190	A	AOONS1.K=TABHL(AOONS1T,TIME.K,1975,1980,1)	OLD NORTH SLCPE PRODUCTION 1975-1980	BTU/YR
44200	T	AOONS1T=0/0/.64/1.01/2.67/3.09	ONS1 TABLE	TABLE
44210	A	AOONS2.K=TABHL(AOONS2T,TIME.K,1980,2030,5)	OLD NORTH SLCPE PRODUCTION 1980-2020	BTU/YR
44220	T	AOONS2T=3.09/3.17/1.95/.87/.29/.11/0/0/0/0/0	ONS2 TABLE	TABLE
44230	A	AONNS.K=TABHL(AONNST,TIME.K,1980,2030,5)	NEW NORTH SLOPE PRODUCTION	BTU/YR
44240	T	AONNST=0/.22/1.69/2.93/3.52/3.60/3.15/2.1/.75/.2/0	NEW NORTH SLOPE PRODUCTION TABLE	TABLE
44250	A	AOWP.K=SMOOTH(OOP.K,DOEAT)	WELLHEAD PRICE	\$/BTU
44260	NOTE			
44270	NOTE	*****		
44280	NOTE			
44290	NOTE	Pan-American Oil Supply Subsector		
44300	NOTE			
44310	NOTE	*****		
44320	NOTE			
44330	NOTE			
44340	A	POPRM.K=TABLE(POPRMT,TIME.K,1950,2030,5)*1E15	PRODUCTION RATE MAXIMUM	BTU/YR
44350	T	POPRMT=0/0/0/0/0/0/0/0/0/0/0/0/0/0/0/0/0	PRODUCTION RATE MAXIMUM TABLE	TABLE
44360	NOTE			

44370 NOTE
44380 NOTE *****
44390 NOTE
44400 NOTE Supplementary Equations for Oil Demand for Coal
44410 NOTE
44420 NOTE *****
44430 NOTE
44440 NOTE
44450 A TODC.K-CLDC.K
44460 NOTE

DEMAND FOR COAL

BTU/YR

60000 NOTE *****
60010 NOTE *****
60020 NOTE
60030 NOTE Coal Production Sector of FOSSIL2
60040 NOTE
60050 NOTE
60060 NOTE Department of Energy
60070 NOTE Energy Transition Project
60080 NOTE
60090 NOTE Version Release Date:
60100 NOTE March 1980
60110 NOTE
60120 NOTE *****
60130 NOTE *****
60140 NOTE

60150 NOTE
 60160 NOTE *****
 60170 NOTE
 60180 NOTE Coal Supply-Demand Balance: Capacity Utilization Subsector
 60190 NOTE
 60200 NOTE *****
 60210 NOTE
 60220 NOTE
 60230 NOTE
 60240 A DCCUF.K-TABHL(DCCUFT,DCGD.K/DCPC.K,0,1,2,.1)
 60250 T DCCUFT=0/.1/.2/.3/.4/.5/.6/.7/.8/.9/.95/.98/1
 60260 A DCGD.K-DCND.K/DCDE
 60270 C DCDE=1.0
 60280 A DCND.K-TEDC.K+TODC.K+TGDC.K+DCEUD.K+DCED.K+DGCURC.K
 60290 A DCED.K-TABHL(DCEDT,TIME.K,1950,2030,10)*1E15
 60300 T DCEDT=1.7/1.1/1.5/1.5/2.1/2.4/2.7/3.1/3.5
 60310 A DCPC.K-SCPC.K+UCPC.K
 60320 A DCPR.K-SCPR.K+UCPR.K
 60330 A DCPDR.K-DCPR.K/DCGD.K
 60340 N DCPDR=1
 60350 NOTE

CAPACITY UTILIZATION FACTOR	FRACTION
CAPACITY UTILIZATION FACTOR TABLE	TABLE
GROSS DEMAND	BTU/YR
DISTRIBUTIONAL EFFICIENCY	FRACTION
NET DEMAND	BTU/YR
EXPORT DEMAND	BTU/YR
EXPORT DEMAND TABLE	TABLE
PRODUCTION CAPACITY	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION DEMAND RATIO	DIMENSIONLESS
PRODUCTION DEMAND RATIO	DIMENSIONLESS

60360 NOTE
60370 NOTE *****
60380 NOTE
60390 NOTE Coal Supply-Demand Balance: Pricing Subsector
60400 NOTE
60410 NOTE *****
60420 NOTE
60430 NOTE
60440 A DCP.K=DCMMP.K+DCDCHG.K
60450 N DCP=.92E-6
60460 A DCDCHG.K=CLIP(DCFCHG.K,DCHCHG,TIME.K,1977)
60470 C DCHCHG=.54E-6
60480 A DCFCHG.K=DCHCHG*EXP(.01*(TIME.K-1977))
60490 A DCMMP.K=DCPMN.K*DCPHM.K+DCACST.K
60500 N DCMMP=.38E-6
60510 A DCACST.K=DCCST.K/DCPR.K
60520 A DCPMN.K=DCROEN.K*DCEQ.K/(DCPC.K*DCCUFN*(1-DCTR))
60530 A DCROEN.K=DCHROEN+DCINF.K+SMOOTH(STEP(.05,1974),5)
60540 C DCHROEN=.05
60550 A DCPHM.K=TABHL(DCPHMT,DCGD.K/DCPC.K,-6,1.0,.1)
60560 T DCPHMT=0/.4/1/2/3.5
60570 C DCCUFN=.80
60580 NOTE

PRICE	\$/BTU
PRICE	\$/BTU
DELIVERY CHARGE	\$/BTU
HISTORICAL CHARGE	\$/BTU
FUTURE CHARGE	\$/BTU
MINEMOUTH PRICE	\$/BTU
MINEMOUTH PRICE	\$/BTU
AVERAGE COST	\$/BTU
PROFIT MARGIN NORMAL	\$/BTU
NORMAL RETURN ON EQUITY	FRACTION/YR
HISTORICAL RETURN ON EQUITY NORMAL	FRACTION/YR
PRICE MULTIPLIER	DIMENSIONLESS
PRICE MULTIPLIER TABLE	TABLE
CAPACITY UTILIZATION FACTOR NORMAL	FRACTION

60590 NOTE
60600 NOTE *****
60610 NOTE
60620 NOTE Coal Financing: Source of Funds Subsector
60630 NOTE
60640 NOTE *****
60650 NOTE
60660 NOTE
60670 A $DCNI.K = (1 - DCTR) * (DCREV.K - DCCST.K) + DCITC * DCNPC.K$
60680 C $DCTR = .30$
60690 C $DCITC = .07$
60700 A $DCREV.K = DCMMP.K * DCPR.K$
60710 A $DCCST.K = UCCST.K + SCCST.K + DCDEP.K + DCINT.K$
60720 NOTE
60730 L $DCCA.K = DCCA.J + (DT) (DCINV.J - DCCAR.JK - DCVLI.JK)$
60740 N $DCCA = 5.8E9$
60750 R $DCCAR.KL = DCCA.K * DCARF$
60760 C $DCARF = .05$
60770 R $DCVLI.KL = DCCA.K * DEINF.K$
60810 NOTE
60820 A $DCNA.K = DCCA.K * DCADF$
60830 C $DCADF = .60$
60840 A $DCEQ.K = DCNA.K * DCEF$
60850 C $DCEF = .80$
60860 A $DCDEBT.K = DCNA.K * DCDF$
60870 N $DCDF = (35/65) * DCEF$
60880 A $DCINT.K = DCIR.K * DCDEBT.K$
60890 A $DCIR.K = DCIRN + DEINF.K$
60900 C $DCIRN = .025$
60910 A $DCDRMT.K = DCDEBT.K / DCDL$
60920 C $DCDL = 10$
60930 A $DCDEP.K = DCCA.K / DCBLC$
60940 C $DCBLC = 20$

NET INCOME	\$/YR
TAX RATE	FRACTION
INVESTMENT TAX CREDIT	FRACTION
REVENUE	\$/YR
COST	\$/YR
GROSS ASSETS	\$
GROSS ASSETS	\$
GROSS ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
VALUE LOSS DUE TO INFLATION	\$/YR
NET ASSETS	\$
ACCUMULATED DEPRECIATION FRACTION	FRACTION
EQUITY	\$
EQUITY FRACTION	FRACTION
DEBT	\$
DEBT FRACTION	FRACTION
INTEREST	\$/YR
INTEREST RATE	FRACTION/YR
INTEREST RATE NORMAL	FRACTION/YR
DEBT REPAYMENT	\$/YR
DEBT LIFE	YEAR
DEPRECIATION	\$/YR
BOOK LIFE OF CAPITAL	YEAR

60950 NOTE
60960 A $DCIF.K = DCNI.K - DCDIV.K + DCDEP.K - DCDRMT.K$
60970 A $DCDIV.K = TABHL(DCDPOT, DCROI.K, 0, .16, .04) * DCNI.K$
60980 T $DCDPOT = .9 / .8 / .55 / .45 / .4$
60990 A $DCROI.K = (DCNI.K + DCINT.K) / (DCEQ.K + DCDEBT.K)$
61000 N $DCROI = .025$
61010 A $DCROIN.K = DCROIR + SMOOTH(DCINF.K, DCEAT) + SMOOTH(STEP(.03, 1974), 5)$
61020 C $DCROIR = .04$
61030 A $DCROIX.K = SMOOTH(DCROI.K / DCROIN.K, DCEAT)$
61040 C $DCEAT = 16$
61050 NOTE
61060 A $DCFA.K = DCIF.K + DCEFA.K$
61070 A $DCEFA.K = DCGA.K * DCGR.K$
61080 A $DCGR.K = TABHL(DCGRT, DCROIX.K, .4, 1.4, .2)$
61090 T $DCGRT = 0 / .1 / .15 / .2 / .23 / .25$
61100 NOTE
61110 A $DCFN.K = MAX(0, (DCFPA.K - DCPA.K - DCPUC.K + DCFCT * DCARF$
61120 X $\quad * (DCPA.K + DCFPA.K) / 2) / DCFCEK)$
61130 C $DCFCEK = .85$
61140 C $DCFCT = 1.5$
61150 A $DCFPA.K = DCNPA.K * EXP((DCNPA.K / DESPA.K - 1) * DCFCT / DCEAT)$
61160 A $DCNPA.K = DCGD.K / DCCUFP * DCCC.K$
61170 C $DCCUFP = .70$
61180 L $DCSPA.K = DCSPA.J + (DT) (DCNPA.J - DESPA.J) / DCEAT$
61190 N $DCSPA = DCSPA1$
61200 C $DCSPA1 = 1.5E9$
61210 A $DCCC.K = DCPA.K / DCPC.K$
61220 A $DCPA.K = SCPA.K + UCPA.K$
61230 A $DCPUC.K = SCPUC.K + UCPUC.K$
61240 A $DCNPC.K = SCFCR.JK + UCFCR.JK$
61250 A $DCINV.K = MIN(DCFA.K, DCFN.K) * DCFCEK$
61260 C $DCTGR = 2$
61270 NOTE

INTERNAL FUNDS \$/YR
DIVIDENDS \$/YR
DIVIDEND PAYOUT TABLE TABLE
RETURN ON INVESTMENT FRACTION/YR
RETURN ON INVESTMENT FRACTION/YR
RETURN ON INVESTMENT NORMAL FRACTION/YR
RETURN ON INVESTMENT REAL FRACTION/YR
RETURN ON INVESTMENT INDEX DIMENSIONLESS
ECONOMIC AVERAGING TIME YEAR

FUNDS AVAILABLE \$/YR
EXTERNAL FUNDS AVAILABLE \$/YR
GROWTH RATE FRACTION/YR
GROWTH RATE TABLE TABLE

FUNDS NEEDED \$/YR

FRAC. TO CAPITAL EXPENDITURES NORMAL FRAC.
FACILITY CONSTRUCTION TIME YEAR
FUTURE PHYSICAL ASSETS \$
NORMAL PHYSICAL ASSETS \$
CUF FOR PLANNING FRACTION
SMOOTHED PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS INITIAL \$
CAPITAL COST \$/(BTU/YR)
PHYSICAL ASSETS \$
PLANTS UNDER CONSTRUCTION \$
NEW PLANTS COMPLETED \$/YR
INVESTMENT \$/YR
TIME FOR GROWTH RATE YEAR

61280 NOTE
61290 NOTE *****
61300 NOTE
61310 NOTE Coal Financing: Use of Funds Subsector
61320 NOTE
61330 NOTE *****
61340 NOTE
61350 NOTE
61360 R SCINV.KL=DCINV.K*SCAW.K/DCAW.K
61370 N SCINV=SCINVI
61380 C SCINVI=.03E9
61390 A SCAW.K=(SCHCST.K*1E6)^DCWF*(1-STEP(1,SCMY))
61400 A SCHCST.K=SCCCR.K*SCSCC.K+SCOMC.K+SCDCHG
61410 C SCDCHG=.20E-6
61420 A SCCR.K=.080+SMOOTH(STEP(.05,1974),5)
61430 A SCSCC.K=SCCC.K*SCSCH.K/DCCUFP
61440 A SCSCM.K=TABHL(DCSCMT,SCGR.K,.04,.20,.04)
61460 A SCGR.K=(SCAGR.K/SMOOTH(SCAGR.K,DCTGR)-1)/DCTGR
61470 A SCAGR.K=MAX(DCPAMI,SCPA.K+SCPUC.K)
61480 C SCMY=2200
61490 NOTE
61500 R UCINV.KL=DCINV.K*UCAW.K/DCAW.K
61510 N UCINV=UCINVI
61520 C UCINVI=.3E9
61530 A UCAW.K=(UCNCST.K*1E6)^DCWF
61540 A UCNCST.K=UCCCR.K*UCSCC.K+UCOMC.K+UCLCST.K
61550 A UCCCR.K=.080+SMOOTH(STEP(.05,1974),5)
61560 A UCSCC.K=UCCC.K*UCSCH.K/DCCUFP
61570 A UCSCH.K=TABHL(DCSCMT,UCGR.K,.04,.20,.04)
61580 A UCGR.K=(UCAGR.K/SMOOTH(UCAGR.K,DCTGR)-1)/DCTGR
61590 A UCAGR.K=MAX(DCPAMI,UCPA.K+UCPUC.K)
61600 NOTE
61610 C DCPAMI=5.0E9
61620 C DCWF=-10
61630 A DCAW.K=SCAW.K+UCAW.K
61640 T DCSCMT=1/1/1.5/2.1/3.0

INVESTMENT	\$/YR
INVESTMENT	\$/YR
INVESTMENT INITIAL	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
MARGINAL COST	\$/BTU
DELIVERY CHARGE	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
SPECIFIC CAPITAL COST	\$/ (BTU/YR)
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
MORATORIUM INITIATION YEAR	YEAR
INVESTMENT	\$/YR
INVESTMENT	\$/YR
INVESTMENT INITIAL	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
SPECIFIC CAPITAL COST	\$/ (BTU/YR)
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
PHYSICAL ASSETS OF A MATURE INDUSTRY	\$
WEIGHTING FACTOR	DIMENSIONLESS
ALLOCATION WEIGHT	DIMENSIONLESS
SECONDARY CONSTRAINT MULTIPLIER TABLE	TABLE

61650 NOTE
 61660 NOTE *****
 61670 NOTE
 61680 NOTE Surface Coal Production Subsector
 61690 NOTE
 61700 NOTE *****
 61710 NOTE
 61720 NOTE
 61730 L $SCPA.K = SCPA.J + (DT)(SCFCR.JK - SCPAR.JK)$
 61740 N $SCPA = 1.5E9$
 61750 R $SCPAR.KL = SCPA.K * SCARF$
 61760 C $SCARF = .05$
 61770 R $SCFCR.KL = DELAY3P(SCINV.JK, DCECT, SCPUC.K)$
 61780 NOTE
 61790 L $SCR.K = SCR.J + (DT)(-SCRDR.JK)$
 61800 N $SCR = SCRI$
 61810 C $SCRI = 2400F15$
 61820 R $SCRDR.KL = SCPR.K$
 61830 NOTE
 61840 A $SCPR.K = DCCUF.K * SCPC.K$
 61850 A $SCPC.K = SCCP.K * SCPA.K$
 61860 A $SCCP.K = TABLE(SCDMT, SCR.K / SCRI, 0, 1, .2) * SCCPN * SCPMS.K$
 61870 T $SCDMT = 0 / .2 / .4 / .6 / .8 / 1$
 61880 C $SCCPN = 2.8E6$
 61890 A $SCPMS.K = SMOOTH(CLIP(.65, 1, TIME.K, 1970), DCSAT)$
 61900 C $DCSAT = 3$
 61910 A $SCCC.K = 1 / SCCP.K$
 61920 A $SCOMC.K = SCCF * SCCC.K + SCST.K + SCRSE.K$
 61930 C $SCCF = .58$
 61940 A $SCST.K = SCPR.K * SCOMC.K$
 61950 A $SCST.K = STEP(1, SCSTY) * TABHL(SCSTT, (TIME.K - SCSTPY) / SCSTPT, 0, 1, 1) * 1E-6$
 61960 C $SCSTY = 1975$
 61970 T $SCSTT = .20 / .60$
 61980 C $SCSTPT = 20$
 61990 C $SCSTPY = 2200$
 62000 A $SCRSC.K = STEP(SCIRSC, SCRSY)$
 62010 C $SCRSY = 1975$
 62020 C $SCIRSC = .13E-6$
 62030 NOTE

PHYSICAL ASSETS \$
 PHYSICAL ASSETS \$
 PHYSICAL ASSET FETIREMENTS \$/YR
 ASSET RETIREMENT FACTOR FRACTION/YR
 FACILITY COMPLETION RATE \$/YR
 RESOURCES BTU
 RESOURCES BTU
 RESGURCES INITIAL BTU
 RESERVES DEPLETION RATE BTU/YR
 PRODUCTION RATE BTU/YR
 PRODUCTION CAPACITY BTU/YR
 CAPITAL PRODUCTIVITY (BTU/YR)/\$
 DEPLETION MULTIPLIER TABLE TABLE
 CAPITAL PRODUCTIVITY NORMAL (BTU/YR)/\$
 PRODUCTIVITY MULT. FROM SAFETY DIMENSIONLESS
 SAFETY ADJUSTMENT TIME YEAR
 CAPITAL COST \$/(BTU/YR)
 OPEEATING AND MAINTENANCE <O&M> COST \$/BTU
 COST FACTOR FRACTION/YR
 COST \$/YR
 SEVERENCE TAX \$/BTU
 SEVERENCE TAX INITIATION YEAR YEAR
 SEVERENCE TAX TABLE TABLE
 SEVERENCE TAX POLICY TIME YEAR
 SEVERENCE TAX POLICY INITIATION YEAR YEAR
 RECLAMATION STANDARDS COST \$/BTU
 RECLAMATION STANDARDS YEAR YEAR
 INDICATED RECLAMATION COSTS \$/BTU

62040 NOTE
 62050 NOTE *****
 62060 NOTE
 62070 NOTE Underground Coal Production Subsector
 62080 NOTE
 62090 NOTE *****
 62100 NOTE
 62110 NOTE
 62120 L $UCPA.K = UCPA.J + (DT) (UCFCR.JK - UCPAR.JK)$
 62130 N $UCPA = 4.3E9$
 62140 R $UCPAR.KL = UCPA.K * UCARF$
 62150 C $UCARF = .05$
 62160 R $UCFCR.KL = DELAY3P(UCINV.JK, DCFCT, UCPUC.K)$
 62170 NOTE
 62180 L $UCR.K = UCR.J + (DT) (-UCRDR.JK)$
 62190 N $UCR = UCRI$
 62200 C $UCRI = 7000E15$
 62210 R $UCRDR.KL = UCPR.K$
 62220 NOTE
 62230 A $UCPR.K = DCCUF.K * UCPC.K$
 62240 A $UCPC.K = UCCP.K * UCPA.K$
 62250 A $UCCP.K = TABLE(UCDMT, UCR.K/UCRI, 0, 1, .2) * UCCPN * UCPMS.K * UCTM.K$
 62260 T $UCDMT = 0/.2/.4/.6/.8/1$
 62270 C $UCCPN = 4.1E6$
 62280 A $UCTM.K = TABHL(UCTMT, TIME.K, 1950, 2000, 10)$
 62290 T $UCTMT = 1/.52/.27/.22/.22/.22$
 62300 A $UCPMS.K = SMOOTH(TABLE(UCPMST, UCAR.K, 0, 1.25, .25), DCSAT)$
 62310 T $UCPMST = 0/.4/.72/.85/1/1.05$
 62320 A $UCAR.K = CLIP(UCRSS, UCNSS, TIME.K, 1969)$
 62330 C $UCNSS = 1$
 62340 C $UCRSS = .5$
 62350 A $UCCC.K = 1/UCCP.K$
 62360 A $UCOMC.K = UCCP * UCCC.K$
 62370 C $UCCF = .135$
 62380 A $UCCST.K = UCPR.K * (UCOMC.K + UCLCST.K)$
 62390 A $UCLCST.K = (UCLW.K/UCCLR.K) * UCCC.K$
 62400 A $UCLW.K = UCLWN * UCLWM.K$
 62410 C $UCLWN = 16500$
 62420 A $UCLWM.K = TABLE(UCLWMT, TIME.K, 1950, 2030, 10)$
 62430 T $UCLWMT = 1/1.2/1.6/2/2.4/2.6/2.8/2.9/3.0$
 62440 A $UCCLR.K = UCCLRN * UCCLH.K$
 62450 C $UCCLRN = 11500$
 62460 A $UCCLH.K = TABHL(UCCLMT, TIME.K, 1950, 2000, 10)$
 62470 T $UCCLMT = 1/3.0/9.0/12.0/13.9/14$
 62480 NOTE

PHYSICAL ASSETS \$
 PHYSICAL ASSETS \$
 PHYSICAL ASSET RETIREMENTS \$/YR
 ASSET RETIREMENT FACTOR FRACTION/YR
 FACILITY COMPLETION RATE \$/YR

 RESOURCES BTU
 RESOURCES RTU
 RESOURCES INITIAL RTU
 RESERVES DEPLETION RATE BTU/YR

 PRODUCTION RATE BTU/YR
 PRODUCTION CAPACITY BTU/YR
 CAPITAL PRODUCTIVITY (BTU/YR)/\$
 DEPLETION MULTIPLIER TABLE TABLE
 CAPITAL PRODUCTIVITY NORMAL (BTU/YR)/\$
 TECHNOLOGY MULTIPLIER DIMENSIONLESS
 TECHNOLOGY MULTIPLIER TABLE TABLE
 PRODUCTIVITY MULT. FROM SAFETY DIMENSIONLESS
 PMS TABLE TABLE
 ADJUSTMENT RATE DIMENSIONLESS
 NORMAL SAFETY STANDARDS DIMENSIONLESS
 REGULATED SAFETY STANDARDS DIMENSIONLESS
 CAPITAL COST \$/(BTU/YR)
 OPERATING AND MAINTENANCE <O&M> COST \$/BTU
 COST FACTOR FRACTION/YR
 COST \$/YR
 LABOR COST \$/BTU
 LABOR WAGES \$/LABORER-YR
 LABOR WAGES NORMAL \$/LABORER-YR
 LABOR WAGE MULTIPLIER DIMENSIONLESS
 LABOR WAGE MULTIPLIER TABLE TABLE
 CAPITAL-TO-LABOR RATIO \$-CAPITAL/LABORER
 CAPITAL-TO-LABOR RATIO NORMAL \$-CAPITAL/LABORER
 CAPITAL/LABOR MULTIPLIER DIMENSIONLESS
 CAPITAL/LABOR MULTIPLIER TABLE TABLE

70000 NOTE *****
70010 NOTE *****
70020 NOTE *****
70030 NOTE Electricity Generation Sector of FOSSIL2
70040 NOTE *****
70050 NOTE *****
70060 NOTE Department of Energy
70070 NOTE Energy Transition Project
70080 NOTE *****
70090 NOTE Version Release Date:
70100 NOTE March 1980
70110 NOTE *****
70120 NOTE *****
70130 NOTE *****
70140 NOTE *****

70150 NOTE
 70160 NOTE *****
 70170 NOTE
 70180 NOTE Electricity Supply-Demand Balance: Capacity Utilization Subsector
 70190 NOTE
 70200 NOTE *****
 70210 NOTE
 70220 NOTE
 70230 A SECUF.K=TABHL(SECFT,SED.K/SEPC.K,0,1,.2)
 70240 T SECFT=0/.2/.4/.6/.8/.85
 70250 A SED.K=TEGD.K-HEPR.K-HTPR.K
 70260 A TEGD.K=TEND.K/TEDE
 70270 A TEND.K=TEEUD.K
 70280 C TEDE=.91
 70290 A SEPC.K=LWPC.K+BNPC.K+ECPC.K+NCPC.K+FBPC.K+OUPC.K+PVPC.K
 70300 X +CCPC.K+OTPC.K+BMPC.K+STPC.K+WEPC.K
 70310 A TEPR.K=SEPR.K+HEPR.K+HTPR.K
 70320 A SEPR.K=FBPR.K+ECPR.K+NCPR.K+LWPR.K+BNPR.K+OUPR.K+PVPR.K
 70330 X +CCPR.K+OTPR.K+BMPR.K+STPR.K+WEPR.K
 70340 A TEPDR.K=TEPR.K/TEGD.K
 70350 N TEPDR=1
 70360 NOTE

CAPACITY UTILIZATION FACTOR	FRACTION
CAPACITY UTILIZATION FACTOR TABLE	TABLE
DEMAND	BTU/YR
GROSS DEMAND	BTU/YR
NET DEMAND	BTU/YR
DISTRIBUTIONAL EFFICIENCY	FRACTION
PRODUCTION CAPACITY	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION RATE	BTU/YR
PRODUCTION DEMAND RATIO	DIMENSIONLESS
PRODUCTION DEMAND RATIO	DIMENSIONLESS

70370	NOTE		
70380	NOTE	*****	
70390	NOTE		
70400	NOTE	Electricity Supply-Demand Balance: Pricing Subsector	
70410	NOTE		
70420	NOTE	*****	
70430	NOTE		
70440	NOTE		
70450	A	TEP.K-SMOOTH(SEALP.K,SERRT.K)	PRICE \$/BTU
70460	N	TEP-TEPI	PRICE \$/BTU
70470	C	TEPI=10.20E-6	PRICE INITIAL \$/BTU
70480	A	SERRT.K-TABHL(SERRTT,TIME.K,1950,2030,10)	REGULATION DELAY TIME YEAR
70490	T	SERRTT=5/5/2/2/2/2/2/2/2	REGULATION DELAY TIME TABLE TABLE
70500	A	SEALP.K-SEACST.K+TEPM.K	ALLOWED PRICE \$/BTU
70510	N	SEALP-SEALPI	ALLOWED PRICE \$/BTU
70520	C	SEALPI=10.20E-6	ALLOWED PRICE INITIAL \$/BTU
70530	A	SEACST.K-SECST.K/(TEDE*(SEPC.K*MIN(SECUF.K,.7)))	AVERAGE COST \$/BTU
70540	A	TEPM.K-SEALROE.K*SEEQ.K/(TEDE*(SEPC.K*MIN(SECUF.K,.7)))*(1-SETR.K)	PRICE MARKUP \$/BTU
70550	A	SEALROE.K-CLIP(SEPROE,SEHROE,TIME.K,SERRY)+DEINF.K	ALLOWED RETURN ON EQUITY FRACTION/YR
70560	C	SEHROE=.07	HISTORICAL RETURN ON EQUITY FRACTION/YR
70570	C	SEPROE=.10	POLICY RETURN ON EQUITY FRACTION/YR
70580	C	SERRY=2200	RATE REFORM INITIATION YEAR YEAR
70590	NOTE		
70600	A	SEACUF.K-CLIP(SEPACUF.K,SEHACUF.K,TIME.K,SELMPY)	AVERAGE CAPACITY UTILIZATION FACTOR FRACTION
70610	A	SEHACUF.K-TABHL(SEACUFT,TIME.K,1950,2030,10)	HISTORICAL AVG. CUF FRACTION
70620	T	SEACUFT=.55/.52/.50/.4/.45/.45/.45/.45	AVERAGE CAPACITY UTILIZATION TABLE TABLE
70630	A	SEPACUF.K-TABHL(SEPCUFT,TIME.K,1950,2030,10)	POLICY AVG. CUF FRACTION
70640	T	SEPCUFT=.55/.52/.5/.4/.5/.55/.55/.55	PACUF TABLE TABLE
70650	C	SELMPY=1980	LOAD MANAGEMENT POLICY INITIATION YEAR YEAR
70660	NOTE		

70670	NOTE			
70680	NOTE	*****		
70690	NOTE			
70700	NOTE	Electric Utility Financing: Source of Funds Subsector		
70710	NOTE			
70720	NOTE	*****		
70730	NOTE			
70740	NOTE			
70750	A	SENI.K=(1-SETR.K)*(SEREV.K-SECST.K)+SEITC*SENPC.K	NET INCOME	\$/YR
70760	A	SETR.K=TARHL(SETRT,TIME.K,1950,2030,10)	TAX RATE	FRACTION
70770	T	SETRT=.40/.35/.25/.20/.20/.20/.20/.20	TAX RATE TABLE	TABLE
70780	C	SEITC=.07	INVESTMENT TAX CREDIT	FRACTION
70790	A	SEREV.K=TEP.K*TEDE*SEPR.K	REVENUE	\$/YR
70800	A	SEPCST.K=SEPCST.K+SEDEP.K+SEINT.K	COST	\$/YR
70810	A	SEPCST.K=TDCST.K+NCCST.K+ECCST.K+FBCST.K+OUCST.K+PVCST.K+LWCST.K+BNCST.K	PRODUCTION COST	\$/YR
70820	X	+CCCST.K+OTCST.K+BMCST.K+STCST.K+WECST.K		
70830	NOTE			
70840	L	SEGA.K=SEGA.J+(DT)(SEINV.J-SEGAR.JK-SEVLI.JK)	GROSS ASSETS	\$
70850	N	SEGA=SEGAJ	GROSS ASSETS	\$
70860	C	SECAI=30E9	GROSS ASSETS INITIAL	\$
70870	R	SEGAR.KL=SEGA.K*SEARF.K	GROSS ASSET RETIREMENTS	\$/YR
70880	A	SEARF.K=(SEAR1.K+SEAR2.K)/SEPA.K	ASSET RETIREMENT FACTOR	FRACTION/YR
70890	A	SEAR1.K=NCPA.K*NCAFP+ECPA.K*ECARF+PBPA.K*FBARF+OUPA.K*OUARF+	ASSET RETIREMENT FACTOR 1	FRACTION/YR
70900	X	CCPA.K*CCARF+OTPA.K*OTARF		
70910	A	SEAR2.K=BMPA.K*BMARF+STPA.K*STARF+WEPa.K*WEARF+PVPA.K*PVARF+	ASSET RETIREMENT FACTOR 2	FRACTION/YR
70920	X	LWPA.K*LWARF+BNPA.K*BNARF		
70930	R	SEVLI.KL=SEGA.K*DEINF.K*SEPLAS.K	VALUE LOSS DUE TO INFLATION	\$/YR
70940	A	SEPLAS.K=TABHL(SEPLAST,(TIME.K-1980)/5,0,1,1)	PRICE-LEVEL ACCOUNTING SCHEDULE	DIMENSIONLESS
70950	T	SEPLAST=1/0	PRICE-LEVEL ACCOUNTING SCHEDULE TABLE	TABLE
70960	NOTE			
70970	A	SENA.K=SEGA.K*SEADF	NET ASSETS	\$
70980	C	SEADF=.80	ACCUMULATED DEPRECIATION FRACTION	FRACTION
70990	A	SEEQ.K=SENA.K*SEEF	EQUITY	\$
71000	C	SEEF=.4	EQUITY FRACTION	FRACTION
71010	A	SEDEBT.K=SENA.K*SEDF	DEBT	\$
71020	N	SEDF=(55/45)*SEEF	DEBT FRACTION	FRACTION
71030	A	SEINT.K=SEIR.K*SEDEBT.K	INTEREST	\$/YR
71040	A	SEIR.K=SEIRN+DEINF.K	INTEREST RATE	FRACTION/YR
71050	C	SEIRN=.025	INTEREST RATE NORMAL	FRACTION/YR
71060	A	SEDRMT.K=SEDEBT.K/SEDL	DEBT REPAYMENT	\$/YR
71070	C	SEDL=35	DEBT LIFE	YEAR
71080	A	SEDEP.K=SEGA.K/SEBLC	DEPRECIATION	\$/YR
71090	C	SEBLC=35	BOOK LIFE OF CAPITAL	YEAR
71100	NOTE			
71110	A	SEIF.K=SENI.K-SEDIV.K+SEDEP.K-SEDRMT.K	INTERNAL FUNDS	\$/YR
71120	A	SEDIV.K=SEDPof*SENI.K	DIVIDENDS	\$/YR
71130	C	SEDPof=.66	DIVIDEND PAYOUT FRACTION	FRACTION
71140	A	SEROI.K=(SENI.K+SEINT.K)/(SEEQ.K+SEDEBT.K)	RETURN ON INVESTMENT	FRACTION/YR
71150	A	SEROIN.K=SEROIR+SMOOTH(DEINF.K,SEET)	RETURN ON INVESTMENT NORMAL	FRACTION/YR
71160	C	SEROIR=.05	RETURN ON INVESTMENT REAL	FRACTION/YR
71170	A	SEROIX.K=SMOOTH(SEROI.K/SEROIN.K,SEET)	RETURN ON INVESTMENT INDEX	DIMENSIONLESS
71180	C	SEET=5	ECONOMIC AVERAGING TIME	YEAR
71190	NOTE		ECONOMIC AVERAGING TIME	YEAR

71200 NOTE
71210 A SEFA.K=SEIF.K+SFEPA.K
71220 A SEFPA.K=SEGA.K*SEGR.K
71230 A SEGR.K=TANH1(SEGRT,SEROIX.K,0,3,3,.3)*CLIP(SEUBM,1,TIME.K,SEUBGY)
71240 T SEGRT=0/.03/.056/.08/.10/.115/.13/.135/.14/.145/.15/.15
71250 C SEUBGY=1980
71260 C SEUBM=1.15
71270 NOTE
71280 A SEFN.K=MAX(0,(SEFPA.K-SEPA.K-SEPUC.K+SEAFCT.K*SEARF.K
71290 X *(SEPA.K+SEFPA.K)/2)/SEFCE)
71300 A SEFPA.K=SENPA.K*EXP(SENPA.K/SESEA.K-1)
71310 A SENPA.K=SEPA.K+(SEDFC.K-SEPC.K)*SECC.K
71320 A SEDPC.K=SED.K/SEACUF.K
71330 L SESPA.K=SESPA.J+(DT)(SENPA.J-SESPA.J)/SEAFCT.J
71340 N SESPA=SESPA1
71350 C SESPA1=25.6E9
71360 A SECC.K=(SECC1.K+SECC2.K)/SEPA.K
71370 A SECC1.K=NGCC.K*NCPA.K+EGCC.K*ECPA.K+FBCC.K*FBPA.K+OUCC.K*OUPA.K+
71380 X CCCC.K*CCPA.K+OTCC.K*OTPA.K
71390 A SECC2.K=BNCC.K*BNPA.K+STCC.K*STPA.K+WECC.K*WEPA.K+PVCC.K*PVPA.K+
71400 X LWCC.K*LWPA.K+BNCC.K*BNPA.K
71410 A SEPA.K=NCPA.K+ECPA.K+FBPA.K+OUPA.K+PVPA.K+LWPA.K+BNPA.K
71420 X +CCPA.K+OTPA.K+BNPA.K+STPA.K+WEPA.K
71430 A SEPUC.K=NCPUC.K+ECPUC.K+FBPUC.K+OUPUC.K+PVUC.K+LWPUC.K+BNPUC.K
71440 X +CCPUC.K+OTPUC.K+BNPUC.K+STPUC.K+WEPUC.K
71450 A SEAFCT.K=(SEAFCT1.K+SEAFCT2.K)/SENPC.K
71460 A SEAFCT1.K=NCFCT.K+NCFCT.K+ECFCT.K+ECFCT.K+FBFCT.K+FBFCT
71470 X +OUFCT.K+OUFCT+CCFCT.K+CCFCT+OTFCT.K+OTFCT
71480 A SEAFCT2.K=BMFCT.K+BMFCT+STFCT.K+STFCT+WEFCT.K+WEFCT
71490 X +PVFCT.K+PVFCT+LWFCT.K+LWFCT.K+ENFCT.K+ENFCT.K+NUFCT.K
71500 A SENPC.K=NCFCT.K+ECFCT.K+FBFCT.K+OUFCT.K+PVFCT.K+LWFCT.K
71510 X +BNFCT.K+CCFCT.K+OTFCT.K+BMFCT.K+STFCT.K+WEFCT.K
71520 NOTE
71530 A SEINV.K=MIN(SEFA.K,SEFN.K)*SEFCE
71540 N SEINV=SEINVI
71550 C SEINVI=3.6E9
71560 C SEFCE=.85
71570 NOTE

FUNDS AVAILABLE \$/YR
EXTERNAL FUNDS AVAILABLE \$/YR
GROWTH RATE FRACTION/YR
GROWTH RATE TABLE TABLE
UTILITY BACKOUT INITIATION YEAR YEAR
UTILITY BACKOUT MULTIPLIER DIMENSIONLESS

FUNDS NEEDED \$/YR

FUTURE PHYSICAL ASSETS \$
NORMAL PHYSICAL ASSETS \$
DESIRED PRODUCTION CAPACITY BTU/YR
SMOOTHED PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS \$
SMOOTHED PHYSICAL ASSETS INITIAL \$
CAPITAL COST \$(BTU/YR)
CAPITAL COST 1 \$(BTU/YR)
CAPITAL COST 2 \$(BTU/YR)

PHYSICAL ASSETS \$
PLANTS UNDER CONSTRUCTION \$

AVERAGE FACILITY CONSTRUCTION TIME YEAR
AVERAGE FACILITY CONSTRUCTION TIME PART 1 ***

AVERAGE FACILITY CONSTRUCTION TIME PART 2 ***

NEW PLANTS COMPLETED \$/YR

INVESTMENT \$/YR
INVESTMENT \$/YR
INVESTMENT INITIAL \$/YR
FRACTION TO CAPITAL EXPENDITURES FRACTION

71580 NOTE
 71590 NOTE *****
 71600 NOTE
 71610 NOTE Electric Utility Financing: Use of Funds Subsector
 71620 NOTE
 71630 NOTE *****
 71640 NOTE
 71650 A $ACINV.K = SEINV.K * (ACAW.K / SEAW.K)$
 71660 A $ACAW.K = (ACMCST.K * IE6) \sim SEWF$
 71670 A $ACMCST.K = (NCMCST.K * NCFCR.JK + ECMCST.K * ECFCR.JK) /$
 71680 X $(NCFCR.JK + ECFCR.JK)$
 71690 NOTE
 71700 R $NCINV.KL = ACINV.K * NCMS.K$
 71710 N $NCINV = NCINVI$
 71720 C $NCINVI = 3E9$
 71730 A $NCMS.K = TABHL(NCMST, (TIME.K - NCMY) / NCMT, 0, 1, 1)$
 71740 T $NCMT = 1/0$
 71750 C $NCNT = 15$
 71760 C $NCMY = 1969$
 71770 A $NCMCST.K = (NCCCR + NCEIDC.K) * NCSCC.K + NCOMC + NCFCST.K$
 71780 C $NCCCR = .100$
 71790 A $NCEIDC.K = NCCCR * TABHL(SEEIDCT, (TIME.K - NCCDCY) / NCCDCT, 0, 1, 1)$
 71800 C $NCCCR = .009$
 71810 A $NCSCC.K = NCCCP.K * NCSCM.K / NCCUFP$
 71820 C $NCCUFP = .6$
 71830 A $NCSCM.K = TABHL(DESCMT, NCGR.K, .04, .20, .04)$
 71840 A $NCGR.K = (NCAGR.K / SMOOTH(NCAGR.K, SETGR) - 1) / SETGR$
 71860 A $NCAGR.K = MAX(SEPAMI, NCPA.K + NCPUC.K)$
 71870 NOTE
 71880 R $ECINV.KL = ACINV.K * (1 - NCMS.K)$
 71890 N $ECINV = 0$
 71900 A $ECMCST.K = (ECCCR + ECEIDC.K) * ECSCC.K + ECOMC + ECFCST.K$
 71910 C $ECCCR = .100$
 71920 A $ECEIDC.K = ECCCR * TABHL(SEEIDCT, (TIME.K - ECCDCY) / ECCDCT, 0, 1, 1)$
 71930 C $ECCCR = .009$
 71940 A $ECSCC.K = ECCCP.K * ECSCM.K / ECCUFP$
 71950 C $ECCUFP = .6$
 71960 A $ECSCM.K = TABHL(DESCMT, ECGR.K, .04, .20, .04)$
 71970 A $ECGR.K = (ECAGR.K / SMOOTH(ECAGR.K, SETGR) - 1) / SETGR$
 71980 A $ECAGR.K = MAX(SEPAHI, ECPA.K + ECPUC.K)$
 71990 NOTE

INVESTMENT \$/YR
 ALLOCATION WEIGHT DIMENSIONLESS
 MARGINAL COST \$/BTU

INVESTMENT \$/YR
 INVESTMENT \$/YR
 INVESTMENT INITIAL \$/YR
 MORATORIUM SCHEDULE FRACTION
 MORATORIUM SCHEDULE TABLE TABLE
 MORATORIUM DELAY TIME YEAR
 MORATORIUM INITIATION YEAR YEAR
 MARGINAL COST \$/BTU
 CAPITAL CHARGE RATE FRACTION/YR
 EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 CUF FOR PLANNING FRACTION
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 GROWTH RATE FRACTION/YR
 ASSETS FOR GROWTH RATE \$

INVESTMENT \$/YR
 INVESTMENT \$/YR
 MARGINAL COST \$/BTU
 CAPITAL CHARGE RATE FRACTION/YR
 EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
 SPECIFIC CAPITAL COST \$/(BTU/YR)
 CUF FOR PLANNING FRACTION
 SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
 GROWTH RATE FRACTION/YR
 ASSETS FOR GROWTH RATE \$

72000 R PRINV.KL=SEINV.K*(FBAW.K/SEAW.K)
72010 N PRINV=0
72020 A FBAW.K=(FBMCST.K*1E6)^SEWF*STEP(1,FBCY)
72030 C FBCY=1990
72040 A FBMCST.K=(FBCCR+FBECR.K+FBCCRC)*FBSCC.K+FBOMC+FBFCST.K
72050 C FBCCR=.100
72060 C FBCCRC=0
72070 A FBECR.K=FBCCRR*(1-STEP(1,FBLGY))*MAX(0,(SEPAMI-FBPA.K)/SEPAMI)
72080 C FBCCRR=.028
72090 C FBLGY=2200
72100 A FBSCC.K=FBCCP*FBSCM.K/FBCUFP
72110 C FBCUFP=.6
72120 A FBSCM.K=TABHL(DESCMT,FBGR.K,.04,.20,.04)
72130 A FBGR.K=(FBAGR.K/SMOOTH(FBAGR.K,SETGR)-1)/SETGR
72140 A FBAGR.K=MAX(SEPAMI,FBPA.K+FBPUC.K)
72150 NOTE
72160 R CCINV.KL=SEINV.K*(CCAW.K/SEAW.K)
72170 N CCINV=0
72180 A CCAW.K=(CCMCST.K*1E6)^SEWF*STEP(1,CCCY)
72190 C CCCY=1992
72200 A CCMCST.K=(CCCCR+CCECR.K+CCCCRC)*CCSCC.K+CCOMC+CCFCST.K
72210 C CCCCC=.100
72220 C CCCCCRC=0
72230 A CCECR.K=CCCCRR*(1-STEP(1,CCLGY))*MAX(0,(SEPAMI-CCPA.K)/SEPAMI)
72240 C CCCCCRR=.028
72250 C CCLGY=2200
72260 A CCSCC.K=CCCCP*CCSCH.K/CCCUFP
72270 C CCCUFP=.6
72280 A CCSCH.K=TABHL(DESCMT,CCGR.K,.04,.20,.04)
72290 A CCGR.K=(CCAGR.K/SMOOTH(CCAGR.K,SETGR)-1)/SETGR
72300 A CCAGR.K=MAX(SEPAMI,CCPA.K+CCPUC.K)
72310 NOTE
72320 R OUVINV.KL=SEINV.K*(OUAW.K/SEAW.K)
72330 N OUVINV=OUINVI
72340 C OUINVI=1.5E9
72350 A OUAW.K=(OUMCST.K*1E6)^SEWF*STEP(1,OUY)
72360 C OUY=1950
72370 A OUMCST.K=(OUCCR*OUSCC.K+OUOMC+OUFCST.K)*CLIP(1.3,1,TIME.K,OUY)
72380 C OUY=1978
72390 C OUCCR=.100
72400 A OUSCC.K=OUCCP.K*OUSCH.K/(OUCUFP*OUCHP.K)
72410 C OUCUFP=.6
72420 A OUSCH.K=TABHL(DESCMT,OUGR.K,.04,.20,.04)
72430 A OUGR.K=(OUAGR.K/SMOOTH(OUAGR.K,SETGR)-1)/SETGR
72440 A OUAGR.K=MAX(SEPAMI,OUPA.K+OUPUC.K)
72450 NOTE

INVESTMENT \$/YR
INVESTMENT \$/YR
ALLOCATION WEIGHT DIMENSIONLESS
COMMERCIALIZATION YEAR YEAR
MARGINAL COST \$/BTU
CAPITAL CHARGE RATE FRACTION/YR
CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
EXCESS CHARGE DUE TO RISK FRACTION/YR
CAPITAL CHARGE DUE TO RISK FRACTION/YR
LOAN GUARANTEE INITIATION YEAR YEAR
SPECIFIC CAPITAL COST \$/(BTU/YR)
CUF FOR PLANNING FRACTION
SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
GROWTH RATE FRACTION/YR
ASSETS FOR GROWTH RATE \$

INVESTMENT \$/YR
INVESTMENT \$/YR
ALLOCATION WEIGHT DIMENSIONLESS
COMMERCIALIZATION YEAR YEAR
MARGINAL COST \$/BTU
CAPITAL CHARGE RATE FRACTION/YR
CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
EXCESS CHARGE DUE TO RISK FRACTION/YR
CAPITAL CHARGE DUE TO RISK FRACTION/YR
LOAN GUARANTEE INITIATION YEAR YEAR
SPECIFIC CAPITAL COST \$/(BTU/YR)
CUF FOR PLANNING FRACTION
SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
GROWTH RATE FRACTION/YR
ASSETS FOR GROWTH RATE \$

INVESTMENT \$/YR
INVESTMENT \$/YR
INVESTMENT INITIAL \$/YR
ALLOCATION WEIGHT DIMENSIONLESS
COMMERCIALIZATION YEAR YEAR
MARGINAL COST \$/BTU
MORATORIUM INITIATION YEAR YEAR
CAPITAL CHARGE RATE FRACTION/YR
SPECIFIC CAPITAL COST \$/(BTU/YR)
CUF FOR PLANNING FRACTION
SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
GROWTH RATE FRACTION/YR
ASSETS FOR GROWTH RATE \$

72460 R PVINV.KL=SEINV.K*(PVAW.K/SEAW.K)
72470 N PVINV=0
72480 A PVAW.K=(PVMCST.K*1E6)^SEWF*STEP(1,PVCY)
72490 C PVCY=1988
72500 A PVMCST.K=(PVCCR+PVECR.K)*PVSCC.K+PVOMC
72510 C PVCCR=.100
72520 A PVECR.K=PVCCRR*(1-STEP(1,PVLGY))*MAX(0,(SEPAMI-PVPA.K)/SEPAMI)
72530 C PVCCRR=.028
72540 C PVLGY=2200
72550 A PVSCC.K=PVCCP.K*PVSCM.K/PVCUFP
72560 C PVCUFP=.26
72570 A PVSCM.K-TABHL(DESCMT,PVGR.K,.04,.20,.04)
72580 A PVGR.K=(PVAGR.K/SMOOTH(PVAGR.K,SETGR)-1)/SETGR
72590 A PVAGR.K=MAX(SEPAMI,PVPA.K+PVPUC.K)
72600 NOTE
72610 R LWINV.KL=SEINV.K*(LVAW.K/SEAW.K)
72620 N LWINV=0
72630 A LVAW.K=(LWMCST.K*1E6)^SEWF*STEP(1,LWCY)*(1-STEP(1,LWNY))
72640 C LWCY=1950
72650 C LWNY=2200
72660 A LWMCST.K=(LWCCR+LWEIDC.K+LWERR.K)*LWSCC.K+LWOMC+LWFCST.K
72670 C LWCCR=.109
72680 A LWEIDC.K=LWCCRC*TABHL(SEEIDCT,(TIME.K-NUCDCY)/NUCDCT,0,1,1)
72690 C LWCCRC=.009
72700 A LWERR.K-TABHL(LWERRT,TIME.K,1980,1990,2)*STEP(1,LWERY)
72710 T LWERRT=.01/.01/0/0/0/0
72720 C LWERY=1979
72730 A LWSCC.K=LWCCP.K*LWSCM.K/LWCUFP
72740 C LWCUFP=.6
72750 A LWSCM.K-TABHL(DESCMT,LWGR.K,.04,.20,.04)
72760 A LWGR.K=(LWAGR.K/SMOOTH(LWAGR.K,SETGR)-1)/SETGR
72770 A LWAGR.K=MAX(SEPAMI,LWPA.K+LWPUC.K)
72780 NOTE
72790 R BNINV.KL=SEINV.K*(BNAW.K/SEAW.K)
72800 N BNINV=0
72810 A BNAW.K=(BNMCST.K*1E6)^SEWF*STEP(1,BNCY)*(1-STEP(1,BNMY))
72820 C BNCY=2015
72830 C BNMY=2015
72840 A BNMCST.K=(BNCCR+BNECR.K+BNEIDC.K)*BNSCC.K+BNOMC+BNFCST.K
72850 C BNCCR=.109
72860 A BNECR.K=BNCCRR*(1-STEP(1,BNLGY))*MAX(0,(SEPAMI-BNPA.K)/SEPAMI)
72870 C BNCCRR=.122
72880 C BNLGY=2200
72890 A BNEIDC.K=BNCCRC*TABHL(SEEIDCT,(TIME.K-NUCDCY)/NUCDCT,0,1,1)
72900 C BNCCRC=.009
72910 A BNSCC.K=BNCCP.K*BNSCM.K/BNCUFP
72920 C BNCUFP=.6
72930 A BNSCM.K-TABHL(DESCMT,BNCR.K,.04,.20,.04)
72940 A BNCR.K=(BNAGR.K/SMOOTH(BNAGR.K,SETGR)-1)/SETGR
72950 A BNAGR.K=MAX(SEPAMI,BNPA.K+BNPUC.K)
72960 NOTE

INVESTMENT \$/YR
INVESTMENT \$/YR
ALLOCATION WEIGHT DIMENSIONLESS
COMMERCIALIZATION YEAR YEAR
MARGINAL COST \$/BTU
CAPITAL CHARGE RATE FRACTION/YR
EXCESS CHARGE DUE TO RISK FRACTION/YR
CAPITAL CHARGE DUE TO RISK FRACTION/YR
LOAN GUARANTEE INITIATION YEAR YEAR
SPECIFIC CAPITAL COST \$/(BTU/YR)
CUF FOR PLANNING FRACTION
SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
GROWTH RATE FRACTION/YR
ASSETS FOR GROWTH RATE \$

INVESTMENT \$/YR
INVESTMENT \$/YR
ALLOCATION WEIGHT DIMENSIONLESS
COMMERCIALIZATION YEAR YEAR
MORATORIUM INITIATION YEAR YEAR
MARGINAL COST \$/BTU
CAPITAL CHARGE RATE FRACTION/YR
EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
ENVIRONMENTAL RISK RATE FRACTION/YR
ENVIRONMENTSL RISK RATE TABLE TABLE
ENVIRONMENTAL RISK RATE INITIATION YEAR YEAR
SPECIFIC CAPITAL COST \$/(BTU/YR)
CUF FOR PLANNING FRACTION
SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
GROWTH RATE FRACTION/YR
ASSETS FOR GROWTH RATE \$

INVESTMENT \$/YR
INVESTMENT \$/YR
ALLOCATION WEIGHT DIMENSIONLESS
COMMERCIALIZATION YEAR YEAR
MORATORIUM INITIATION YEAR YEAR
MARGINAL COST \$/BTU
CAPITAL CHARGE RATE FRACTION/YR
EXCESS CHARGE DUE TO RISK FRACTION/YR
CAPITAL CHARGE DUE TO RISK FRACTION/YR
LOAN GUARANTEE INITIATION YEAR YEAR
EXCESS CHARGE DUE TO INT. UNDER CONST. FRAC/YR
CAPITAL CHARGE DUE TO INT. UNDER CONST. FRAC/YR
SPECIFIC CAPITAL COST \$/(BTU/YR)
CUF FOR PLANNING FRACTION
SECONDARY CONSTRAINT MULTIPLIER DIMENSIONLESS
GROWTH RATE FRACTION/YR
ASSETS FOR GROWTH RATE \$

72970 R OTINV.KL-SEINV.K*(OTAW.K/SEAW.K)
72980 N OTINV=0
72990 A OTAW.K=(OTMCST.K*1E6)^SEWF*STEP(1,OTCY)
73000 C OTCY=1980
73010 A OTMCST.K=(OTCCR+OTECR.K)*OTSCC.K+OTOMC
73020 C OTCCR=.101
73030 A OTECR.K=OTCCRR*(1-STEP(1,OTLGY))*MAX(0,(SEPAMI-OTPA.K)/SEPAMI)
73040 C OTCCRR=.099
73050 C OTLGY=2200
73060 A OTSCC.K=OTCCP.K*OTSCM.K/OTCUFP
73070 C OTCUFP=.6
73080 A OTSCM.K-TABHL(DESCMT,OTGR.K,.04,.20,.04)
73090 A OTGR.K=(OTAGR.K/SMOOTH(OTAGR.K,SETGR)-1)/SETGR
73100 A OTAGR.K=MAX(SEPAMI,OTPA.K+OTPUC.K)
73110 NOTE
73120 R BMINV.KL-SEINV.K*(BMAW.K/SEAW.K)
73130 N BMINV=0
73140 A BMAW.K=(BMMCST.K*1E6)^SEWF*STEP(1,BNCY)
73150 C BNCY=1980
73160 A BMMCST.K=(BMCCR+BMECR.K)*BMSCC.K+BMCMC+BMFCST.K
73170 C BMCCR=.100
73180 A BMECR.K=BMCCRR*(1-STEP(1,BMLGY))*MAX(0,(SEPAMI-BMPA.K)/SEPAMI)
73190 C BMCCRR=.028
73200 C BMLGY=2200
73210 A BMSCC.K=BMCCP.K*BMSCM.K/BMCUFP
73220 C BMCUFP=.65
73230 A BMSCM.K-TABHL(DESCMT,BMGR.E,.04,.20,.04)
73240 A BMGR.K=(BMAGR.K/SMOOTH(BMAGR.K,SETGR)-1)/SETGR
73250 A BMAGR.K=MAX(SEPAMI,BMPA.K+BMPUC.K)
73260 NOTE
73270 R STINV.KL-SEINV.K*(STAW.K/SEAW.K)
73280 N STINV=0
73290 A STAW.K=(STMCST.K*1E6)^SEWF*STEP(1,STCY)
73300 C STCY=1980
73310 A STMCST.K=(STCCR+STECR.K)*STSCC.K+STOMC
73320 C STCCR=.100
73330 A STECR.K=STCCRR*(1-STEP(1,STLGY))*MAX(0,(SEPAMI-STPA.K)/SEPAMI)
73340 C STCCRR=.028
73350 C STLGY=2200
73360 A STSCC.K=STCCP.K*STSCM.K/STCUFP
73370 C STCUFP=.5
73380 A STSCM.K-TABHL(DESCMT,STGR.K,.04,.20,.04)
73390 A STGR.K=(STAGR.K/SMOOTH(STAGR.K,SETGR)-1)/SETGR
73400 A STAGR.K=MAX(SEPAMI,STPA.K+STPUC.K)
73410 NOTE

ASSETS FOR GROWTH RATE	\$
INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
COMMERCIALIZATION YEAR	YEAR
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
EXCESS CHARGE DUE TO RISK	FRACTION/YR
CAPITAL CHARGE DUE TO RISK	FRACTION/YR
LOAN GUARANTEE INITIATION YEAR	YEAR
SPECIFIC CAPITAL COST	\$(BTU/YR)
CUF FOR PLANNING	FRACTION
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
COMMERCIALIZATION YEAR	YEAR
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
EXCESS CHARGE DUE TO RISK	FRACTION/YR
CAPITAL CHARGE DUE TO RISK	FRACTION/YR
LOAN GUARANTEE INITIATION YEAR	YEAR
SPECIFIC CAPITAL COST	\$(BTU/YR)
CUF FOR PLANNING	FRACTION
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
COMMERCIALIZATION YEAR	YEAR
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
EXCESS CHARGE DUE TO RISK	FRACTION/YR
CAPITAL CHARGE DUE TO RISK	FRACTION/YR
LOAN GUARANTEE INITIATION YEAR	YEAR
SPECIFIC CAPITAL COST	\$(BTU/YR)
CUF FOR PLANNING	FRACTION
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$

73420 R WEINV.KL=SEINV.K*(WEAW.K/SEAW.K)
 73430 N WEINV=0
 73440 A WEAW.K=(WEMCST.K*1E6)^SEWF*STEP(1,WECY)
 73450 C WECY=1980
 73460 A WEMCST.K=(WECCR+WEECR.K)*WESCC.K+WEMC
 73470 C WECCR=.100
 73480 A WEECR.K=WECCRR*(1-STEP(1,WELGY))*MAX(0,(SEPAMI-WEPA.K)/SEPAMI)
 73490 C WECCRR=.028
 73500 C WELGY=2200
 73510 A WESCC.K=WECCP.K*WESCH.K/WECUPP
 73520 C WECUPP=.4
 73530 A WESCH.K=TANH(DESCMT,WECR.K,.04,.20,.04)
 73540 A WECR.K=(WEAGR.K/SNOOTH(WEAGR.K,SETGR)-1)/SETGR
 73550 A WEAGR.K=MAX(SEPAMI,WEPA.K+WEPUC.K)
 73560 NOTE
 73570 A SEAW.K=ACAW.K+FBAW.K+OUAV.K+PVAW.K+LVAW.K+BNWA.K
 73580 X +CCAW.K+OTAW.K+BMAW.K+STAW.K+WEAW.K
 73590 C SEWF=-10
 73600 T DESCMT=1/1/1.5/1.5/1.5
 73610 C SEPAMI=60E9
 73620 T SEFIDCT=0/1
 73630 C SETGR=2

INVESTMENT	\$/YR
INVESTMENT	\$/YR
ALLOCATION WEIGHT	DIMENSIONLESS
COMMERCIALIZATION YEAR	YEAR
MARGINAL COST	\$/BTU
CAPITAL CHARGE RATE	FRACTION/YR
EXCESS CHARGE DUE TO RISK	FRACTION/YR
CAPITAL CHARGE DUE TO RISK	FRACTION/YR
LOAN GUARANTEE INITIATION YEAR	YEAR
SPECIFIC CAPITAL COST	\$/ (BTU/YR)
CUF FOR PLANNING	FRACTION
SECONDARY CONSTRAINT MULTIPLIER	DIMENSIONLESS
GROWTH RATE	FRACTION/YR
ASSETS FOR GROWTH RATE	\$
ALLOCATION WEIGHT	DIMENSIONLESS
WEIGHTING FACTOR	DIMENSIONLESS
SECONDARY CONSTRAINT MULTIPLIER TABLE	TABLE
PHYSICAL ASSETS OF A MATURE INDUSTRY	\$
EXCESS INTEREST DURING CONS. TABLE	TABLE

73640 NOTE
 73650 NOTE *****
 73660 NOTE
 73670 NOTE Transmission and Distribution Subsector
 73680 NOTE
 73690 NOTE *****
 73700 NOTE
 73710 A TDCC.K=TABN1.(TDCCT,TIME.K,1950,2030,10)*1E-6
 73720 T TDCCT=5/5/5/10/10/10/10/10/10
 73730 C TDOMC=.50E-6
 73740 A TDCST.K=TDOMC*TEDE*SEPR.K
 73750 NOTE

CAPITAL COST	\$(BTU/YR)
CAPITAL COST TABLE	TABLE
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
COST	\$/YR

73760 NOTE
 73770 NOTE *****
 73780 NOTE
 73790 NOTE Coal Utilities Without Emissions Control Subsector
 73800 NOTE
 73810 NOTE *****
 73820 NOTE
 73830 NOTE
 73840 L $NCPA.K = NCPA.J + (DT)(NCFGR.JK - NCPAR.JK + OCCVR.JK)$
 73850 N $NCPA = NCPAI$
 73860 C $NCPAI = 23.2E9$
 73870 R $NCPAR.KL = NCPA.K * NCARF$
 73880 C $NCARF = .011$
 73890 R $NCFGR.KL = DELAY3P(NCINV.JK, NCFCT.K, NCPUC.K)$
 73900 A $NCFCT.K = TABHL(NCFCTT, (TIME.K - NCCDCY) / NCCDCT, 0, 1, 1)$
 73910 T $NCFCTT = 5/10$
 73920 C $NCCDCT = 10$
 73930 C $NCCDCY = 2200$
 73940 NOTE
 73950 A $NCPR.K = SECUF.K * NCPC.K * DCPDR.K$
 73960 A $NCPC.K = NCPA.K / NCACC.K$
 73970 A $NCACC.K = SMOOTH(NCCC.K, SEATPA)$
 73980 N $NCCC = NCACCI$
 73990 C $NCACCI = 25E-6$
 74000 A $NCCC.K = TDCC.K + NCCCP.K$
 74010 A $NCCCP.K = TABHL(NCCCT, TIME.K, 1950, 2030, 10) * 1E-6$
 74020 T $NCCCT = 16/10/6/11/16/16/16/16/16$
 74030 A $NCCST.K = NCPR.K * (NCOMC + NCFST.K)$
 74040 C $NCOMC = .78E-6$
 74050 A $NCFST.K = (DCP.K - CEFCF) / NCCE.K$
 74060 A $NCDC.K = NCPC.K * SECUF.K / NCCE.K$
 74070 A $NCCE.K = TABHL(NCCET, TIME.K, 1950, 2030, 10)$
 74080 T $NCCET = .24/.31/.32/.32/.32/.32/.32/.32$
 74090 NOTE
 74100 C $CEFCF = .31E-6$
 74110 C $SEATPA = 13$
 74120 NOTE

PHYSICAL ASSETS \$
 PHYSICAL ASSETS \$
 PHYSICAL ASSETS INITIAL \$
 PHYSICAL ASSET RETIREMENTS \$/YR
 ASSET RETIREMENT FACTOR FRACTION/YR
 FACILITY COMPLETION RATE \$/YR
 FACILITY CONSTRUCTION TIME YEAR
 FACILITY CONSTRUCTION TIME TABLE TABLE
 CONSTRUCTION DELAY CHANGE TIME YEAR
 CONSTRUCTION DELAY CHANGE YEAR YEAR

 PRODUCTION RATE BTU/YR
 PRODUCTION CAPACITY BTU/YR
 AVERAGE CAPITAL COST \$/(BTU/YR)
 CAPITAL COST \$/(BTU/YR)
 AVERAGE CAPITAL COST INITIAL \$/(BTU/YR)
 CAPITAL COST \$/(BTU/YR)
 CAPITAL COST OF PRODUCTION PLANT \$/(BTU/YR)
 CAPITAL COST TABLE TABLE
 COST \$/YR
 OPERATING AND MAINTENANCE <O&M> COST \$/BTU
 FEEDSTOCK COST \$/BTU
 DEMAND FOR COAL BTU/YR
 CONVERSION EFFICIENCY DIMENSIONLESS
 CONVERSION EFFICIENCY TABLE TABLE

 FUEL COST FACTOR \$/BTU
 AVERAGING TIME FOR PHYSICAL ASSETS YEAR

74130 NOTE
 74140 NOTE *****
 74150 NOTE
 74160 NOTE Coal Utilities With Emissions Control Subsector
 74170 NOTE
 74180 NOTE *****
 74190 NOTE
 74200 NOTE
 74210 L ECPA.K=ECPA.J+(DT)(ECFCR.JK-ECPAR.JK)
 74220 H ECPA=0
 74230 R ECPAR.KL=ECPA.K*ECARF
 74240 C ECARF=.011
 74250 R ECFCR.KL=DELAY3P(ECINV.JK,ECFCT.K,EGPUC.K)
 74260 A ECFCT.K=TARHL(ECFCTT,(TIME.K-ECCDCY)/ECCDCT,0,1,1)
 74270 T ECFCTT=5/10
 74280 C ECCDCT=10
 74290 C ECCDCY=2200
 74300 NOTE
 74310 A ECPR.K=SECUF.K*ECPC.K*DCPDR.K
 74320 A ECPC.K=ECPA.K/ECACC.K
 74330 A ECACC.K=SMOOTH(ECCC.K,SEATPA)
 74340 A ECCC.K=TDCC.K+ECCCP.K
 74350 A ECCCP.K=TABHL(ECCCT,TIME.K,1950,2030,10)*1E-6
 74360 T ECCCT=19/13/9/15/20/20/20/20/20
 74370 A ECCST.K=ECPR.K*(ECONC+ECFCST.K)
 74380 C ECONC=.97E-6
 74390 A ECFCST.K=(DCP.K-CEFCF)/ECCE.K
 74400 A ECDC.K=ECPC.K*SECUF.K/ECCE.K
 74410 A ECCE.K=TARHL(ECCET,TIME.K,1950,2030,10)
 74420 T ECCET=.18/.28/.30/.30/.32/.32/.32/.32/.32
 74430 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
FACILITY CONSTRUCTION TIME TABLE	TABLE
CONSTRUCTION DELAY CHANGE TIME	YEAR
CONSTRUCTION DELAY CHANGE YEAR	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
DEMAND FOR COAL	BTU/YR
CONVERSION EFFICIENCY	DIMENSIONLESS
CONVERSION EFFICIENCY TABLE	TABLE

74440 NOTE
 74450 NOTE *****
 74460 NOTE
 74470 NOTE Coal Utilities With Fluidized Bed Combustion Subsector
 74480 NOTE
 74490 NOTE *****
 74500 NOTE
 74510 NOTE
 74520 L $FBPA.K = FBPA.J + (DT) (FBFCR.JK - FBPAR.JK)$
 74530 N $FBPA = 0$
 74540 R $FBPAR.KL = FBPA.K * FBARF$
 74550 C $FBARF = .011$
 74560 R $FBFCR.KL = DELAY3P(FBINV.JK, FBFCR, FBPUK.K)$
 74570 C $FBFCR = 5$
 74580 NOTE
 74590 A $FBPR.K = SECUF.K * FBPC.K * DCPDR.K$
 74600 A $FBPC.K = FBPA.K / FBACC.K$
 74610 A $FBACC.K = SMOOTH(FBCC.K, SEATPA)$
 74620 A $FBCC.K = TDCC.K + FBCCP$
 74630 C $FBCCP = 20.0E-6$
 74640 A $FBFCST.K = FBPR.K * (FBOMC + FBFCST.K)$
 74650 C $FBOMC = 1.55E-6$
 74660 A $FBFCST.K = (DCP.K - CEFCF) / FBCE$
 74670 A $FBDC.K = FBPC.K * SECUF.K / FBCE$
 74680 C $FBCE = .34$
 74690 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
DEMAND FOR COAL	BTU/YR
CONVERSION EFFICIENCY	DIMENSIONLESS

74700 NOTE
 74710 NOTE *****
 74720 NOTE
 74730 NOTE Coal Utilities With Combined Cycle Combustion Subsector
 74740 NOTE
 74750 NOTE *****
 74760 NOTE
 74770 NOTE
 74780 L $CCPA.K = CCPA.J + (DT) (CCFCR.JK - CCPAR.JK)$
 74790 N $CCPA = 0$
 74800 R $CCPAR.KL = CCPA.K * CCARF$
 74810 C $CCARF = .011$
 74820 R $CCFCR.KL = DELAY3P(CCINV.JK, CCFCST, CCPUC.E)$
 74830 C $CCFCST = 5$
 74840 NOTE
 74850 A $CCPR.K = SECUF.K * CCPC.K * DCPDR.K$
 74860 A $CCPC.K = CCPA.K / CCACC.K$
 74870 A $CCACC.K = SMOOTH(CCCC.K, SEATPA)$
 74880 A $CCCC.K = TDCC.K + CCCCPC$
 74890 C $CCCCPC = 17.6E-6$
 74900 A $CCCST.K = CCPR.K * (CCOMC + CCFCST.K)$
 74910 C $CCOMC = .87E-6$
 74920 A $CCFCST.K = (DCP.K - CCFCF) / CCCE$
 74930 A $CCDC.K = CCPC.K * SECUF.K / CCCE$
 74940 C $CCCE = .4$
 74950 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
DEMAND FOR COAL	BTU/YR
CONVERSION EFFICIENCY	DIMENSIONLESS

74960 NOTE
 74970 NOTE *****
 74980 NOTE
 74990 NOTE Oil and Gas Utilities Subsector
 75000 NOTE
 75010 NOTE *****
 75020 NOTE
 75030 NOTE
 75040 I OUPA.K=OUPA.J+(DT)(OUFCR.JK-OUPAR.JK-OCCVR.JK)
 75050 N OUPA=OUPAI
 75060 C OUPAI=11.3E9
 75070 R OUPAR.KL=OUPA.K*OUARF
 75080 C OUARF=.011
 75090 R OUFCR.KL=DELAY3P(OUINV.JK,OUFCT,OUPUK.K)
 75100 C OUFCT=5
 75110 R OCCVR.KL=CLIP(CLIP(0,OCCIR.K,TIME.K,OCCYC),0,TIME.K,OCCYI)
 75120 A OCCIR.K=OCGC77*OUCCK/(OCCYC-OCCYI)
 75130 C OCGC77=.46E15
 75140 C OCCYI=1980
 75150 C OCCYC=1985
 75160 NOTE
 75170 A OUPR.K=SECUF.K*OUPC.K*OUPDR.K
 75180 A OUPC.K=OUPA.K/OUACC.K*OUCMP.K
 75190 A OUACC.K=SMOOTH(OUCC.K,SEATPA)
 75200 N OUCC=OUACCI
 75210 C OUACCI=23E-6
 75220 A OUCMP.K=TABHL(OUCMPT,TIME.K,1970,2020,5)
 75230 T OUCMPT=1/.9/.85/.80/.65/.6/.6/.6/.6/.6
 75240 A OUCC.K=TDCC.K+OUCCP.K
 75250 A OUCCP.K=TABHL(OUCCCT,TIME.K,1950,2030,10)*1E-6
 75260 T OUCCCT=15/10/7/10/11/12/12/12/12
 75270 A OUCST.K=OUPR.K*(OUOMC+OUFCST.K)
 75280 C OUOMC=.65E-6
 75290 A OUFCST.K=GEFCST.K*OUFDG.K+OEFCT.K*(1-OUFDG.K)
 75300 A OUDOG.K=SECUF.K*OUPC.K/OUCE.K
 75310 NOTE
 75320 A OUDG.K=OUDOG.K*OUFDG.K
 75330 A OUDO.K=OUDOG.K-OUDG.K
 75340 A OUFDG.K=TABHL(OUFDGT,TIME.K,1950,2000,5)*1E-2
 75350 T OUFDGT=50/70/76/76/66/49/40/33/29/26/22
 75360 A GEFCST.K=(TGP.K-GEFCF)/OUCE.K
 75370 C GEFCF=.60E-6
 75380 A OEFCT.K=(TOP.K-OEFCE)/OUCE.K
 75390 C OEFCE=1.82E-6
 75400 A OUCE.K=TABHL(NCCT,TIME.K,1950,2030,10)
 75410 A OUPDR.K=TGPCR.K*OUFDG.K+TOPDR.K*(1-OUFDG.K)
 75420 NOTE

PHYSICAL ASSETS \$
 PHYSICAL ASSETS \$
 PHYSICAL ASSETS INITIAL \$
 PHYSICAL ASSET RETIREMENTS \$/YR
 ASSET RETIREMENT FACTOR FRACTION/YR
 FACILITY COMPLETION RATE \$/YR
 FACILITY CONSTRUCTION TIME YEAR
 CONVERSION RATE \$/YR
 CONVERSION RATE INDICATED \$/YR
 GENERATING CAPACITY IN 1977 BTU/YR
 CONVERSION YEAR INITIAL YEAR
 CONVERSION YEAR COMPLETED YEAR

 PRODUCTION RATE BTU/YR
 PRODUCTION CAPACITY BTU/YR
 AVERAGE CAPITAL COST \$/(BTU/YR)
 CAPITAL COST \$/(BTU/YR)
 AVERAGE CAPITAL COST INITIAL \$/(BTU/YR)
 CAPACITY MULTIPLIER FROM PEAKING FRACTION
 CAPACITY MULTIPLIER FROM PEAKING TABLE TABLE
 CAPITAL COST \$/(BTU/YR)
 CAPITAL COST OF PRODUCTION PLANT \$/(BTU/YR)
 CAPITAL COST TABLE TABLE
 COST \$/YR
 OPERATING AND MAINTENANCE <O&M> COST \$/BTU
 FEEDSTOCK COST \$/BTU
 DEMAND FOR OIL AND GAS BTU/YR

 DEMAND FOR GAS BTU/YR
 DEMAND FOR OIL BTU/YR
 FRACTION DEMANDED AS GAS FRACTION
 FRACTION DEMANDED AS GAS TABLE TABLE
 FEEDSTOCK COST \$/BTU
 FUEL COST FACTOR \$/BTU
 FEEDSTOCK COST \$/BTU
 FUEL COST FACTOR \$/BTU
 CONVERSION EFFICIENCY DIMENSIONLESS
 PRODUCTION DEMAND RATIO DIMENSIONLESS

75430 NOTE *****
 75440 NOTE
 75450 NOTE Photovoltaic Utilities Subsector
 75460 NOTE
 75470 NOTE *****
 75480 NOTE
 75490 NOTE
 75500 L $PVPA.K = PVPA.J + (DT)(PVFCR.JK - PVPAR.JK)$
 75510 H $PVPA = 0$
 75520 R $PVPAR.KL = PVPA.K * PVARF$
 75530 C $PVARF = .011$
 75540 R $PVFCR.KL = DELAY3P(PVIN.V.JK, PVFCT, PVFUC.K)$
 75550 C $PVFCT = 5$
 75560 NOTE
 75570 A $PVPR.K = SECUF.K * PVPC.K$
 75580 A $PVPC.K = PVPA.K / PVACC.K$
 75590 A $PVACC.K = SMOOTH(PVCC.K, SEATPA)$
 75600 A $PVCC.K = TDCC.K + PVCCP.K$
 75610 A $PVCCP.K = TABHL(PVCCT, TIME.Y, 1950, 2030, 10) * 1E-6 * SENTM$
 75620 T $PVCCT = 106 / 106 / 106 / 106 / 54.75 / 31.37 / 31.37 / 31.37 / 31.37$
 75630 A $PVCST.K = PVPR.K * PVOMC$
 75640 C $PVOMC = .75E-6$
 75650 NOTE
 75660 C $SENTM = 1$
 75670 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
NEW TECHNOLOGY COST MULTIPLIER	DIMENSIONLESS

75690 NOTE *****
 75700 NOTE Ocean Thermal Utilities Subsector
 75710 NOTE *****
 75720 NOTE *****
 75730 NOTE *****
 75740 NOTE *****
 75750 L OTPA.K-OTPA.J+(DT)(OTFCR.JK-OTPAR.JK)
 75760 N OTPA=0
 75770 R OTPAR.KL-OTPA.K*OTARF
 75780 C OTARF=.011
 75790 R OTFCR.KL-DELAY3P(OTINV.JK,OTFCT,OTPUC.K)
 75800 C OTFCT=6
 75810 NOTE *****
 75820 A OTPR.K=SECUF.K*OTPC.K
 75830 A OTPC.K-OTPA.K/OTACC.K
 75840 A OTACC.K=SMOOTH(OTCC.K,SEATPA)
 75850 A OTCC.K=OTTDCC+OTCCP.K
 75860 C OTTDCC=20E-6
 75870 A OTCCP.K=TANH(OTCCT,TIME.K,1950,2030,10)*1E-6*SENTM
 75880 T OTCCT=171/171/171/171/65.59/51.33/51.33/51.33/51.33
 75890 A OTCST.K-OTPR.K*OTOMC
 75900 C OTOMC=.75E-6
 75910 NOTE *****

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$(BTU/YR)
CAPITAL COST	\$(BTU/YR)
TRANSMISSION & DISTRIB. CAPITAL COST	\$(BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$(BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU

75920 NOTE
 75930 NOTE *****
 75940 NOTE
 75950 NOTE Biomass Utilities Subsector
 75960 NOTE
 75970 NOTE *****
 75980 NOTE
 75990 NOTE
 76000 L $BMFA.K = BMFA.J + (DT) (BMFCR.JK - BMPAR.JK)$
 76010 N $BMFA = 0$
 76020 R $BMPAR.KL = BMFA.K * BMARF$
 76030 C $BMARF = .011$
 76040 R $BMFCR.KL = DELAY3P(RHINV.JK, BMFCT, BMPUC.K)$
 76050 C $BMFCT = 5$
 76060 NOTE
 76070 A $BMPR.K = SECUF.K * BMPC.K$
 76080 A $BMPC.K = BMFA.K / BMACC.K$
 76090 A $BMACC.K = SMOOTH(BMCC.K, SEATPA)$
 76100 A $BMCC.K = TDCC.K + BMCCP.K$
 76110 A $BMCCP.K = TABHL(BMCCT, TIME.K, 1950, 2030, 10) * IE-6 * SENTM$
 76120 T $BMCCT = 28.51 / 28.51 / 28.51 / 28.51 / 25.66 / 22.81 / 22.81 / 22.81 / 22.81$
 76130 A $BMCST.K = BMPR.K * (BMOMC + BMFCST.K)$
 76140 C $BMOMC = 1.75E-6$
 76150 A $BMFCST.K = BMP.K / BMCE$
 76160 C $BMCE = .3$
 76170 A $BMP.K = BMPN * BMPM.K$
 76180 C $BMPN = 1.00E-6$
 76190 A $BMPM.K = TABHL(BMPMT, BMPC.K / BMMPK, 0, 1, 1)$
 76200 T $BMPMT = 1/2$
 76210 C $BMMPK = .12E15$
 76220 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
CONVERSION EFFICIENCY	DIMENSIONLESS
PRICE	\$/BTU
PRICE NORMAL	\$/BTU
PRICE MARKUP	\$/BTU
PRICE MARKUP TABLE	TABLE
MATURE PRODUCTION CAPACITY	BTU/YR

76230 NOTE
 76240 NOTE *****
 76250 NOTE
 76260 NOTE Solar Thermal Utilities Subsector
 76270 NOTE
 76280 NOTE *****
 76290 NOTE
 76300 NOTE
 76310 L $STPA.K = STPA.J + (DT) (STFCR.JK - STPAR.JK)$
 76320 N $STPA = 0$
 76330 R $STPAR.KL = STPA.K * STARF$
 76340 C $STARF = .011$
 76350 R $STFCR.KL = DELAY3P(STINV.JK, STFCT, STPUC.K)$
 76360 C $STFCT = 5$
 76370 NOTE
 76380 A $STPR.K = SECUF.K * STPC.K$
 76390 A $STPC.K = STPA.K / STACC.K$
 76400 A $STACC.K = SMOOTH(STCC.K, SEATPA)$
 76410 A $STCC.K = TDCC.K + STCCP.K$
 76420 A $STCCP.K = TABHL(STCCT, TIME.K, 1950, 2030, 10) * 1E-6 * SENTM$
 76430 T $STCCT = 51.34 / 51.34 / 51.34 / 51.34 / 39.93 / 37.07 / 37.07 / 37.07 / 37.07$
 76440 A $STCST.K = STPR.K * STOMC$
 76450 C $STOMC = .75E-6$
 76460 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU

76470 NOTE
 76480 NOTE *****
 76490 NOTE
 76500 NOTE Wind Electric Subsector
 76510 NOTE
 76520 NOTE *****
 76530 NOTE
 76540 NOTE
 76550 L WEPA.K=WEPA.J+(DT)(WEFCR.JK-WEPAR.JK)
 76560 N WEPA=0
 76570 R WEPAR.KI=WEPA.K*WEARF
 76580 C WEARF=.011
 76590 R WEFCR.KL=DELAY3P(WEINV.JK,WEFCT,WEPUK.K)
 76600 C WEFCT=5
 76610 NOTE
 76620 A WEPR.K=SECUF.K*WEPC.K
 76630 A WEPC.K=WEPA.K/WEACC.K
 76640 A WEACC.K=SMOOTH(WECC.K,SEATPA)
 76650 A WECC.K=TDCC.K+WECCP.K
 76660 A WECCP.K=TABHL(WECCT,TIME-K,1950,2030,10)*1E-6*SENTM
 76670 T WECCT=37/37/37/37/28.52/21.39/21.39/21.39/21.39
 76680 A WECST.K=WEPR.K*WEOMC
 76690 C WEOMC=2.5E-6
 76700 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU

76710 NOTE
 76720 NOTE *****
 76730 NOTE
 76740 NOTE Nuclear Utilities: Light Water Reactor Subsector
 76750 NOTE
 76760 NOTE *****
 76770 NOTE
 76780 NOTE
 76790 L LWPA.K=LWPA.J+(DT)(LWFCR.JK-LWPAR.JK)
 76800 N LWPA=0
 76810 R LWPAR.KL=LWPA.K*LWARF
 76820 C LWARF=.011
 76830 R LWFCR.KL=DELAY3P(LWINV.JK,NUFCT.K,LWPUC.K)
 76840 A NUFCT.K=TABHL(NUFCTT,(TIME.K-NUCDCY)/NUCDCT,0,1,1)
 76850 T NUFCTT=10/14
 76860 C NUCDCT=5
 76870 C NUCDCY=1980
 76880 NOTE
 76890 A LWPR.K=SECUF.K*LWPC.K
 76900 A LWPC.K=LWPA.K/LWACC.K
 76910 A LWACC.K=SNOOTH(LWCC.K,SEATPA)
 76920 A LWCC.K=TDCC.K+LWCCP.K
 76930 A LWCCP.K=TABHL(LWCCT,TIME.K,1950,2030,10)*1E-6
 76940 T LWCCT=40/14.5/8.5/19/26.5/26.5/26.5/26.5/26.5
 76950 A LWCST.K=LWPR.K*(LWOMC+LWFCST.K)
 76960 C LWOMC=.38E-6
 76970 A LWFCST.K=LWEFF.K*RFP.K/LWCE
 76980 C LWCE=.32
 76990 R LWDRF.KL=LWEFF.K*(LWPC.K*SECUF.K)/LWCE
 77000 A LWEFF.K=CLIP(1,LWEFFN,TIME.K,UFRY)
 77010 C LWEFFN=1.36
 77020 C UFRY=1985
 77030 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
FACILITY CONSTRUCTION TIME	YEAR
FACILITY CONSTRUCTION TIME TABLE	TABLE
CONSTRUCTION DELAY CHANGE TIME	YEAR
CONSTRUCTION DELAY CHANGE YEAR	YEAR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$(BTU/YR)
CAPITAL COST	\$(BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$(BTU/YR)
CAPITAL COST TABLE	TABLE
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
CONVERSION EFFICIENCY	DIMENSIONLESS
DEMAND FOR REACTOR FUEL	BTU/YR
EXCESS FUEL FACTOR	FRACTION
EXCESS FUEL FACTOR NORMAL	FRACTION
REPROCESSING INITIATION YEAR	YEAR

77040 NOTE
 77050 NOTE *****
 77060 NOTE
 77070 NOTE Nuclear Utilities: Liquid Metal Breeder Reactor Subsector
 77080 NOTE
 77090 NOTE *****
 77100 NOTE
 77110 NOTE
 77120 L $BNPA.K = BNPA.J + (DT)(BNFCR.JK - BNPAR.JK)$
 77130 N $BNPA = 0$
 77140 R $BNPAR.KL = BNPA.K * BNARF$
 77150 C $BNARF = .011$
 77160 R $BNFCR.KL = DELAY3P(BNINV.JK, MUFCT.K, BNPUC.K)$
 77170 NOTE
 77180 A $BNPR.K = SECUF.K * BNPC.K$
 77190 A $BNPC.K = BNPA.K / BNACC.K$
 77200 A $BNACC.K = SMOOTH(BNCC.K, SEATFA)$
 77210 A $BNCC.K = TDCC.K + BNCCP$
 77220 C $BNCCP = 24.9E-6$
 77230 A $BNCST.K = BNPR.K * (BNOMC + BEFCST.K)$
 77240 C $BNOMC = .31E-6$
 77250 A $BEFCST.K = BNRFAF * BNEFF * REP.K / BNCE$
 77260 C $BNCE = .4$
 77270 R $BNDRF.KL = BNEFF * BNFCR.JK * BNCUFP / (BNCC.K * BNCE)$
 77280 C $BNEFF = 3$
 77290 C $BNRFAF = .10$
 77300 NOTE

PHYSICAL ASSETS	\$
PHYSICAL ASSETS	\$
PHYSICAL ASSET RETIREMENTS	\$/YR
ASSET RETIREMENT FACTOR	FRACTION/YR
FACILITY COMPLETION RATE	\$/YR
PRODUCTION RATE	BTU/YR
PRODUCTION CAPACITY	BTU/YR
AVERAGE CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST	\$/ (BTU/YR)
CAPITAL COST OF PRODUCTION PLANT	\$/ (BTU/YR)
COST	\$/YR
OPERATING AND MAINTENANCE <O&M> COST	\$/BTU
FEEDSTOCK COST	\$/BTU
CONVERSION EFFICIENCY	DIMENSIONLESS
DEMAND FOR REACTOR FUEL	BTU/YR
EXCESS FUEL FACTOR	FRACTION
REACTOR FUEL ANNUALIZATION FACTOR	FRACTION/YR

77310 NOTE
 77320 NOTE *****
 77330 NOTE
 77340 NOTE Nuclear Fuel Production Subsector
 77350 NOTE
 77360 NOTE *****
 77370 NOTE
 77380 NOTE
 77390 L RFR.K=RFR.J+(DT)(PFRR.JK-LWDRF.JK-BNDRF.JK-RFED.JK)
 77400 N RFR=RFRI
 77410 C RFRI=4.2E18
 77420 NOTE
 77430 R RFED.KL-TABHL(RFEDT,TIME.K,1950,2030,10)*1E15
 77440 T RFEDT=0/0/0/0/0/0/0/0/0
 77450 NOTE
 77460 R PFRR.KL=(LWTFGR.K+BNTFCR.K)*(STEP(1,BNCY)-STEP(1,BNHY))
 77470 A LWTFGR.K=LWBR*LWPR.K/LWCE
 77480 C LWBR=.27
 77490 A BNTFCR.K=BNBR*BNPR.K/BNCE
 77500 C BNBR=.30
 77510 NOTE
 77520 A RFP.K=RFPR.K+RFPK.K
 77530 A RFPR.K=TABLE(RFPRT,RFR.K/RFRI,0,1,.1)*1E-6
 77540 T RFPRT=1.93/1.93/1.83/1.68/1.52/1.22/.76/.65/.50/.44/.33
 77550 A RFPK.K=TABLE(RFPMT,TIME.K,1950,2030,10)*1E-6
 77560 T RFPMT=0/0/0/.22/.32/.32/.32/.32
 77570 NOTE

RESOURCES	BTU
RESOURCES	BTU
RESOURCES INITIAL	BTU
EXPORT DEMAND	BTU/YR
EXPORT DEMAND TABLE	TABLE
RECYCLE RATE	BTU/YR
TOTAL FUEL CONVERSION RATE	BTU/YR
BREEDING RATIO	DIMENSIONLESS
TOTAL FUEL CONVERSION RATE	BTU/YR
BREEDING RATIO	DIMENSIONLESS
PRICE	\$/BTU
PRODUCTION RATE	BTU/YR
PRODUCTION RATE TABLE	TABLE
PRICE MARKUP	\$/BTU
PRICE MARKUP TABLE	TABLE

77580 NOTE
 77590 NOTE *****
 77600 NOTE
 77610 NOTE Hydropower Utilities Subsector
 77620 NOTE
 77630 NOTE *****
 77640 NOTE
 77650 NOTE
 77660 A HEPR.K-TABHL(HEPRT,TIME.K,1950,2030,10)*1315
 77670 T HEPRT=.33/.50/.84/1.10/1.22/1.45/1.56/1.65/1.66
 77680 NOTE

PRODUCTION RATE
 PRODUCTION RATE TABLE

BTU/YR
 TABLE

77690 NOTE
 77700 NOTE *****
 77710 NOTE
 77720 NOTE Hydrothermal Utilities subsector
 77730 NOTE
 77740 NOTE *****
 77750 NOTE
 77760 A HTPR.K=TABHL(HTPRT,TIME.K,1950,2030,10)*1E15
 77770 T HTPRT=0/0/0/0/0/0/0/0/0
 77780 NOTE

PRODUCTION RATE
 PRODUCTION RATE TABLE

BTU/YR
 TABLE

77790 NOTE
77800 NOTE *****
77810 NOTE
77820 NOTE Supplementary Equations for Total Demand For Coal
77830 NOTE
77840 NOTE *****
77850 NOTE
77860 NOTE
77870 A TEDC.K-NCDC.K+ECDC.K+FBDC.K+CCDC.K
77880 NOTE

DEMAND FOR COAL

BTU/YR

80000 NOTE *****
 80010 NOTE *****
 80020 NOTE
 80030 NOTE OPEC Pricing Sector of FOSSIL2
 80040 NOTE
 80050 NOTE
 80060 NOTE Dartmouth System Dynamics Group
 80070 NOTE Energy Transition Project
 80080 NOTE
 80090 NOTE Version Release Date:
 80100 NOTE March 1980
 80110 NOTE
 80120 NOTE *****
 80130 NOTE *****
 80140 NOTE
 80150 NOTE
 80160 A OOPDR.K=1
 80170 A OOP.K=MAX(OOPPB.K/(1.416*5.8E6),.90E-6)
 80180 A OOPPB.K=CLIP(OOPA79.K,(7.12+STEP(10.38,1973)),TIME.K,1979)
 80190 A OOPA79.K=CLIP(OOP32.K,OOP1.K,PCASE,2)
 80200 A OOP32.K=CLIP(OOP3.K,OOP2.K,PCASE,3)
 80210 A OOP1.K=TABHL(OOP1T,TIME.K,1980,2020,5)
 80220 T OOP1T=25/25/30/32.5/35/36.25/37.5/38.75/40
 80230 A OOP2.K=TABHL(OOP2T,TIME.K,1980,2020,5)
 80240 T OOP2T=30/35/40/42.5/45/46.75/47.5/48.75/50
 80250 A OOP3.K=TABHL(OOP3T,TIME.K,1980,2020,5)
 80260 T OOP3T=35/45/50/52.5/55/56.75/57.5/58.75/60
 80270 C PCASE=2

PRODUCTION DEMAND RATIO	DIMENSIONLESS
PRICE	\$/BTU
PRICE PER BARREL	\$/BBL
PRICE ALTERNATIVE IN 1979	\$/BBL
SWITCH FOR PRICING POLICY	DIMENSIONLESS
LOW PRICE SCENARIO	\$/BBL
LOW PRICE SCENARIO PRICE TABLE	TABLE
MID PRICE SCENARIO	\$/BBL
MID PRICE SCENARIO PRICE TABLE	TABLE
HIGH PRICE SCENARIO	\$/BBL
HIGH PRICE SCENARIO PRICE TABLE	TABLE

FOSSIL2 VARIABLE PREFIXES

AC	Avg. Conventional Coal Electric
AG	Alaskan Gas
AO	Alaskan Oil
BM	Biomass Electric
BN	Breeder Nuclear Electric
CC	Combined Cycle Coal Electric
CE	Centralized Energy
CG	Conventional Gas
CL	Coal Liquids
CO	Conventional Oil
DC	Domestic Coal
DE	Domestic Economy
DG	Domestic Gas
DI	Domestic Imports
DO	Domestic Oil
DS	Decentralized Solar
EC	Emission Controlled Coal
EO	Enhanced Oil
FB	Fluidized Bed Coal Electric
GE	Gas Electric
HE	Hydro Electric
HG	High-BTU Gas
HT	Hydrothermal Electric
LN	Liquified Natural Gas
LW	Light Water Nuclear Electric
MG	Low/Medium-BTU Gas
NC	Non-Emission Controlled Coal
NE	Net Energy
NG	Natural Gas
NO	Natural Oil
NU	Nuclear Utilities
OC	Oil/Gas-to-Coal Fired Electric
OE	Oil Electric
OO	Opec Oil
OT	Ocean Thermal Electric
OU	Oil/Gas Utilities
PF	Plutonium Fuel
PG	Pan-Am Gas
PO	Pan-Am Oil
PV	Photovoltaic Electric
RF	Reactor Fuel
SC	Surface Coal
SE	Steam Electric
SG	Synthetic Gas
SH	Shale Oil
SN	Synthetic Natural Gas
SO	Synthetic Oil
ST	Solar Thermal
TD	Transmission & Distribution
TE	Total Electric
TG	Total Gas
TO	Total Oil
UC	Underground Coal
UF	Uranium Fuel
UG	Unconventional Gas
WE	Wind Electric

FOSSIL2 VARIABLE SUFFIXES

AAT	Availability Averaging Time, Year
ACC	Average Capital Cost, $\$/(\text{BTU}/\text{YR})$
ACCI	Average Capital Cost Initial, $\$/(\text{BTU}/\text{YR})$
ACST	Average Cost, $\$/\text{BTU}$
ACUF	Average Capacity Utilization Factor, Fraction
ACUFT	Average Capacity Utilization Table, Table
ADF	Accumulated Depreciation Fraction, Fraction
AFC1	Average Facility Construction Time Part 1
AFC2	Average Facility Construction Time Part 2
AFCT	Average Facility Construction Time, Year
AGR	Assets for Growth Rate, $\$$
ALC	Average Life of Capital, Year
ALP	Allowed Price, $\$/\text{BTU}$
ALPI	Allowed Price Initial, $\$/\text{BTU}$
ALROE	Allowed Return on Equity, Fraction/Yr
AMS	Actual Market Share, Fraction
AP	Average Price, $\$/\text{BTU}$
AP50	Average Price in 1950, $\$/\text{BTU}$
AR	Adjustment Rate, Dimensionless
AR1	Asset Retirement Factor 1, Fraction/Yr
AR2	Asset Retirement Factor 2, Fraction/Yr
ARF	Asset Retirement Factor, Fraction/Yr
ATPA	Averaging Time for Physical Assets, Yr
AW	Allocation Weight, Dimensionless
AWP	Average Wellhead Price, $\$/\text{BTU}$
BLC	Book Life of Capital, Year
BP79	Base Price 1979, $\$/\text{BTU}$
BR	Breeding Ratio, Dimensionless
CC	Capital Cost, $\$/(\text{BTU}/\text{YR})$
CC1	Capital Cost 1, $\$/(\text{BTU}/\text{YR})$
CC2	Capital Cost 2, $\$/(\text{BTU}/\text{YR})$
CCF	Capital Cost Factor, Fraction/Yr
CCP	Capital Cost of Production Plant, $\$/(\text{BTU}/\text{YR})$
CCR	Capital Charge Rate, Fraction/Yr
CCRC	Capital Charge Due to Interest Under Const., Fraction/Yr
CCRR	Capital Charge Due to Risk, Fraction/Yr
CCT	Capital Cost Table, Table
CD	Centralized Demand, BTU/YR
CDCT	Construction Delay Change Implementation Time, Year
CDCY	Construction Delay Change Year, Year
CDR	Consumption Demand Ratio, Dimensionless
CE	Conversion Efficiency, Dimensionless
CEL	Capital Expenditure Limit, Fraction
CELT	Capital Expenditure Limit Table, Table
CET	Conversion Efficiency Table, Table
CF	Cost Factor, Fraction/Yr
CFCT	Controlled Capacity Utilization Factor Table, Table
CIR	Conversion Rate Indicated, $\$/\text{Yr}$
CL	Contract Life, Year
CLM	Capital/Labor Multiplier, Dimensionless
CLMT	Capital/Labor Multiplier Table, Table
CLR	Capital-to-Labor Ratio, $\$-\text{Capital}/\text{Laborer}$
CLRN	Capital-to-Labor Ratio Normal, $\$-\text{Capital}/\text{Laborer}$
CMP	Capacity Multiplier from Peaking, Fraction
CMPT	Capacity Multiplier from Peaking Table, Table
CP	Capital Productivity, $(\text{BTU}/\text{YR})/\$$
CPN	Capital Productivity Normal, $(\text{BTU}/\text{YR})/\$$
CPS	Ceiling Price Schedule, $\$/\text{BTU}$
CPST	Ceiling Price Schedule Table, Table
CR	Consumption Rate, BTU/YR
CRM	Consumption Rate Minimum, BTU/YR
CRT	Consumption Rate Table, Table
CSDT	Conservation Savings Development Time, Year
CST	Cost, $\$/\text{Yr}$
CSY	Conservation Savings Initiation Year, Year
CUF	Capacity Utilization Factor, Fraction
CUFC	Controlled Capacity Utilization Factor, Fraction
CUFF	Capacity Utilization Factor for Forecasting, Fraction
CUFN	Capacity Utilization Factor Normal, Fraction
CUFP	Capacity Utilization Factor for Planning, Fraction

FOSSIL2 VARIABLE SUFFIXES (CONT.)

CUFT	Capacity Utilization Factor Table, Table
CUFY	Capacity Utilization Control Initiation Year, Year
CUR	Curtailments, BTU/YR
CURC	Curtailments to Coal, BTU/YR
CURO	Curtailments to Oil, BTU/YR
CVR	Conversion Rate, \$/Yr
CY	Commercialization Year, Year
CYC	Conversion Year Completed, Year
CYI	Conversion Year Initial, Year
D	Demand, BTU/YR
D50	Demand in 1950, BTU/YR
DALC	Desired Additions to Long Term Contracts, BTU/YR
DAT	Demand Adjustment Time, Year
DC	Demand for Coal, BTU/YR
DCIIG	Delivery Charge, \$/BTU
DD	Decentralized Demand, BTU/YR
DE	Distributional Efficiency, Fraction
DEBT	Debt, \$
DEP	Depreciation, \$/YR
DF	Debt Fraction, Fraction
UG	Demand for Gas, BTU/YR
DIV	Dividend, \$/YR
DL	Debt Life, Year
DMA	Demand Multiplier from Availability, Dimensionless
DMI	Demand Multiplier from Income, Dimensionless
DMIT	Demand Multiplier from Income Table, Table
DMP	Demand Multiplier from Price, Dimensionless
DMPT	Demand Multiplier from Price Table, Table
DMS	Desired Market Share, Fraction
DMT	Depletion Multiplier Table, Table
DO	Demand for Oil, BTU/YR
DOG	Demand for Oil and Gas, BTU/YR
DP	Delivered Price, \$/BTU
DPC	Desired Production Capacity, BTU/YR
DPOF	Dividend Payout Fraction, Fraction
DPOT	Dividend Payout Table, Table
DR	Discovery Rate, BTU/YR
DRF	Demand for Reactor Fuel, BTU/YR
DRMT	Debt Repayment, \$/YR
DRT	Deregulation Adjustment Time, Year
DS	Deregulation Schedule, Dimensionless
DS1	Deregulation Schedule Option 1, Dimensionless
DS1T	Deregulation Schedule 1 Table, Table
DS2	Deregulation Schedule Option 2, Dimensionless
DS2T	Deregulation Schedule 2 Table, Table
DS3	Deregulation Schedule Switch, Dimensionless
DSU	Deregulation Schedule for CUF, Fraction
DWP	Desired Wellhead Price, \$/BTU
DYI	Deregulation Year Initial, Year
ECF	Exploration Cost Factor, Fraction/Yr
ECR	Excess Charge Due to Risk, Fraction/Yr
ED	Export Demand, BTU/YR
EDT	Export Demand Table, Table
EF	Equity Fraction, Fraction
EFA	External Funds Available, \$/YR
EFF	Excess Fuel Factor, Fraction
EFFN	Excess Fuel Factor Normal, Fraction
EIDC	Excess Charge Due to Interest Under Constr., Fraction/Yr
EIDCT	Excess Interest During Construction Table, Table
EOMC	Exploration O & M Cost, \$/BTU
EP1T	EPCA1 Table, Table
EP2T	EPCA2 Table, Table
EPCA1	EPCA Wellhead Price 1977-1985, \$/BTU
EPCA2	EPCA Regulated Price 1985-2010, \$/BTU
EQ	Equity
ERR	Environmental Risk Rate, Fraction/Yr
ERRT	Environmental Risk Rate Table, Table
ERWP	EPCA Regulated Wellhead Price, \$/BTU

FOSSIL2 VARIABLE SUFFIXES (CONT.)

ERY	Environmental Risk Rate Initiation Year, Year
EUD	End-Use Demand, BTU/YR
EUE	End-Use Efficiency, Dimensionless
FA	Funds Available, \$/YR
FCE	Fraction to Capital Expenditures, Fraction
FCEN	Fraction to Capital Expenditures Normal, Fraction
FCET	Fraction to Capital Expenditures Table, Table
FCF	Fuel Cost Factor, \$/BTU
FCHG	Future Charge, \$/BTU
FCR	Facility Completion Rate, \$/YR
FCST	Feedstock Cost, \$/BTU
FCT	Facility Construction Time, Year
FCTT	Facility Construction Time Table, Table
FDG	Fraction Demanded as Gas, Fraction
FDGT	Fraction Demanded as Gas Table, Table
FDO	Fraction Demanded as Oil, Fraction
FEDP	Fraction of Import Demand to Panamerican Sources, Fraction
FEDPT	FEDP Table, Table
FN	Funds Needed, \$/YR
FPA	Future Physical Assets, \$
GA	Gross Assets, \$
GAI	Gross Assets Initial, \$
GAR	Gross Asset Retirements, \$/YR
GC77	Generating Capacity in 1977, BTU/YR
GD	Gross Demand, BTU/YR
GNP	Gross National Product, \$
GNPI	Gross National Product Initial, \$
GNPIR	Gross National Product Increase Rate, \$/YR
GNPM	Gross National Product Multiplier, Dimensionless
GR	Growth Rate, Fraction/Yr
GRI	Growth Rate Indicated, Fraction/Yr
GRT	Growth Rate Table, Table
GS	Government Subsidy, \$/BTU
HACUF	Historical Avg. Capacity Utilization Factor, Fraction
HCHG	Historical Charge, \$/BTU
HFCT	Historical Facility Construction Time, Year
HINF	Historical Rate of Inflation, Fraction/Yr
HROE	Historical Return on Equity, Fraction/Yr
HROEN	Historical Return on Equity Normal, Fraction/Yr
IE	Income Elasticity, Dimensionless
IF	Internal Funds, \$/Yr
ILCIR	Indicated Long Term Contract Initiation Rate, BTU/YR
IMD	Import Demand, BTU/YR
IMWC	Investment Multiplier from Water Constraint, Dimensionless
IMWCT	Investment Multiplier Water Constr. Table, Table
INF	Inflation Rate, Fraction/Yr
INT	Interest, \$/YR
INV	Investment, \$/YR
INVI	Investment Initial, \$/YR
IR	Interest Rate, Fraction/Yr
IRN	Interest Rate Normal, Fraction/Yr
IRSC	Indicated Reclamation Costs, \$/BTU
ITC	Investment Tax Credit, Fraction
IWP	Indicated Wellhead Price, \$/BTU
LBF	Lease Bonus Factor, Fraction/Yr
LBFT	Lease Bonus Factor Table, Table
LCAT	Long Term Contract Adjustment Time, Year
LCER	Long Term Contract Expiration Rate, (BTU/YR)/YR
LCIR	Long Term Contract Initiation Rate, (BTU/YR)/YR
LCST	Labor Cost, \$/BTU
LGGR	Long Term GNP Growth Rate, Fraction/Yr
LGGRT	Long Term GNP Growth Rate Table, Table
LGY	Loan Guarantee Initiation Year, Year
LMPY	Load Management Policy Initiation Year, Year
LW	Labor Wages, \$/Laborer-Yr
LWM	Labor Wage Multiplier, Dimensionless
LWMT	Labor Wage Multiplier Table, Table

FOSSIL2 VARIABLE SUFFIXES (CONT.)

LWN	Labor Wages Normal, \$/Laborer-Yr
MCST	Marginal Cost, \$/BTU
MMP	Minemouth Price, \$/BTU
MMS	Multiplier from Market Share, Dimensionless
MMST	Multiplier from Market Share, Table, Table
MPC	Mature Production Capacity, BTU/YR
MRPR	Minimum Reserve Production Ratio, Yr
MS	Moratorium Schedule, Fraction
MST	Moratorium Schedule Table, Table
MT	Moratorium Delay Time, Yr
MY	Moratorium Initiation Year, Yr
NA	Net Assets, \$
ND	Net Demand, BTU/YR
NI	Net Income, \$/YR
NLC	New Long Term Contracts, BTU/YR
NNS	New North Slope Production, BTU/YR
NNST	New North Slope Production Table, Table
NPA	Normal Physical Assets, \$
NPC	New Plants Completed, \$/YR
NSP	North Slope Production, BTU/YR
NSPY	North Slope Production Initiation, Year, Year
NTC	Ness Tax Credit, \$/BTU
NTCM	Ness Tax Credit Multiplier, Dimensionless
NTCT	Ness Tax Credit Table, Table
NTUY	Ness Tax Credit Initiation Year, Year
NTM	New Technology Cost Multiplier, Dimensionless
OCS	Oil Conservation Savings, Fraction/Yr
OCSY	Oil Conservation Savings Year, Year
OMC	Operating and Maintenance (O & M) Cost, \$/BTU
ONS	Old North Slope Production, BTU/YR
ONS1	Old North Slope Production 1975-1980, BTU/YR
ONS1T	ONS1 Table, Table
ONS2	Old North Slope Production 1980-2020, BTU/YR
ONS2T	ONS2 Table, Table
P	Price, \$/BTU
P1	Low Price Scenario, \$/BTU
P1T	Low Price Scenario Price Table, Table
P2	Mid Price Scenario, \$/BTU
P2T	Mid Price Scenario Price Table, Table
P3	High Price Scenario, \$/BTU
P32	Switch for Pricing Policy, Dimensionless
P3T	High Price Scenario Price Table, Table
PA	Physical Assets, \$
PA79	Physical Assets in 1979, \$
PACUF	Policy Avg. Capacity Utilization Factor, Fraction
PAI	Physical Assets Initial, \$
PAMI	Physical Assets of a Mature Industry, \$
PAR	Physical Asset Retirements, \$/YR
PAT	Price Adjustment Time, Yr
PC	Production Capacity, BTU/YR
PCR	Production-Consumption Ratio, Dimensionless
PCS	Policy Conservation Savings, Fraction/Yr
PCST	Production Cost, \$/YR
PCUFT	PACUF Table, Table
PCWC	Production Capacity Under Water constraint, BTU/YR
PD	Potential Demand, BTU/YR
PDF	Potential Discovery Factor, Dimensionless
PDR	Production Demand Ratio, Dimensionless
PE	Price Elasticity, Dimensionless
PFCT	Policy Facility Construction Time, Year
PGNP	Potential Gross National Product, \$
PI	Price Initial, \$/BTU
PINF	Post 1968 Rate of Inflation, Fraction/Yr
PLAS	Price-Level Accounting Schedule, Dimensionless
PLAST	Price-Level Accounting Schedule Table, Table
PLAY	Price Level Accounting Initiation Year, Year
PM	Price Markup, \$/BTU
PMM	Price Multiplier, Dimensionless

FOSSIL2 VARIABLE SUFFIXES (CONT.)

PMMT	Price Multiplier Table, Table
PMN	Profit Margin Normal, \$/BTU
PMS	Productivity Multiplier from Safety, Dimensionless
PMST	PMS Table, Table
PMT	Price Markup Table, Table
PN	Price Normal, \$/BTU
POMC	Production O&M Cost, \$/BTU
PPB	Price Per Barrel, \$/BBL
PR	Production Rate, BTU/YR
PR70	Price Ratio in 1970, \$/BTU
PR75	Price Ratio in 1975, \$/BTU
PRM	Production Rate Maximum, BTU/YR
PRMT	Production Rate Maximum Table, Table
PROE	Policy Return on Equity, Fraction/Yr
PROEN	Policy Return on Equity Normal, Fraction/Yr
PRT	Production Rate Table, Table
PSY	Price-Support Year, Year
PTT	Price Table, Table
PUC	Plants Under Construction, \$
PXT	Policy Excise Tax, \$/BTU
QUOT	Quota, BTU/YR
QUOTT	Quota Table, Table
QY	Quota Year, Year
R	Resources, BTU
RCUF	Regulated Capacity Utilization Factor, Fraction
RCUFM	Regulated Capacity Utilization Factor Maximum, Fraction
RDR	Reserves Depletion Rate, BTU/YR
RER	Resource Extraction Rate, BTU/YR
RES	Proven Reserves, BTU
REV	Revenue, \$/YR
RFAF	Reactor Fuel Annualization Factor, Fraction/Yr
RI	Resources Initial, RTU
ROEN	Normal Return on Equity, Fraction/Yr
ROI	Return on Investment, Fraction/Yr
ROIN	Return on Investment Normal, Fraction/Yr
ROI _R	Return on Investment Real, Fraction/Yr
ROI _X	Return on Investment Index, Dimensionless
ROMC	Revision and Extension O&M Cost, \$/BTU
RP	Royalty Payments, \$/BTU
RPF	Royalty Payment Factor, Fraction/Yr
RPRT	Reserve Production Rate Table, Table
RPT	Royalty Payment Table, Table
RPY	ROE Regulation Policy Initiation Year, Year
RR	Recycle Rate, BTU/YR
RRT	Regulation Delay Time, Year
RRTT	Regulation Delay Time Table, Table
RRWP	Return-Regulated Wellhead Price, \$/BTU
RRY	Rate Reform Initiation Year, Year
RSC	Reclamation Standards Cost, \$/BTU
RSS	Regulated Safety Standards, Dimensionless
RSY	Reclamation Standards Year, Year
RWP	Regulated Wellhead Price, \$/BTU
RX	Revisions and Extensions, BTU/YR
RXCF	Revision and Extension Cost Factor, Fraction/Yr
RXD	Revision and Extension Delay Time, Year
RXF	Revision and Extension Factor, Dimensionless
RY	Reprocessing Initiation Year, Year
RYGR	Recessions Year Growth Rate, Fraction/Yr
RYGRT	Recession Growth Rate Table, Table
SAT	Safety Adjustment Time, Year
SCC	Specific Capital Cost, \$/BTU/YR
SCM	Secondary Constraint Multiplier, Dimensionless
SCMT	Secondary Constraint Multiplier Table, Table
SCST	Support Cost, \$/BTU
SP	Support Price, \$/BTU
SPA	Smoothed Physical Assets, \$
SPAI	Smoothed Physical Assets Initial, \$
SSP	South Slope Production, BTU/YR

FOSSIL2 VARIABLE SUFFIXES (CONT.)

SSP1	South Slope Production 1980-2030, BTU/YR
SSP1T	SSP1 Table, Table
SSP2	South Slope Production 1972-1980, BTU/YR
SSP2T	SSP2 Table, Table
SSPT	South Slope Production Table, Table
ST	Severance Tax, \$/BTU
STPT	Severance Tax Policy Time, Year
STPY	Severance Tax Policy Initiation Year, Year
STT	Severance Tax Table, Table
ETY	Severance Tax Initiation Year, Year
TAR	Tariff, \$/BTU
TARY	Tariff Initiation Year, Year
TDCC	Transmission and Distribution Capital Cost, \$/(BTU/YR)
TFCR	Total Fuel Conversion Rate, BTU/YR
TGR	Time for Growth Rate, Year
TM	Technology Multiplier, Dimensionless
TMT	Technology Multiplier Table, Table
TR	Tax Rate, Fraction
TRT	Tax Rate Table, Table
UBGY	Utility Backout Initiation Year, Year
UBM	Utility Backout Multiplier, Dimensionless
UCUF	Unregulated Capacity Utilization Factor, Fraction
URA	Unproven Reserve Additions, BTU/YR
URES	Unproven Reserves, BTU
URES1	Unproven Reserves Initial, BTU
UWP	Unregulated Wellhead Price, \$/BTU
VLI	Value Loss Due to Inflation, \$/YR
WET	Wellhead Excess Profits Tax, \$/BTU
WETY	Wellhead Excess Profits Tax Year Initial, Year
WEY	Wellhead Excess Tax for Enhanced Recovery Year, Year
WF	Weighting Factor, Dimensionless
WP	Wellhead Price, \$/BTU
WPPR	Windfall Profit Production, BTU/YR
WPT	Wellhead Price Table, Table
XTY	Excise Tax Initiation Year, Year

ACAW	Avg. conventional coal electric- Allocation weight	(Dimensionless)
ACINV	Avg. conventional coal electric- Investment	(\$/Yr)
ACMCST	Avg. conventional coal electric- Marginal cost	(\$/Btu)
AGCR	Alaskan gas- Consumption rate	(Btu/Yr)
AGNSP	Alaskan gas- North slope production	(Btu/Yr)
AGNSPY	Alaskan gas- North slope production initiation year	(Year)
AGSSP	Alaskan gas- South slope production	(Btu/Yr)
AGSSP1	Alaskan gas- South slope production 1980-2030	(Btu/Yr)
AGSSP1T	Alaskan gas- SSP1 table	(Table)
AGSSP2	Alaskan gas- South slope production 1972-1980	(Btu/Yr)
AGSSP2T	Alaskan gas- SSP2 table	(Table)
AGWP	Alaskan gas- Wellhead price	(\$/Btu)
AONNS	Alaskan oil- New North slope production	(Btu/Yr)
AONNST	Alaskan oil- New North slope production table	(Table)
AONSP	Alaskan oil- North slope production	(Btu/Yr)
AOONS	Alaskan oil- Old North slope production	(Btu/Yr)
AOONS1	Alaskan oil- Old North slope production 1975-1980	(Btu/Yr)
AOONS1T	Alaskan oil- ONS1 table	(Table)
AOONS2	Alaskan oil- Old North slope production 1980-2020	(Btu/Yr)
AOONS2T	Alaskan oil- ONS2 table	(Table)
AOPR	Alaskan oil- Production rate	(Btu/Yr)
AOSSP	Alaskan oil- South slope production	(Btu/Yr)
AOSSPT	Alaskan oil- South slope production table	(Table)
AOWP	Alaskan oil- Wellhead price	(\$/Btu)
BMACC	Biomass electric- Average capital cost	(\$/(Btu/Yr))
BMAGR	Biomass electric- Assets for growth rate	(\$)
BMARF	Biomass electric- Asset retirement factor	(Fraction/Yr)
BMAW	Biomass electric- Allocation weight	(Dimensionless)
BMCC	Biomass electric- Capital cost	(\$/(Btu/Yr))
BMCCP	Biomass electric- Capital cost of production plant	(\$/(Btu/Yr))
BMCCR	Biomass electric- Capital charge rate	(Fraction/Yr)
BMCCRR	Biomass electric- Capital charge due to risk	(Fraction/Yr)
BMCCCT	Biomass electric- Capital cost table	(Table)
BMCE	Biomass electric- Conversion efficiency	(Dimensionless)
BM CST	Biomass electric- Cost	(\$/Yr)
BMCUFP	Biomass electric- Capacity utilization factor for planning	(Fraction)
BM CY	Biomass electric- Commercialization year	(Year)
BM ECR	Biomass electric- Excess charge due to risk	(Fraction/Yr)
BM FCR	Biomass electric- Facility completion rate	(\$/Yr)
BM F CST	Biomass electric- Feedstock cost	(\$/Btu)
BM FCT	Biomass electric- Facility construction time	(Year)
BMGR	Biomass electric- Growth rate	(Fraction/Yr)
BM INV	Biomass electric- Investment	(\$/Yr)
BM LGY	Biomass electric- Loan guarantee initiation year	(Year)
BM MCST	Biomass electric- Marginal cost	(\$/Btu)
BM MPC	Biomass electric- Mature production capacity	(Btu/Yr)
BM OMC	Biomass electric- Operating and maintenance <O&M> cost	(\$/Btu)
BM P	Biomass electric- Price	(\$/Btu)
BM PA	Biomass electric- Physical assets	(\$)
BM PAR	Biomass electric- Physical asset retirements	(\$/Yr)
BM PC	Biomass electric- Production capacity	(Btu/Yr)
BM PM	Biomass electric- Price markup	(\$/Btu)
BM PMT	Biomass electric- Price markup table	(Table)
BM PN	Biomass electric- Price normal	(\$/Btu)
BM PR	Biomass electric- Production rate	(Btu/Yr)
BM PUC	Biomass electric- Plants under construction	(\$)
BM SCC	Biomass electric- Specific capital cost	(\$/(Btu/Yr))
BM SCM	Biomass electric- Secondary constraint multiplier	(Dimensionless)
BNACC	Breeder nuclear electric- Average capital cost	(\$/(Btu/Yr))
BNAGR	Breeder nuclear electric- Assets for growth rate	(\$)
BNARF	Breeder nuclear electric- Asset retirement factor	(Fraction/Yr)
BN AW	Breeder nuclear electric- Allocation weight	(Dimensionless)
BN BR	Breeder nuclear electric- Breeding ratio	(Dimensionless)
BNCC	Breeder nuclear electric- Capital cost	(\$/(Btu/Yr))
BNCCP	Breeder nuclear electric- Capital cost of production plant	(\$/(Btu/Yr))
BNCCR	Breeder nuclear electric- Capital charge rate	(Fraction/Yr)
BNCCRC	Breeder nuclear electric- Capital charge due to interest under const.	(Fraction/Yr)
BNCCRR	Breeder nuclear electric- Capital charge due to risk	(Fraction/Yr)
BNCE	Breeder nuclear electric- Conversion efficiency	(Dimensionless)

BNCST	Breeder nuclear electric-	Cost	(\$/Yr)
BNCUFP	Breeder nuclear electric-	Capacity utilization factor for planning	(Fraction)
BNCY	Breeder nuclear electric-	Commercialization year	(Year)
BNDRF	Breeder nuclear electric-	Demand for reactor fuel	(Btu/Yr)
BNECR	Breeder nuclear electric-	Excess charge due to risk	(Fraction/Yr)
BNEFF	Breeder nuclear electric-	Excess fuel factor	(Fraction)
BNEIDC	Breeder nuclear electric-	Excess charge due to interest under const.	(Fraction/Yr)
BNFCR	Breeder nuclear electric-	Facility completion rate	(\$/Yr)
BNFCST	Breeder nuclear electric-	Feedstock cost	(\$/Btu)
BNGR	Breeder nuclear electric-	Growth rate	(Fraction/Yr)
BNINV	Breeder nuclear electric-	Investment	(\$/Yr)
BNLGY	Breeder nuclear electric-	Loan guarantee initiation year	(Year)
BNMCST	Breeder nuclear electric-	Marginal cost	(\$/Btu)
BNMY	Breeder nuclear electric-	Moratorium initiation year	(Year)
BNOMC	Breeder nuclear electric-	Operating and maintenance <O&M> cost	(\$/Btu)
BNPA	Breeder nuclear electric-	Physical assets	(\$)
BNPAR	Breeder nuclear electric-	Physical asset retirements	(\$/Yr)
BNPC	Breeder nuclear electric-	Production capacity	(Btu/Yr)
BNPR	Breeder nuclear electric-	Production rate	(Btu/Yr)
BNPUC	Breeder nuclear electric-	Plants under construction	(\$)
BNRFAF	Breeder nuclear electric-	Reactor fuel annualization factor	(Fraction/Yr)
BNSCC	Breeder nuclear electric-	Specific capital cost	(\$/(Btu/Yr))
BNSCH	Breeder nuclear electric-	Secondary constraint multiplier	(Dimensionless)
BNTFCR	Breeder nuclear electric-	Total fuel conversion rate	(Btu/Yr)
CCACC	Combined cycle coal electric-	Average capital cost	(\$/(Btu/Yr))
CCAGR	Combined cycle coal electric-	Assets for growth rate	(\$)
CCARF	Combined cycle coal electric-	Asset retirement factor	(Fraction/Yr)
CCAW	Combined cycle coal electric-	Allocation weight	(Dimensionless)
CCCC	Combined cycle coal electric-	Capital cost	(\$/(Btu/Yr))
CCCCP	Combined cycle coal electric-	Capital cost of production plant	(\$/(Btu/Yr))
CCCCR	Combined cycle coal electric-	Capital charge rate	(Fraction/Yr)
CCCCRC	Combined cycle coal electric-	Capital charge due to interest under const.	(Fraction/Yr)
CCCCRR	Combined cycle coal electric-	Capital charge due to risk	(Fraction/Yr)
CCCE	Combined cycle coal electric-	Conversion efficiency	(Dimensionless)
CCCST	Combined cycle coal electric-	Cost	(\$/Yr)
CCCUFP	Combined cycle coal electric-	Capacity utilization factor for planning	(Fraction)
CCCY	Combined cycle coal electric-	Commercialization year	(Year)
CCDC	Combined cycle coal electric-	Demand for coal	(Btu/Yr)
CCECR	Combined cycle coal electric-	Excess charge due to risk	(Fraction/Yr)
CCFCR	Combined cycle coal electric-	Facility completion rate	(\$/Yr)
CCFCST	Combined cycle coal electric-	Feedstock cost	(\$/Btu)
CCFCT	Combined cycle coal electric-	Facility construction time	(Year)
CCGR	Combined cycle coal electric-	Growth rate	(Fraction/Yr)
CCINV	Combined cycle coal electric-	Investment	(\$/Yr)
CCLGY	Combined cycle coal electric-	Loan guarantee initiation year	(Year)
CCMCST	Combined cycle coal electric-	Marginal cost	(\$/Btu)
CCOMC	Combined cycle coal electric-	Operating and maintenance <O&M> cost	(\$/Btu)
CCPA	Combined cycle coal electric-	Physical assets	(\$)
CCPAR	Combined cycle coal electric-	Physical asset retirements	(\$/Yr)
CCPC	Combined cycle coal electric-	Production capacity	(Btu/Yr)
CCPR	Combined cycle coal electric-	Production rate	(Btu/Yr)
CCPUC	Combined cycle coal electric-	Plants under construction	(\$)
CCSCC	Combined cycle coal electric-	Specific capital cost	(\$/(Btu/Yr))
CCSCM	Combined cycle coal electric-	Secondary constraint multiplier	(Dimensionless)
CEAP	Centralized energy-	Average price	(\$/Btu)
CECR	Centralized energy-	Consumption rate	(Btu/Yr)
CEEUE	Centralized energy-	End-use efficiency	(Dimensionless)
CEFCF	Centralized energy-	Fuel cost factor	(\$/Btu)
CGAGR	Conventional gas-	Assets for growth rate	(\$)
CGARF	Conventional gas-	Asset retirement factor	(Fraction/Yr)
CGAW	Conventional gas-	Allocation weight	(Dimensionless)
CGCC	Conventional gas-	Capital cost	(\$/(Btu/Yr))
CGCCR	Conventional gas-	Capital charge rate	(Fraction/Yr)
CGCP	Conventional gas-	Capital productivity	((Btu/Yr)/\$)
CGCPN	Conventional gas-	Capital productivity normal	((Btu/Yr)/\$)
CGCST	Conventional gas-	Cost	(\$/Yr)
CGDMT	Conventional gas-	Depletion multiplier table	(Table)
CGDR	Conventional gas-	Discovery rate	(Btu/Yr)
CGECF	Conventional gas-	Exploration cost factor	(Fraction/Yr)

CGFOMC	Conventional gas- Exploration O&M cost	(\$/Btu)
CGFCR	Conventional gas- Facility completion rate	(\$/Yr)
CGGRI	Conventional gas- Growth rate indicated	(Fraction/Yr)
CGINV	Conventional gas- Investment	(\$/Yr)
CGLBF	Conventional gas- Lease bonus factor	(Fraction/Yr)
CGLBFT	Conventional gas- Lease bonus factor table	(Table)
CGMCST	Conventional gas- Marginal cost	(\$/Btu)
CGMRPR	Conventional gas- Minimum reserve production ratio	(Year)
CGOMC	Conventional gas- Operating and maintenance <O&M> cost	(\$/Btu)
CGPA	Conventional gas- Physical assets	(\$)
CGPAR	Conventional gas- Physical asset retirements	(\$/Yr)
CGPC	Conventional gas- Production capacity	(Btu/Yr)
CGPDF	Conventional gas- Potential discovery factor	(Dimensionless)
CGPOMC	Conventional gas- Production O&M cost	(\$/Btu)
CGPR	Conventional gas- Production rate	(Btu/Yr)
CGPUC	Conventional gas- Plants under construction	(\$)
CGR	Conventional gas- Resources	(Btu)
CGRDR	Conventional gas- Reserves depletion rate	(Btu/Yr)
CGREP	Conventional gas- Resource extraction rate	(Btu/Yr)
CGRES	Conventional gas- Proven reserves	(Btu)
CGRI	Conventional gas- Resources initial	(Btu)
CGROMC	Conventional gas- Revision and extension O&M cost	(\$/Btu)
CGRP	Conventional gas- Royalty payments	(\$/Btu)
CGRPRT	Conventional gas- Reserve production rate table	(Table)
CGRPT	Conventional gas- Royalty payment table	(Table)
CGRY	Conventional gas- Revisions and extensions	(Btu/Yr)
CGRXCF	Conventional gas- Revision and extension cost factor	(Fraction/Yr)
CGRYD	Conventional gas- Revision and extension delay time	(Year)
CGRYF	Conventional gas- Revision and extension factor	(Dimensionless)
CGSCC	Conventional gas- Specific capital cost	(\$/(Btu/Yr))
CGSCM	Conventional gas- Secondary constraint multiplier	(Dimensionless)
CGURA	Conventional gas- Unproven reserve additions	(Btu/Yr)
CGURES	Conventional gas- Unproven reserves	(Btu)
CLAGR	Coal liquids- Assets for growth rate	(\$)
CLAMS	Coal liquids- Actual market share	(Fraction)
CLARF	Coal liquids- Asset retirement factor	(Fraction/Yr)
CLAW	Coal liquids- Allocation weight	(Dimensionless)
CLCC	Coal liquids- Capital cost	(\$/(Btu/Yr))
CLCDCY	Coal liquids- Construction delay change year	(Year)
CLCE	Coal liquids- Conversion efficiency	(Dimensionless)
CLCP	Coal liquids- Capital productivity	((Btu/Yr)/\$)
CLCST	Coal liquids- Cost	(\$/Yr)
CLCY	Coal liquids- Commercialization year	(Year)
CLDC	Coal liquids- Demand for coal	(Btu/Yr)
CLDMS	Coal liquids- Desired market share	(Fraction)
CLECR	Coal liquids- Excess charge due to risk	(Fraction/Yr)
CLEIDC	Coal liquids- Excess charge due to interest under const.	(Fraction/Yr)
CLFCR	Coal liquids- Facility completion rate	(\$/Yr)
CLFCST	Coal liquids- Feedstock cost	(\$/Btu)
CLFCT	Coal liquids- Facility construction time	(Year)
CLGR	Coal liquids- Growth rate	(Fraction/Yr)
CLGS	Coal liquids- Government subsidy	(\$/Btu)
CLHFCT	Coal liquids- Historical facility construction time	(Year)
CLINV	Coal liquids- Investment	(\$/Yr)
CLLGY	Coal liquids- Loan guarantee initiation year	(Year)
CLMCST	Coal liquids- Marginal cost	(\$/Btu)
CLOMC	Coal liquids- Operating and maintenance <O&M> cost	(\$/Btu)
CLPA	Coal liquids- Physical assets	(\$)
CLPAR	Coal liquids- Physical asset retirements	(\$/Yr)
CLPC	Coal liquids- Production capacity	(Btu/Yr)
CLPFCT	Coal liquids- Policy facility construction time	(Year)
CLPR	Coal liquids- Production rate	(Btu/Yr)
CLPSY	Coal liquids- Price-support initiation year	(Year)
CLPUC	Coal liquids- Plants under construction	(\$)
CLSCC	Coal liquids- Specific capital cost	(\$/(Btu/Yr))
CLSCM	Coal liquids- Secondary constraint multiplier	(Dimensionless)
CLSCST	Coal liquids- Support cost	(\$/Btu)
CLSP	Coal liquids- Support price	(\$/Btu)
COAGR	Conventional oil- Assets for growth rate	(\$)

COARF	Conventional oil-	Asset retirement factor	(Fraction/Yr)
COAW	Conventional oil-	Allocation weight	(Dimensionless)
COCC	Conventional oil-	Capital cost	(\$/(Btu/Yr))
COCF	Conventional oil-	Capital productivity	((Btu/Yr)/\$)
COCFN	Conventional oil-	Capital productivity normal	((Btu/Yr)/\$)
COCST	Conventional oil-	Cost	(\$/Yr)
CODMT	Conventional oil-	Depletion multiplier table	(Table)
CODR	Conventional oil-	Discovery rate	(Btu/Yr)
COECF	Conventional oil-	Exploration cost factor	(Fraction/Yr)
COEOMC	Conventional oil-	Exploration O&M cost	(\$/Btu)
COFCR	Conventional oil-	Facility completion rate	(\$/Yr)
COFCT	Conventional oil-	Facility construction time	(Year)
COGR	Conventional oil-	Growth rate	(Fraction/Yr)
COINV	Conventional oil-	Investment	(\$/Yr)
COLBF	Conventional oil-	Lease bonus factor	(Fraction/Yr)
COLBFT	Conventional oil-	Lease bonus factor table	(Table)
COMCST	Conventional oil-	Marginal cost	(\$/Btu)
COMRPR	Conventional oil-	Minimum reserve production ratio	(Year)
COOMC	Conventional oil-	Operating and maintenance <O&M> cost	(\$/Btu)
COPA	Conventional oil-	Physical assets	(\$)
COPAR	Conventional oil-	Physical asset retirements	(\$/Yr)
COPC	Conventional oil-	Production capacity	(Btu/Yr)
COPDF	Conventional oil-	Potential discovery factor	(Dimensionless)
COPOMC	Conventional oil-	Production O&M cost	(\$/Btu)
COPR	Conventional oil-	Production rate	(Btu/Yr)
COPUC	Conventional oil-	Plants under construction	(\$)
COR	Conventional oil-	Resources	(Btu)
CORDR	Conventional oil-	Reserves depletion rate	(Btu/Yr)
CORER	Conventional oil-	Resource extraction rate	(Btu/Yr)
CORES	Conventional oil-	Proven reserves	(Btu)
CORI	Conventional oil-	Resources initial	(Btu)
COROMC	Conventional oil-	Revision and extension O&M cost	(\$/Btu)
CORP	Conventional oil-	Royalty payments	(\$/Btu)
CORPF	Conventional oil-	Royalty payment factor	(Fraction/Yr)
CORPRT	Conventional oil-	Reserve production rate table	(Table)
CORX	Conventional oil-	Revisions and extensions	(Btu/Yr)
CORXCF	Conventional oil-	Revision and extension cost factor	(Fraction/Yr)
CORXD	Conventional oil-	Revision and extension delay time	(Year)
CORXF	Conventional oil-	Revision and extension factor	(Dimensionless)
COSCC	Conventional oil-	Specific capital cost	(\$/(Btu/Yr))
COSCM	Conventional oil-	Secondary constraint multiplier	(Dimensionless)
COURA	Conventional oil-	Unproven reserve additions	(Btu/Yr)
COURES	Conventional oil-	Unproven reserves	(Btu)
COURES1	Conventional oil-	Unproven reserves initial	(Btu)
DCACST	Domestic coal-	Average cost	(\$/Btu)
DCADF	Domestic coal-	Accumulated depreciation fraction	(Fraction)
DCARF	Domestic coal-	Asset retirement factor	(Fraction/Yr)
DCAW	Domestic coal-	Allocation weight	(Dimensionless)
DCBLC	Domestic coal-	Book life of capital	(Year)
DCCC	Domestic coal-	Capital cost	(\$/(Btu/Yr))
DCCR	Domestic coal-	Consumption rate	(Btu/Yr)
DCCSDT	Domestic coal-	Conservation savings development time	(Year)
DCCST	Domestic coal-	Cost	(\$/Yr)
DCCSY	Domestic coal-	Conservation savings initiation year	(Year)
DCCUF	Domestic coal-	Capacity utilization factor	(Fraction)
DCCUFN	Domestic coal-	Capacity utilization factor normal	(Fraction)
DCCUFP	Domestic coal-	Capacity utilization factor for planning	(Fraction)
DCCUFT	Domestic coal-	Capacity utilization factor table	(Table)
DCDCHG	Domestic coal-	Delivery charge	(\$/Btu)
DCDE	Domestic coal-	Distributional efficiency	(Fraction)
DCDEBT	Domestic coal-	Debt	(\$)
DCDEP	Domestic coal-	Depreciation	(\$/Yr)
DCDF	Domestic coal-	Debt fraction	(Fraction)
DCDIV	Domestic coal-	Dividends	(\$/Yr)
DCDL	Domestic coal-	Debt life	(Year)
DCDMA	Domestic coal-	Demand multiplier from availability	(Dimensionless)
DCDMI	Domestic coal-	Demand multiplier from income	(Dimensionless)
DCDMIT	Domestic coal-	Demand multiplier from income table	(Table)
DCDMP	Domestic coal-	Demand multiplier from price	(Dimensionless)

DCDMPT	Domestic coal-	Demand multiplier from price table.	(Table)
DCDPOT	Domestic coal-	Dividend payout table	(Table)
DCDRMT	Domestic coal-	Debt repayment	(\$/Yr)
DCEAT	Domestic coal-	Economic averaging time	(Year)
DCED	Domestic coal-	Export demand	(Btu/Yr)
DCEDT	Domestic coal-	Export demand table	(Table)
DCEF	Domestic coal-	Equity fraction	(Fraction)
DCEFA	Domestic coal-	External funds available	(\$/Yr)
DCEQ	Domestic coal-	Equity	(\$)
DCEUD	Domestic coal-	End-use demand	(Btu/Yr)
DCFA	Domestic coal-	Funds available	(\$/Yr)
DCFCEN	Domestic coal-	Fraction to capital expenditures normal	(Fraction)
DCFCMG	Domestic coal-	Future charge	(\$/Btu)
DCFCT	Domestic coal-	Facility construction time	(Year)
DCFN	Domestic coal-	Funds needed	(\$/Yr)
DCFPA	Domestic coal-	Future physical assets	(\$)
DCGA	Domestic coal-	Gross assets	(\$)
DCGAR	Domestic coal-	Gross asset retirements	(\$/Yr)
DCGD	Domestic coal-	Gross demand	(Btu/Yr)
DCGR	Domestic coal-	Growth rate	(Fraction/Yr)
DCGRT	Domestic coal-	Growth rate table	(Table)
DCGCHG	Domestic coal-	Historical charge	(\$/Btu)
DCHROEN	Domestic coal-	Historical return on equity normal	(Fraction/Yr)
DCIF	Domestic coal-	Internal funds	(\$/Yr)
DCINT	Domestic coal-	Interest	(\$/Yr)
DCINV	Domestic coal-	Investment	(\$/Yr)
DCIR	Domestic coal-	Interest rate	(Fraction/Yr)
DCIRN	Domestic coal-	Interest rate normal	(Fraction/Yr)
DCITC	Domestic coal-	Investment tax credit	(Fraction)
DCMMP	Domestic coal-	Minemouth price	(\$/Btu)
DCNA	Domestic coal-	Net assets	(\$)
DCND	Domestic coal-	Net demand	(Btu/Yr)
DCNI	Domestic coal-	Net income	(\$/Yr)
DCNPA	Domestic coal-	Normal physical assets	(\$)
DCNPC	Domestic coal-	New plants completed	(\$/Yr)
DCP	Domestic coal-	Price	(\$/Btu)
DCPA	Domestic coal-	Physical assets	(\$)
DCPAMI	Domestic coal-	Physical assets of a mature industry	(\$)
DCPC	Domestic coal-	Production capacity	(Btu/Yr)
DCPCS	Domestic coal-	Policy conservation savings	(Fraction/Yr)
DCPDR	Domestic coal-	Production demand ratio	(Dimensionless)
DCPM	Domestic coal-	Price multiplier	(Dimensionless)
DCPMMT	Domestic coal-	Price multiplier table	(Table)
DCPMN	Domestic coal-	Profit margin normal	(\$/Btu)
DCPR	Domestic coal-	Production rate	(Btu/Yr)
DCPR70	Domestic coal-	Price in 1970	(\$/Btu)
DCPUC	Domestic coal-	Plants under construction	(\$)
DCREV	Domestic coal-	Revenue	(\$/Yr)
DCROEN	Domestic coal-	Normal return on equity	(Fraction/Yr)
DCROI	Domestic coal-	Return on investment	(Fraction/Yr)
DCROIN	Domestic coal-	Return on investment normal	(Fraction/Yr)
DCROI	Domestic coal-	Return on investment real	(Fraction/Yr)
DCROIX	Domestic coal-	Return on investment index	(Dimensionless)
DCSAT	Domestic coal-	Safety adjustment time	(Year)
DCSCMT	Domestic coal-	Secondary constraint multiplier table	(Table)
DCSPA	Domestic coal-	Smoothed physical assets	(\$)
DCSPA1	Domestic coal-	Smoothed physical assets initial	(\$)
DCTR	Domestic coal-	Time for growth rate	(Year)
DCTR	Domestic coal-	Tax rate	(Fraction)
DCVLI	Domestic coal-	Value loss due to inflation	(\$/Yr)
DCWF	Domestic coal-	Weighting factor	(Dimensionless)
DEGNP	Domestic economy-	Gross national product	(\$)
DEGNPI	Domestic economy-	Gross national product initial	(\$)
DEGNPIR	Domestic economy-	Gross national product increase rate	(\$/Yr)
DEGNPM	Domestic economy-	Gross national product multiplier	(Dimensionless)
DEHINF	Domestic economy-	Historical rate of inflation	(Fraction/Yr)

DEINF	Domestic economy-	Inflation rate	(Fraction/Yr)
DELGGR	Domestic economy-	Long term GNP growth rate	(Fraction/Yr)
DELGGRT	Domestic economy-	Long term GNP growth rate table	(Table)
DEPAT	Domestic economy-	Price adjustment time	(Year)
DEPE	Domestic economy-	Price elasticity	(Dimensionless)
DEPGNP	Domestic economy-	Potential gross national product	(\$)
DEPINF	Domestic economy-	Post 1968 rate of inflation	(Fraction/Yr)
DERYGR	Domestic economy-	Recessions years growth rate	(Fraction/Yr)
DERYGRT	Domestic economy-	Recession growth rate table	(Table)
DGACST	Domestic gas-	Average cost	(\$/Btu)
DGADF	Domestic gas-	Accumulated depretiation fraction	(Fraction)
DGAFACT	Domestic gas-	Average facility construction time	(Year)
DGAGR	Domestic gas-	Assets for growth rate	(\$)
DGARF	Domestic gas-	Asset retirement factor	(Fraction/Yr)
DGAW	Domestic gas-	Allocation weight	(Dimensionless)
DGBLC	Domestic gas-	Book life of capital	(Year)
DGCC	Domestic gas-	Capital cost	(\$/(Btu/Yr))
DGCEL	Domestic gas-	Capital expenditure limit	(Fraction)
DGCELT	Domestic gas-	Capital expenditure limit table	(Table)
DGCPS	Domestic gas-	Ceiling price schedule	(\$/Btu)
DGCPST	Domestic gas-	Ceiling price schedule table	(Table)
DGCSST	Domestic gas-	Cost	(\$/Yr)
DGCUF	Domestic gas-	Capacity utilization factor	(Fraction)
DGCUFN	Domestic gas-	Capacity utilization factor normal	(Fraction)
DGCUFP	Domestic gas-	Capacity utilization factor for planning	(Fraction)
DGCUFT	Domestic gas-	Capacity utilization factor table	(Table)
DGCCR	Domestic gas-	Curtailments	(Btu/Yr)
DGCURC	Domestic gas-	Curtailments to coal	(Btu/Yr)
DGCURO	Domestic gas-	Curtailments to oil	(Btu/Yr)
DGDEBT	Domestic gas-	Debt	(\$)
DGDEP	Domestic gas-	Depreciation	(\$/Yr)
DGDF	Domestic gas-	Debt fraction	(Fraction)
DGDIV	Domestic gas-	Dividends	(\$/Yr)
DGDL	Domestic gas-	Debt life	(Year)
DGDPOT	Domestic gas-	Dividend payout table	(Table)
DGDRMT	Domestic gas-	Debt repayment	(\$/Yr)
DGDRT	Domestic gas-	Deregulation adjustment time	(Year)
DGDS	Domestic gas-	Deregulation schedule	(Dimensionless)
DGDSU	Domestic gas-	Deregulation schedule for CUF	(Fraction)
DGDYI	Domestic gas-	Deregulation year initial	(Year)
DGEAT	Domestic gas-	Economic averaging time	(Year)
DGEF	Domestic gas-	Equity fraction	(Fraction)
DGEFA	Domestic gas-	External funds available	(\$/Yr)
DGEQ	Domestic gas-	Equity	(\$)
DGFA	Domestic gas-	Funds available	(\$/Yr)
DGFCE	Domestic gas-	Fraction to capital expenditures	(Fraction)
DGFCEN	Domestic gas-	Fraction to capital expenditures normal	(Fraction)
DGFCET	Domestic gas-	Fraction to capital expenditures table	(Table)
DGFDO	Domestic gas-	Fraction demanded as oil	(Fraction)
DGFEDP	Domestic gas-	Fraction of import demand to Pan-american sources	(Fraction)
DGFEDPT	Domestic gas-	FEDP table	(Table)
DGFN	Domestic gas-	Funds needed	(\$/Yr)
DGFPA	Domestic gas-	Future physical assets	(\$)
DGGA	Domestic gas-	Gross assets	(\$)
DGGAR	Domestic gas-	Gross asset retirements	(\$/Yr)
DGGD	Domestic gas-	Gross demand	(Btu/Yr)
DGGR	Domestic gas-	Growth rate	(Fraction/Yr)
DGGRI	Domestic gas-	Growth rate indicated	(Fraction/Yr)
DGGRT	Domestic gas-	Growth rate table	(Table)
DGGS	Domestic gas-	Government subsidy	(\$/Btu)
DGHROEN	Domestic gas-	Historical return on equity normal	(Fraction/Yr)
DGIF	Domestic gas-	Internal funds	(\$/Yr)
DGIMD	Domestic gas-	Import demand	(Btu/Yr)
DGINT	Domestic gas-	Interest	(\$/Yr)
DGINV	Domestic gas-	Investment	(\$/Yr)
DGIR	Domestic gas-	Interest rate	(Fraction/Yr)
DGIRN	Domestic gas-	Interest rate normal	(Fraction/Yr)
DGITC	Domestic gas-	Investment tax credit	(Fraction)
DGNA	Domestic gas-	Net assets	(\$)

DGNI	Domestic gas- Net income	(\$/Yr)
DGNPA	Domestic gas- Normal physical assets	(\$)
DGNPC	Domestic gas- New plants completed	(\$/Yr)
DGPA	Domestic gas- Physical assets	(\$)
DGPAMI	Domestic gas- Physical assets of a mature industry	(\$)
DGPC	Domestic gas- Production capacity	(Btu/Yr)
DGPLAY	Domestic gas- Price-level accounting initiation year	(Year)
DGPMN	Domestic gas- Price multiplier	(Dimensionless)
DGPMMT	Domestic gas- Price multiplier table	(Table)
DGPMN	Domestic gas- Profit margin normal	(\$/Btu)
DGPR	Domestic gas- Production rate	(Btu/Yr)
DGPROEN	Domestic gas- Policy return on equity normal	(Fraction/Yr)
DGPUC	Domestic gas- Plants under construction	(\$)
DGRCUF	Domestic gas- Regulated capacity utilization factor	(Fraction)
DGRCUFM	Domestic gas- Regulated capacity utilization factor maximum	(Fraction)
DGREV	Domestic gas- Revenue	(\$/Yr)
DGROEN	Domestic gas- Normal return on equity	(Fraction/Yr)
DGROI	Domestic gas- Return on investment	(Fraction/Yr)
DGROIN	Domestic gas- Return on investment normal	(Fraction/Yr)
DGROIR	Domestic gas- Return on investment real	(Fraction/Yr)
DGROIX	Domestic gas- Return on investment index	(Dimensionless)
DGRPY	Domestic gas- ROE regulation policy initiation year	(Year)
DGRWP	Domestic gas- Regulated wellhead price	(\$/Btu)
DGSCMT	Domestic gas- Secondary constraint multiplier table	(Table)
DGSPA	Domestic gas- Smoothed physical assets	(\$)
DGSPAI	Domestic gas- Smoothed physical assets initial	(\$)
DGTGR	Domestic gas- Time for growth rate	(Year)
DGTR	Domestic gas- Tax rate	(Fraction)
DGUCUF	Domestic gas- Unregulated capacity utilization factor	(Fraction)
DGUWP	Domestic gas- Unregulated wellhead price	(\$/Btu)
DGVLI	Domestic gas- Value loss due to inflation	(\$/Yr)
DGWF	Domestic gas- Weighting factor	(Dimensionless)
DGWP	Domestic gas- Wellhead price	(\$/Btu)
DIBP79	Domestic imports- Base price 1979	(\$/Btu)
DICR	Domestic imports- Consumption rate	(Btu/Yr)
DICP	Domestic imports- Goal price	(\$/Btu)
DIIMD	Domestic imports- Import demand	(Btu/Yr)
DIP	Domestic imports- Price	(\$/Btu)
DIQUOT	Domestic imports- Quota	(Btu/Yr)
DIQUOTT	Domestic imports- Quota table	(Table)
DIQY	Domestic imports- Quota initiation year	(Year)
DITARY	Domestic imports- Tariff initiation year	(Year)
DOACST	Domestic oil- Average cost	(\$/Btu)
DOADF	Domestic oil- Accumulated depreciation fraction	(Fraction)
DOAFCT	Domestic oil- Average facility construction time	(Year)
DOARF	Domestic oil- Asset retirement factor	(Fraction/Yr)
DOAW	Domestic oil- Allocation weight	(Dimensionless)
DOAWP	Domestic oil- Average wellhead price	(\$/Btu)
DOBLG	Domestic oil- Book life of capital	(Year)
DOCC	Domestic oil- Capital cost	(\$/(Btu/Yr))
DOCFCT	Domestic oil- Controlled capacity utilization factor table	(Table)
DOCST	Domestic oil- Cost	(\$/Yr)
DOCUF	Domestic oil- Capacity utilization factor	(Fraction)
DOCUFC	Domestic oil- Controlled capacity utilization factor	(Fraction)
DOCUFF	Domestic oil- Capacity utilization factor for forecasting	(Fraction)
DOCUFN	Domestic oil- Capacity utilization factor normal	(Fraction)
DOCUFP	Domestic oil- Capacity utilization factor for planning	(Fraction)
DOCUFT	Domestic oil- Capacity utilization factor table	(Table)
DOCUFY	Domestic oil- Capacity utilization control initiation year	(Year)
DODEBT	Domestic oil- Debt	(\$)
DODEP	Domestic oil- Depreciation	(\$/Yr)
DODF	Domestic oil- Debt fraction	(Fraction)
DODIV	Domestic oil- Dividends	(\$/Yr)
DODL	Domestic oil- Debt life	(Year)
DODPOT	Domestic oil- Dividend payout table	(Table)
DODRMT	Domestic oil- Debt repayment	(\$/Yr)
DODRT	Domestic oil- Deregulation adjustment time	(Year)
DODS	Domestic oil- Deregulation schedule	(Dimensionless)
DODS1	Domestic oil- Deregulation schedule option 1	(Dimensionless)

DODS1T	Domestic oil-	Deregulation schedule 1 table	(Table)
DODS2	Domestic oil-	Deregulation schedule option 2	(Dimensionless)
DODS2T	Domestic oil-	Deregulation schedule 2 table	(Table)
DODSS	Domestic oil-	Deregulation schedule switch	(Dimensionless)
DODWP	Domestic oil-	Desired wellhead price	(\$/Btu)
DODYI	Domestic oil-	Deregulation year initial	(Year)
DOEAT	Domestic oil-	Economic averaging time	(Year)
DOEF	Domestic oil-	Equity fraction	(Fraction)
DOEFA	Domestic oil-	External funds available	(\$/Yr)
DOEP1T	Domestic oil-	EPCA1 table	(Table)
DOEP2T	Domestic oil-	EPCA2 table	(Table)
DOEPCA1	Domestic oil-	EPCA wellhead price 1977-1985	(\$/Btu)
DOEPCA2	Domestic oil-	EPCA regulated price 1985-2010	(\$/Btu)
DOEQ	Domestic oil-	Equity	(\$)
DOERWP	Domestic oil-	EPCA regulated wellhead price	(\$/Btu)
DOFA	Domestic oil-	Funds available	(\$/Yr)
DOFCE	Domestic oil-	Fraction to capital expenditures	(Fraction)
DOFCEN	Domestic oil-	Fraction to capital expenditures normal	(Fraction)
DOFCET	Domestic oil-	Fraction to capital expenditures table	(Table)
DOFN	Domestic oil-	Funds needed	(\$/Yr)
DOFPA	Domestic oil-	Future physical assets	(\$)
DOGA	Domestic oil-	Gross assets	(\$)
DOGAR	Domestic oil-	Gross asset retirements	(\$/Yr)
DOGD	Domestic oil-	Gross demand	(Btu/Yr)
DOGR	Domestic oil-	Growth rate	(Fraction/Yr)
DOGR1	Domestic oil-	Growth rate table	(Table)
DOGS	Domestic oil-	Government subsidy	(\$/Btu)
DOHROEN	Domestic oil-	Historical return on equity normal	(Fraction/Yr)
DOIF	Domestic oil-	Internal funds	(\$/Yr)
DOINT	Domestic oil-	Interest	(\$/Yr)
DOINV	Domestic oil-	Investment	(\$/Yr)
DOIR	Domestic oil-	Interest rate	(Fraction/Yr)
DOIRN	Domestic oil-	Interest rate normal	(Fraction/Yr)
DOITC	Domestic oil-	Investment tax credit	(Fraction)
DOIWP	Domestic oil-	Indicated wellhead price	(\$/Btu)
DONA	Domestic oil-	Net assets	(\$)
DONI	Domestic oil-	Net income	(\$/Yr)
DONPA	Domestic oil-	Normal physical assets	(\$)
DONPC	Domestic oil-	New plants completed	(\$/Yr)
DOPA	Domestic oil-	Physical assets	(\$)
DOPAMI	Domestic oil-	Physical assets of a mature industry	(\$)
DOPC	Domestic oil-	Production capacity	(Btu/Yr)
DOPLAY	Domestic oil-	Price-level accounting initiation year	(Year)
DOPMM	Domestic oil-	Price multiplier	(Dimensionless)
DOPM1T	Domestic oil-	Price multiplier table	(Table)
DOPMN	Domestic oil-	Profit margin normal	(\$/Btu)
DOPR	Domestic oil-	Production rate	(Btu/Yr)
DOPROEN	Domestic oil-	Policy return on equity normal	(Fraction/Yr)
DOPUC	Domestic oil-	Plants under construction	(\$)
DORÉV	Domestic oil-	Revenue	(\$/Yr)
DOROEN	Domestic oil-	Normal return on equity	(Fraction/Yr)
DOROI	Domestic oil-	Return on investment	(Fraction/Yr)
DOROIN	Domestic oil-	Return on investment normal	(Fraction/Yr)
DOROIR	Domestic oil-	Return on investment real	(Fraction/Yr)
DOROIX	Domestic oil-	Return on investment index	(Dimensionless)
DORPY	Domestic oil-	ROE regulation policy initiation year	(Year)
DORRW1P	Domestic oil-	Return-regulated wellhead price	(\$/Btu)
DORWP	Domestic oil-	Regulated wellhead price	(\$/Btu)
DOSCHT	Domestic oil-	Secondary constraint multiplier table	(Table)
DOSPA	Domestic oil-	Smoothed physical assets	(\$)
DOSPAI	Domestic oil-	Smoothed physical assets initial	(\$)
DOTGR	Domestic oil-	Time for growth rate	(Year)
DOTR	Domestic oil-	Tax rate	(Fraction)
DOUWP	Domestic oil-	Unregulated wellhead price	(\$/Btu)
DOVLI	Domestic oil-	Value loss due to inflation	(\$/Yr)
DOVET	Domestic oil-	Wellhead excess profits tax	(\$/Btu)
DOVETY	Domestic oil-	Wellhead excess profits tax initiation year	(Year)
DOWF	Domestic oil-	Weighting factor	(Dimensionless)
DOWP	Domestic oil-	Wellhead price	(\$/Btu)

DOWPPR	Domestic bil- Windfall profit production	(Btu/Yr)
DSCR	Decentralized solar- Consumption rate	(Btu/Yr)
DSDMI	Decentralized solar- Demand multiplier from income	(Dimensionless)
DSDMIT	Decentralized solar- Demand multiplier from income table	(Table)
DSDMP	Decentralized solar- Demand multiplier from price	(Dimensionless)
DSDMPT	Decentralized solar- Demand multiplier from price table	(Table)
DSEUD	Decentralized solar- End-use demand	(Btu/Yr)
DSP	Decentralized solar- Price	(\$/Btu)
DSPR75	Decentralized solar- Price in 1975	(\$/Btu)
ESPTT	Decentralized solar- Price table	(Table)
ECACC	Emission controlled coal- Average capital cost	(\$/(Btu/Yr))
ECAGR	Emission controlled coal- Assets for growth rate	(\$)
ECARF	Emission controlled coal- Asset retirement factor	(Fraction/Yr)
ECCE	Emission controlled coal- Capital cost	(\$/(Btu/Yr))
ECCCP	Emission controlled coal- Capital cost of production plant	(\$/(Btu/Yr))
ECCCR	Emission controlled coal- Capital charge rate	(Fraction/Yr)
ECCCR	Emission controlled coal- Capital charge due to interest under const.	(Fraction/Yr)
ECCCT	Emission controlled coal- Capital cost table	(Table)
ECCDCT	Emission controlled coal- Construction delay change implementation time	(Year)
ECCDCY	Emission controlled coal- Construction delay change year	(Year)
ECCE	Emission controlled coal- Conversion efficiency	(Dimensionless)
ECCET	Emission controlled coal- Conversion efficiency table	(Table)
ECCST	Emission controlled coal- Cost	(\$/Yr)
ECCUFP	Emission controlled coal- Capacity utilization factor for planning	(Fraction)
ECDC	Emission controlled coal- Demand for coal	(Btu/Yr)
ECEIDC	Emission controlled coal- Excess charge due to interest under const.	(Fraction/Yr)
ECFCR	Emission controlled coal- Facility completion rate	(\$/Yr)
ECFCST	Emission controlled coal- Feedstock cost	(\$/Btu)
ECFCT	Emission controlled coal- Facility construction time	(Year)
ECFCTT	Emission controlled coal- Facility construction time table	(Table)
ECGR	Emission controlled coal- Growth rate	(Fraction/Yr)
ECINV	Emission controlled coal- Investment	(\$/Yr)
ECMCST	Emission controlled coal- Marginal cost	(\$/Btu)
EOMC	Emission controlled coal- Operating and maintenance <O&M> cost	(\$/Btu)
ECPA	Emission controlled coal- Physical assets	(\$)
ECPAR	Emission controlled coal- Physical asset retirements	(\$/Yr)
ECPC	Emission controlled coal- Production capacity	(Btu/Yr)
ECPR	Emission controlled coal- Production rate	(Btu/Yr)
ECPUC	Emission controlled coal- Plants under construction	(\$)
ECSCC	Emission controlled coal- Specific capital cost	(\$/(Btu/Yr))
ECSCH	Emission controlled coal- Secondary constraint multiplier	(Dimensionless)
EOAGR	Enhanced oil- Assets for growth rate	(\$)
EOARF	Enhanced oil- Asset retirement factor	(Fraction/Yr)
EOAW	Enhanced oil- Allocation weight	(Dimensionless)
EOCC	Enhanced oil- Capital cost	(\$/(Btu/Yr))
EOCCF	Enhanced oil- Capital cost factor	(Fraction/Yr)
EOCCR	Enhanced oil- Capital charge rate	(Fraction/Yr)
EOCCRR	Enhanced oil- Capital charge due to risk	(Fraction/Yr)
EOCP	Enhanced oil- Capital productivity	((Btu/Yr)/\$)
EOCPN	Enhanced oil- Capital productivity normal	((Btu/Yr)/\$)
EOCST	Enhanced oil- Cost	(\$/Yr)
EOCY	Enhanced oil- Commercialization year	(Year)
EODMT	Enhanced oil- Depletion multiplier table	(Table)
EOECR	Enhanced oil- Excess charge due to risk	(Fraction/Yr)
EOFCR	Enhanced oil- Facility completion rate	(\$/Yr)
EOFCT	Enhanced oil- Facility construction time	(Year)
EOGR	Enhanced oil- Growth rate	(Fraction/Yr)
EOGS	Enhanced oil- Government subsidy	(\$/Btu)
EOINV	Enhanced oil- Investment	(\$/Yr)
EOLGY	Enhanced oil- Loan guarantee initiation year	(Year)
EOMCST	Enhanced oil- Marginal cost	(\$/Btu)
EOMC	Enhanced oil- Operating and maintenance <O&M> cost	(\$/Btu)
EOPA	Enhanced oil- Physical assets	(\$)
EOPAR	Enhanced oil- Physical asset retirements	(\$/Yr)
EOPC	Enhanced oil- Production capacity	(Btu/Yr)
EOPR	Enhanced oil- Production rate	(Btu/Yr)
EOPSY	Enhanced oil- Price-support initiation year	(Year)
EOPUC	Enhanced oil- Plants under construction	(\$)
EOR	Enhanced oil- Resources	(Btu)

EORDR	Enhanced oil-	Reserves depletion rate	(Btu/Yr)
EORI	Enhanced oil-	Resources initial	(Btu)
EOSCC	Enhanced oil-	Specific capital cost	(\$/(Btu/Yr))
EOSCM	Enhanced oil-	Secondary constraint multiplier	(Dimensionless)
EOSP	Enhanced oil-	Support price	(\$/Btu)
EOWEY	Enhanced oil-	Wellhead excess tax for enhanced recovery year	(Year)
FBACC	Fluidized bed	coal electric- Average capital cost	(\$/(Btu/Yr))
FBAGR	Fluidized bed	coal electric- Assets for growth rate	(\$)
FBARF	Fluidized bed	coal electric- Asset retirement factor	(Fraction/Yr)
FBAW	Fluidized bed	coal electric- Allocation weight	(Dimensionless)
FBCC	Fluidized bed	coal electric- Capital cost	(\$/(Btu/Yr))
FBCCP	Fluidized bed	coal electric- Capital cost of production plant	(\$/(Btu/Yr))
FBCCR	Fluidized bed	coal electric- Capital charge rate	(Fraction/Yr)
FBCCRC	Fluidized bed	coal electric- Capital charge due to interest under const.	(Fraction/Yr)
FBCCRR	Fluidized bed	coal electric- Capital charge due to risk	(Fraction/Yr)
FBCE	Fluidized bed	coal electric- Conversion efficiency	(Dimensionless)
FB CST	Fluidized bed	coal electric- Cost	(\$/Yr)
FB CUF	Fluidized bed	coal electric- Capacity utilization factor for planning	(Fraction)
FB CY	Fluidized bed	coal electric- Commercialization year	(Year)
FBDC	Fluidized bed	coal electric- Demand for coal	(Btu/Yr)
FB ECR	Fluidized bed	coal electric- Excess charge due to risk	(Fraction/Yr)
FB FCR	Fluidized bed	coal electric- Facility completion rate	(\$/Yr)
FB F CST	Fluidized bed	coal electric- Feedstock cost	(\$/Btu)
FB FCT	Fluidized bed	coal electric- Facility construction time	(Year)
FBGR	Fluidized bed	coal electric- Growth rate	(Fraction/Yr)
FB INV	Fluidized bed	coal electric- Investment	(\$/Yr)
FB LGY	Fluidized bed	coal electric- Loan guarantee initiation year	(Year)
FB MCST	Fluidized bed	coal electric- Marginal cost	(\$/Btu)
FB MC	Fluidized bed	coal electric- Operating and maintenance <O&M> cost	(\$/Btu)
FB PA	Fluidized bed	coal electric- Physical assets	(\$)
FB PAR	Fluidized bed	coal electric- Physical asset retirements	(\$/Yr)
FB PC	Fluidized bed	coal electric- Production capacity	(Btu/Yr)
FB PR	Fluidized bed	coal electric- Production rate	(Btu/Yr)
FB PUC	Fluidized bed	coal electric- Plants under construction	(\$)
FB SCC	Fluidized bed	coal electric- Specific capital cost	(\$/(Btu/Yr))
FB SCM	Fluidized bed	coal electric- Secondary constraint multiplier	(Dimensionless)
GE FCF	Gas electric-	Fuel cost factor	(\$/Btu)
GE F CST	Gas electric-	Feedstock cost	(\$/Btu)
HE PR	Hydro electric-	Production rate	(Btu/Yr)
HE PRT	Hydro electric-	Production rate table	(Table)
HGAGR	High-Btu gas-	Assets for growth rate	(\$)
HGARF	High-Btu gas-	Asset retirement factor	(Fraction/Yr)
HGAW	High-Btu gas-	Allocation weight	(Dimensionless)
HGCC	High-Btu gas-	Capital cost	(\$/(Btu/Yr))
HG CDCY	High-Btu gas-	Construction delay change year	(Year)
HGCE	High-Btu gas-	Conversion efficiency	(Dimensionless)
HGCP	High-Btu gas-	Capital productivity	((Btu/Yr)/\$)
HG CST	High-Btu gas-	Cost	(\$/Yr)
HGDC	High-Btu gas-	Demand for coal	(Btu/Yr)
HG DMS	High-Btu gas-	Desired market share	(Fraction)
HG ECR	High-Btu gas-	Excess charge due to risk	(Fraction/Yr)
HG E IDC	High-Btu gas-	Excess charge due to interest under const.	(Fraction/Yr)
HG FCR	High-Btu gas-	Facility completion rate	(\$/Yr)
HG F CST	High-Btu gas-	Feedstock cost	(\$/Btu)
HG FCT	High-Btu gas-	Facility construction time	(Year)
HG GRI	High-Btu gas-	Growth rate indicated	(Fraction/Yr)
HG GS	High-Btu gas-	Government subsidy	(\$/Btu)
HG INV	High-Btu gas-	Investment	(\$/Yr)
HG LGY	High-Btu gas-	Loan guarantee initiation year	(Year)
HG MCST	High-Btu gas-	Marginal cost	(\$/Btu)
HG MC	High-Btu gas-	Operating and maintenance <O&M> cost	(\$/Btu)
HG PA	High-Btu gas-	Physical assets	(\$)
HG PAR	High-Btu gas-	Physical asset retirements	(\$/Yr)
HG PC	High-Btu gas-	Production capacity	(Btu/Yr)
HG PR	High-Btu gas-	Production rate	(Btu/Yr)
HG PSY	High-Btu gas-	Price-support initiation year	(Year)
HG PUC	High-Btu gas-	Plants under construction	(\$)
HG SCC	High-Btu gas-	Specific capital cost	(\$/(Btu/Yr))
HG SCM	High-Btu gas-	Secondary constraint multiplier	(Dimensionless)

HGSCST	High-Btu gas- Support cost	(\$/Btu)
HGSP	High-btu gas- Support price	(\$/Btu)
HTPR	Hydrothermal electric- Production rate	(Btu/Yr)
HTPRT	Hydrothermal electric- Production rate table	(Table)
LNCL	Liquified natural gas- Contract life	(Year)
LNCR	Liquified natural gas- Consumption rate	(Btu/Yr)
LNCRM	Liquified natural gas- Consumption rate maximum	(Btu/Yr)
LNCRT	Liquified natural gas- Consumption rate table	(Table)
LNDALE	Liquified natural gas- Desired additions to long term contracts	(Btu/Yr)
LNLCIR	Liquified natural gas- Indicated long term contract initiation rate	(Btu/Yr)
LNLCAT	Liquified natural gas- Long term contract adjustment time	(Year)
LNLCER	Liquified natural gas- Long term contract expiration rate	((Btu/Yr)/Yr)
LNLCIR	Liquified natural gas- Long term contract initiation rate	((Btu/Yr)/Yr)
LNLC	Liquified natural gas- New long term contracts	(Btu/Yr)
LNWP	Liquified natural gas- Wellhead price	(\$/Btu)
LNWPT	Liquified natural gas- Wellhead price table	(Table)
LWACC	Light water nuclear electric- Average capital cost	(\$/(Btu/Yr))
LWAGR	Light water nuclear electric- Assets for growth rate	(\$)
LWARF	Light water nuclear electric- Asset retirement factor	(Fraction/Yr)
LWAW	Light water nuclear electric- Allocation weight	(Dimensionless)
LWBR	Light water nuclear electric- Breeding ratio	(Dimensionless)
LWCC	Light water nuclear electric- Capital cost	(\$/(Btu/Yr))
LWCCP	Light water nuclear electric- Capital cost of production plant	(\$/(Btu/Yr))
LWCCR	Light water nuclear electric- Capital charge rate	(Fraction/Yr)
LWCCRC	Light water nuclear electric- Capital charge due to interest under const.	(Fraction/Yr)
LWCT	Light water nuclear electric- Capital cost table	(Table)
LWCE	Light water nuclear electric- Conversion efficiency	(Dimensionless)
LWCT	Light water nuclear electric- Cost	(\$/Yr)
LWCUFP	Light water nuclear electric- Capacity utilization factor for planning	(Fraction)
LWY	Light water nuclear electric- Commercialization year	(Year)
LWDRF	Light water nuclear electric- Demand for reactor fuel	(Btu/Yr)
LWEFF	Light water nuclear electric- Excess fuel factor	(Fraction)
LWEFFN	Light water nuclear electric- Excess fuel factor normal	(Fraction)
LWEIDC	Light water nuclear electric- Excess charge due to interest under const.	(Fraction/Yr)
LWERR	Light water nuclear electric- Environmental risk rate	(Fraction/Yr)
LWERRT	Light water nuclear electric- Environmental risk rate table	(Table)
LWERY	Light water nuclear electric- Environmental risk rate initiation year	(Year)
LWFCR	Light water nuclear electric- Facility completion rate	(\$/Yr)
LWFCST	Light water nuclear electric- Feedstock cost	(\$/Btu)
LWGR	Light water nuclear electric- Growth rate	(Fraction/Yr)
LWINV	Light water nuclear electric- Investment	(\$/Yr)
LWMCST	Light water nuclear electric- Marginal cost	(\$/Btu)
LWNY	Light water nuclear electric- Moratorium initiation year	(Year)
LWOMC	Light water nuclear electric- Operating and maintenance <O&M> cost	(\$/Btu)
LWPA	Light water nuclear electric- Physical assets	(\$)
LWPAR	Light water nuclear electric- Physical asset retirements	(\$/Yr)
LWPC	Light water nuclear electric- Production capacity	(Btu/Yr)
LWPR	Light water nuclear electric- Production rate	(Btu/Yr)
LWPUC	Light water nuclear electric- Plants under construction	(\$)
LWSCC	Light water nuclear electric- Specific capital cost	(\$/(Btu/Yr))
LWSCM	Light water nuclear electric- Secondary constraint multiplier	(Dimensionless)
LWTFCR	Light water nuclear electric- Total fuel conversion rate	(Btu/Yr)
MGAGR	Low/medium Btu gas- Assets for growth rate	(\$)
MGARF	Low/medium Btu gas- Asset retirement factor	(Fraction/Yr)
MGAW	Low/medium Btu gas- Allocation weight	(Dimensionless)
MGCC	Low/medium Btu gas- Capital cost	(\$/(Btu/Yr))
MGCDY	Low/medium Btu gas- Construction delay change year	(Year)
MGCE	Low/medium Btu gas- Conversion efficiency	(Dimensionless)
MGCP	Low/medium Btu gas- Capital productivity	((Btu/Yr)/\$)
MGCST	Low/medium Btu gas- Cost	(\$/Yr)
MGDC	Low/medium Btu gas- Demand for coal	(Btu/Yr)
MGDM	Low/medium Btu gas- Desired market share	(Fraction)
MGEER	Low/medium Btu gas- Excess charge due to risk	(Fraction/Yr)
MGEIDC	Low/medium Btu gas- Excess charge due to interest under const.	(Fraction/Yr)
MGFCR	Low/medium Btu gas- Facility completion rate	(\$/Yr)
MGFCST	Low/medium Btu gas- Feedstock cost	(\$/Btu)
MGFCT	Low/medium Btu gas- Facility construction time	(Year)
MGGRI	Low/medium Btu gas- Growth rate indicated	(Fraction/Yr)
MGGS	Low/medium Btu gas- Government subsidy	(\$/Btu)

MGINV	Low/medium Btu gas-	Investment	(\$/Yr)
MGLGY	Low/medium Btu gas-	Loan guarantee initiation year	(Year)
MGNCS	Low/medium Btu gas-	Marginal cost	(\$/Btu)
MGMMS	Low/medium Btu gas-	Multiplier from market share	(Dimensionless)
MGMMS	Low/medium Btu gas-	Multiplier from market share table	(Table)
MGOMC	Low/medium Btu gas-	Operating and maintenance <O&M> cost	(\$/Btu)
MGPA	Low/medium Btu gas-	Physical assets	(\$)
MGPAP	Low/medium Btu gas-	Physical asset retirements	(\$/Yr)
MGPC	Low/medium Btu gas-	Production capacity	(Btu/Yr)
MGPR	Low/medium Btu gas-	Production rate	(Btu/Yr)
MGPSY	Low/medium Btu gas-	Price-support initiation year	(Year)
MGPUC	Low/medium-btu gas-	Plants under construction	(\$)
MGSCC	Low/medium Btu gas-	Specific capital cost	(\$/(Btu/Yr))
MGSCM	Low/medium Btu gas-	Secondary constraint multiplier	(Dimensionless)
MGSCST	Low/medium Btu gas-	Support cost	(\$/Btu)
MGSP	Low/medium-btu gas-	Support price	(\$/Btu)
NCACC	Non-Emission controlled coal-	Average capital cost	(\$/(Btu/Yr))
NCACCI	Non-Emission controlled coal-	Average capital cost initial	(\$/(Btu/Yr))
NCAGR	Non-Emission controlled coal-	Assets for growth rate	(\$)
NCARF	Non-Emission controlled coal-	Asset retirement factor	(Fraction/Yr)
NCCC	Non-Emission controlled coal-	Capital cost	(\$/(Btu/Yr))
NCCCP	Non-Emission controlled coal-	Capital cost of production plant	(\$/(Btu/Yr))
NCCCR	Non-Emission controlled coal-	Capital charge rate	(Fraction/Yr)
NCCCR	Non-Emission controlled coal-	Capital charge due to interest under const.	(Fraction/Yr)
NCCCT	Non-Emission controlled coal-	Capital cost table	(Table)
NCCDCT	Non-Emission controlled coal-	Construction delay change implementation time	(Year)
NCCDCY	Non-Emission controlled coal-	Construction delay change year	(Year)
NCCE	Non-Emission controlled coal-	Conversion efficiency	(Dimensionless)
NCCET	Non-Emission controlled coal-	Conversion efficiency table	(Table)
NCCST	Non-Emission controlled coal-	Cost	(\$/Yr)
NCCUFP	Non-Emission controlled coal-	Capacity utilization factor for planning	(Fraction)
NCD	Non-Emission controlled coal-	Demand for coal	(Btu/Yr)
NCEIDC	Non-Emission controlled coal-	Excess charge due to interest under const.	(Fraction/Yr)
NCFCR	Non-Emission controlled coal-	Facility completion rate	(\$/Yr)
NCFCST	Non-Emission controlled coal-	Feedstock cost	(\$/Btu)
NCFFT	Non-Emission controlled coal-	Facility construction time	(Year)
NCFFT	Non-Emission controlled coal-	Facility construction time table	(Table)
NCCR	Non-Emission controlled coal-	Growth rate	(Fraction/Yr)
NCINV	Non-Emission controlled coal-	Investment	(\$/Yr)
NCINVI	Non-Emission controlled coal-	Investment initial	(\$/Yr)
NCMCST	Non-Emission controlled coal-	Marginal cost	(\$/Btu)
NCMS	Non-Emission controlled coal-	Moratorium schedule	(Fraction)
NCMST	Non-Emission controlled coal-	Moratorium schedule table	(Table)
NCMT	Non-Emission controlled coal-	Moratorium delay time	(Year)
NCMY	Non-Emission controlled coal-	Moratorium initiation year	(Year)
NCOMC	Non-Emission controlled coal-	Operating and maintenance <O&M> cost	(\$/Btu)
NCPA	Non-Emission controlled coal-	Physical assets	(\$)
NCPAI	Non-Emission controlled coal-	Physical assets initial	(\$)
NCPAR	Non-Emission controlled coal-	Physical asset retirements	(\$/Yr)
NCP	Non-Emission controlled coal-	Production capacity	(Btu/Yr)
NCPR	Non-Emission controlled coal-	Production rate	(Btu/Yr)
NCPUC	Non-emission controlled coal-	Plants under construction	(\$)
NCSCC	Non-Emission controlled coal-	Specific capital cost	(\$/(Btu/Yr))
NCSCM	Non-Emission controlled coal-	Secondary constraint multiplier	(Dimensionless)
NEAAT	Net energy-	Availability averaging time	(Year)
NEAP	Net energy-	Average price	(\$/Btu)
NEAP50	Net energy-	Average price in 1950	(\$/Btu)
NECD	Net energy-	Centralized demand	(Btu/Yr)
NECDR	Net energy-	Consumption demand ratio	(Dimensionless)
NECR	Net energy-	Consumption rate	(Btu/Yr)
NECSDT	Net energy-	Conservation savings development time	(Year)
NECSY	Net energy-	Conservation savings initiation year	(Year)
NED	Net energy-	Demand	(Btu/Yr)
NED50	Net energy-	Demand in 1950	(Btu/Yr)
NEDAT	Net energy-	Demand adjustment time	(Year)
NEDD	Net energy-	Decentralized demand	(Btu/Yr)
NEDMA	Net energy-	Demand multiplier from availability	(Dimensionless)
NEDMI	Net energy-	Demand multiplier from income	(Dimensionless)
NEDMP	Net energy-	Demand multiplier from price	(Dimensionless)

NEDP	Net energy- Delivered price	(\$/Btu)
NEID	Net energy- Indicated demand	(Btu/Yr)
NEIE	Net energy- Income elasticity	(Dimensionless)
NEOCS	Net energy- Oil conservation savings	(Fraction/Yr)
NEOCSY	Net energy- Oil conservation savings year	(Year)
NEPCS	Net energy- Policy conservation savings	(Fraction/Yr)
NEPD	Net energy- Potential demand	(Btu/Yr)
NEPE	Net energy- Price elasticity	(Dimensionless)
NEPXT	Net energy- Policy excise tax	(\$/Btu)
NEXTY	Net energy- Excise tax initiation year	(Year)
NGFCT	Natural gas- Facility construction time	(Year)
NOCCR	Natural oil- Capital charge rate	(Fraction/Yr)
NUCDCT	Nuclear utilities- Construction delay change implementation time	(Year)
NUCDCY	Nuclear utilities- Construction delay change year	(Year)
NUFCT	Nuclear utilities- Facility construction time	(Year)
NUFCTT	Nuclear utilities- Facility construction time table	(Table)
OCCIR	Oil/gas-to-coal fired electric- Conversion rate indicated	(\$/Yr)
OCCVR	Oil/gas-to-coal fired electric- Conversion rate	(\$/Yr)
OCCYC	Oil/gas-to-coal fired electric- Conversion year completed	(Year)
OCCYI	Oil/gas-to-coal fired electric- Conversion year initial	(Year)
OCGC77	Oil/gas-to-coal fired electric- Generating capacity in 1977	(Btu/Yr)
OEFCF	Oil electric- Fuel cost factor	(\$/Btu)
OEFCST	Oil electric- Feedstock cost	(\$/Btu)
OOP	OPEC oil- Price	(\$/Btu)
OOP1	OPEC oil- Low price scenario	(\$/Bbl)
OOP1T	OPEC oil- Low price scenario price table	(Table)
OOP2	OPEC oil- Mid price scenario	(\$/Bbl)
OOP2T	OPEC oil- Mid price scenario price table	(Table)
OOP3	OPEC oil- High price scenario	(\$/Bbl)
OOP32	OPEC oil- Switch for pricing policy	(Dimensionless)
OOP3T	OPEC oil- High price scenario price table	(Table)
OOPA79	OPEC oil- Price alternative in 1979	(\$/Bbl)
OOPDR	OPEC oil- Production demand ratio	(Dimensionless)
OOPPB	OPEC oil- Price per barrel	(\$/Bbl)
OTACC	Ocean thermal electric- Average capital cost	(\$/(Btu/Yr))
OTAGR	Ocean thermal electric- Assets for growth rate	(\$)
OTARF	Ocean thermal electric- Asset retirement factor	(Fraction/Yr)
OTAW	Ocean thermal electric- Allocation weight	(Dimensionless)
OTCC	Ocean thermal electric- Capital cost	(\$/(Btu/Yr))
OTCCP	Ocean thermal electric- Capital cost of production plant	(\$/(Btu/Yr))
OTCCR	Ocean thermal electric- Capital charge rate	(Fraction/Yr)
OTCCRR	Ocean thermal electric- Capital charge due to risk	(Fraction/Yr)
OTCCT	Ocean thermal electric- Capital cost table	(Table)
OTCST	Ocean thermal electric- Cost	(\$/Yr)
OTCUFP	Ocean thermal electric- Capacity utilization factor for planning	(Fraction)
OTCY	Ocean thermal electric- Commercialization year	(Year)
OTECR	Ocean thermal electric- Excess charge due to risk	(Fraction/Yr)
OTFCR	Ocean thermal electric- Facility completion rate	(\$/Yr)
OTFCT	Ocean thermal electric- Facility construction time	(Year)
OTGR	Ocean thermal electric- Growth rate	(Fraction/Yr)
OTINV	Ocean thermal electric- Investment	(\$/Yr)
OTLGY	Ocean thermal electric- Loan guarantee initiation year	(Year)
OTMCST	Ocean thermal electric- Marginal cost	(\$/Btu)
OTOMC	Ocean thermal electric- Operating and maintenance <O&M> cost	(\$/Btu)
OTPA	Ocean thermal electric- Physical assets	(\$)
OTPAR	Ocean thermal electric- Physical asset retirements	(\$/Yr)
OTPC	Ocean thermal electric- Production capacity	(Btu/Yr)
OTPR	Ocean thermal electric- Production rate	(Btu/Yr)
OTPUC	Ocean thermal electric- Plants under construction	(\$)
OTSCC	Ocean thermal electric- Specific capital cost	(\$/(Btu/Yr))
OTSCM	Ocean thermal electric- Secondary constraint multiplier	(Dimensionless)
OTTDCC	Ocean thermal electric- Transmission and distribution capital cost	(\$/(Btu/Yr))
OUACC	Oil/gas utilities- Average capital cost	(\$/(Btu/Yr))
OUACCI	Oil/gas utilities- Average capital cost initial	(\$/(Btu/Yr))
OUAGR	Oil/gas utilities- Assets for growth rate	(\$)
OUARF	Oil/gas utilities- Asset retirement factor	(Fraction/Yr)
OUAW	Oil/gas utilities- Allocation weight	(Dimensionless)
OUCC	Oil/gas utilities- Capital cost	(\$/(Btu/Yr))
OUCCP	Oil/gas utilities- Capital cost of production plant	(\$/(Btu/Yr))

OUCCR	Oil/gas utilities- Capital charge rate	(Fraction/Yr)
OUCCT	Oil/gas utilities- Capital cost table	(Table)
OUCCE	Oil/gas utilities- Conversion efficiency	(Dimensionless)
OUCMP	Oil/gas utilities- Capacity multiplier from peaking	(Fraction)
OUCMPT	Oil/gas utilities- Capacity multiplier from peaking table	(Table)
OUCST	Oil/gas utilities- Cost	(\$/Yr)
OUCUFP	Oil/gas utilities- Capacity utilization factor for planning	(Fraction)
OUCY	Oil/gas utilities- Commercialization year	(Year)
OU DG	Oil/gas utilities- Demand for gas	(Btu/Yr)
OU DO	Oil/gas utilities- Demand for oil	(Btu/Yr)
OU DOG	Oil/gas utilities- Demand for oil and gas	(Btu/Yr)
OUF CR	Oil/gas utilities- Facility completion rate	(\$/Yr)
OUF CST	Oil/gas utilities- Feedstock cost	(\$/Btu)
OUF CT	Oil/gas utilities- Facility construction time	(Year)
OUF DG	Oil/gas utilities- Fraction demanded as gas	(Fraction)
OUF DGT	Oil/gas utilities- Fraction demanded as gas table	(Table)
OUG R	Oil/gas utilities- Growth rate	(Fraction/Yr)
OUI NV	Oil/gas utilities- Investment	(\$/Yr)
OUI NVI	Oil/gas utilities- Investment initial	(\$/Yr)
OUM CST	Oil/gas utilities- Marginal cost	(\$/Btu)
OUM Y	Oil/gas utilities- Moratorium initiation year	(Year)
OUM C	Oil/gas utilities- Operating and maintenance <O&M> cost	(\$/Btu)
OUP A	Oil/gas utilities- Physical assets	(\$)
OUP AI	Oil/gas utilities- Physical assets initial	(\$)
OUP AR	Oil/gas utilities- Physical asset retirements	(\$/Yr)
OUP C	Oil/gas utilities- Production capacity	(Btu/Yr)
OUP DR	Oil/gas utilities- Production demand ratio	(Dimensionless)
OUP R	Oil/gas utilities- Production rate	(Btu/Yr)
OUP UC	Oil/gas utilities- Plants under construction	(\$)
OUS CC	Oil/gas utilities- Specific capital cost	(\$/(Btu/Yr))
OUS CM	Oil/gas utilities- Secondary constraint multiplier	(Dimensionless)
PCASE	Price case	(Dimensionless)
PFRR	Plutonium fuel- Recycle rate	(Btu/Yr)
PGCL	Pan-am gas- Contract life	(Year)
PGCR	Pan-am gas- Consumption rate	(Btu/Yr)
PGCRM	Pan-Am gas- Consumption rate minimum	(Btu/Yr)
PGCRT	Pan-am gas- Consumption rate table	(Table)
PGDALC	Pan-am gas- Desired additions to long term contracts	(Btu/Yr)
PGILCIR	Pan-am gas- Initiated long term contract initiation rate	(Btu/Yr)
PGLCAT	Pan-am gas- Long term contract adjustment time	(Year)
PGLCER	Pan-am gas- Long term contract expiration rate	(Btu/Yr)
PGLCIR	Pan-am gas- Long term contract initiation rate	(Btu/Yr)
PGNLC	Pan-am gas- New long term contracts	(Btu)
PGWP	Pan-am gas- Wellhead price	(\$/Btu)
POPR	Pan-Am oil- Production rate	(Btu/Yr)
POPRM	Pan-Am oil- Production rate maximum	(Btu/Yr)
POPRMT	Pan-Am oil- Production rate maximum table	(Table)
PVACC	Photovoltaic electric- Average capital cost	(\$/(Btu/Yr))
PVAGR	Photovoltaic electric- Assets for growth rate	(\$)
PVARF	Photovoltaic electric- Asset retirement factor	(Fraction/Yr)
PVAW	Photovoltaic electric- Allocation weight	(Dimensionless)
PVCC	Photovoltaic electric- Capital cost	(\$/(Btu/Yr))
PVCCP	Photovoltaic electric- Capital cost of production plant	(\$/(Btu/Yr))
PVCCR	Photovoltaic electric- Capital charge rate	(Fraction/Yr)
PVCCRR	Photovoltaic electric- Capital charge due to risk	(Fraction/Yr)
PVCCST	Photovoltaic electric- Capital cost table	(Table)
PVCST	Photovoltaic electric- Cost	(\$/Yr)
PVCUFP	Photovoltaic electric- Capacity utilization factor for planning	(Fraction)
PVCY	Photovoltaic electric- Commercialization year	(Year)
PVECR	Photovoltaic electric- Excess charge due to risk	(Fraction/Yr)
PVFCR	Photovoltaic electric- Facility completion rate	(\$/Yr)
PVFCT	Photovoltaic electric- Facility construction time	(Year)
PVGR	Photovoltaic electric- Growth rate	(Fraction/Yr)
PVINV	Photovoltaic electric- Investment	(\$/Yr)
PVLGY	Photovoltaic electric- Loan guarantee initiation year	(Year)
PVMCST	Photovoltaic electric- Marginal cost	(\$/Btu)
PVOMC	Photovoltaic electric- Operating and maintenance <O&M> cost	(\$/Btu)
PVPA	Photovoltaic electric- Physical assets	(\$)
PVPAR	Photovoltaic electric- Physical asset retirements	(\$/Yr)

PVPR	Photovoltaic electric- Production rate	(Btu/Yr)
PVPUC	Photovoltaic Electric- Plants under construction	(S)
PVSCC	Photovoltaic electric- Specific capital cost	(\$/(Btu/Yr))
PVSCM	Photovoltaic electric- Secondary constraint multiplier	(Dimensionless)
RFED	Reactor fuel- Export demand	(Btu/Yr)
RFEDT	Reactor fuel- Export demand table	(Table)
RFP	Reactor fuel- Price	(\$/Btu)
RFBM	Reactor fuel- Price markup	(\$/Btu)
RFBMT	Reactor fuel- Price markup table	(Table)
RFP	Reactor fuel- Production rate	(Btu/Yr)
RFPRT	Reactor fuel- Production rate table	(Table)
RFR	Reactor fuel- Resources	(Btu)
RFR1	Reactor fuel- Resources initial	(Btu)
SCAGR	Surface coal- Assets for growth rate	(S)
SCARF	Surface coal- Asset retirement factor	(Fraction/Year)
SCAW	Surface coal- Allocation weight	(Dimensionless)
SCCC	Surface coal- Capital cost	(\$/(Btu/Yr))
SCCCR	Surface coal- Capital charge rate	(Fraction/Yr)
SCCF	Surface coal- Cost factor	(Fraction/Yr)
SCCP	Surface coal- Capital productivity	((Btu/Yr)/S)
SCCPN	Surface coal- Capital productivity normal	((Btu/Yr)/S)
SCCST	Surface coal- Cost	(\$/Yr)
SCDCHG	Surface coal- Delivery charge	(\$/Btu)
SCDMT	Surface coal- Depletion multiplier table	(Table)
SCFCR	Surface coal- Facility completion rate	(\$/Yr)
SCGR	Surface coal- Growth rate	(Fraction/Yr)
SCINV	Surface coal- Investment	(\$/Yr)
SCINVI	Surface coal- Investment initial	(\$/Yr)
SCIRSC	Surface coal- Indicated reclamation costs	(\$/Btu)
SCMCST	Surface coal- Marginal cost	(\$/Btu)
SCMY	Surface coal- Moratorium initiation year	(Year)
SCOMC	Surface coal- Operating and maintenance <O&M> cost	(\$/Btu)
SCPA	Surface coal- Physical assets	(S)
SCPAR	Surface coal- Physical asset retirements	(\$/Yr)
SCPC	Surface coal- Production capacity	(Btu/Yr)
SCPMS	Surface coal- Productivity multiplier from safety	(Dimensionless)
SCPR	Surface coal- Production rate	(Btu/Yr)
SCPUC	Surface coal- Plants under construction	(S)
SCR	Surface coal- Resources	(Btu)
SCRDR	Surface coal- Reserves depletion rate	(Btu/Yr)
SCR1	Surface coal- Resources initial	(Btu)
SCRSC	Surface coal- Reclamation standards cost	(\$/Btu)
SCRSY	Surface coal- Reclamation standards initiation year	(Year)
SCSCC	Surface coal- Specific capital cost	(\$/(Btu/Yr))
SCSCM	Surface coal- Secondary constraint multiplier	(Dimensionless)
SCST	Surface coal- Severance tax	(\$/Btu)
SCSTPT	Surface coal- Severance tax policy time	(Year)
SCSTPY	Surface coal- Severance tax policy initiation year	(Year)
SCSTT	Surface coal- Severance tax table	(Table)
SCSTY	Surface coal- Severance tax initiation year	(Year)
SEACST	Steam electric- Average cost	(\$/Btu)
SEACUF	Steam electric- Average capacity utilization factor	(Fraction)
SEACUFT	Steam electric- Average capacity utilization table	(Table)
SEADF	Steam electric- Accumulated depreciation fraction	(Fraction)
SEAF1	Steam electric- Average facility construction time part 1	(***)
SEAF2	Steam electric- Average facility construction time part 2	(***)
SEAFCT	Steam electric- Average facility construction time	(Year)
SEALP	Steam electric- Allowed price	(\$/Btu)
SEALPI	Steam electric- Allowed price initial	(\$/Btu)
SEALROE	Steam electric- Allowed return on equity	(Fraction/Yr)
SEAR1	Steam electric- Asset retirement factor 1	(Fraction/Yr)
SEAR2	Steam electric- Asset retirement factor 2	(Fraction/Yr)
SEARF	Steam electric- Asset retirement factor	(Fraction/Yr)
SEATPA	Steam electric- Averaging time for physical assets	(Year)
SEAW	Steam electric- Allocation weight	(Dimensionless)
SEBLC	Steam electric- Book life of capital	(Year)
SECC	Steam electric- Capital cost	(\$/(Btu/Yr))
FCC1	Steam electric- Capital cost 1	(\$/(Btu/Yr))

SECC2	Steam electric-	Capital cost 2	(\$/(Btu/Yr))
SECST	Steam electric-	Cost	(\$/Yr)
SECUF	Steam electric-	Capacity utilization factor	(Fraction)
SECUFT	Steam electric-	Capacity utilization factor table	(Table)
SED	Steam electric-	Demand	(Btu/Yr)
SEDEBT	Steam electric-	Debt	(\$)
SEDEP	Steam electric-	Depreciation	(\$/Yr)
SEDF	Steam electric-	Debt fraction	(Fraction)
SEDIV	Steam electric-	Dividends	(\$/Yr)
SEDL	Steam electric-	Debt life	(Year)
SEDP	Steam electric-	Desired production capacity	(Btu/Yr)
SEDPF	Steam electric-	Dividend payout fraction	(Fraction)
SEDRNT	Steam electric-	Debt repayment	(\$/Yr)
SEEAT	Steam electric-	Economic averaging time	(Year)
SEEF	Steam electric-	Equity fraction	(Fraction)
SEEFA	Steam electric-	External funds available	(\$/Yr)
SEEIDCT	Steam electric-	Excess interest during construction table	(Table)
SEEQ	Steam electric-	Equity	(\$)
SEFA	Steam electric-	Funds available	(\$/Yr)
SEFCE	Steam electric-	Fraction to capital expenditures	(Fraction)
SEFN	Steam electric-	Funds needed	(\$/Yr)
SEFPA	Steam electric-	Future physical assets	(\$)
SEGA	Steam electric-	Gross assets	(\$)
SEGAI	Steam electric-	Gross assets initial	(\$)
SEGAR	Steam electric-	Gross asset retirements	(\$/Yr)
SEGR	Steam electric-	Growth rate	(Fraction/Yr)
SEGR	Steam electric-	Growth rate table	(Table)
SEHACUF	Steam electric-	Historical avg. capacity utilization factor	(Fraction)
SEHROE	Steam electric-	Historical return on equity	(Fraction/Yr)
SEIF	Steam electric-	Internal funds	(\$/Yr)
SEINT	Steam electric-	Interest	(\$/Yr)
SEINV	Steam electric-	Investment	(\$/Yr)
SEINVI	Steam electric-	Investment initial	(\$/Yr)
SEIR	Steam electric-	Interest rate	(Fraction/Yr)
SEIRN	Steam electric-	Interest rate normal	(Fraction/Yr)
SEITC	Steam electric-	Investment tax credit	(Fraction)
SELMFY	Steam electric-	Load management policy initiation year	(Year)
SENA	Steam electric-	Net assets	(\$)
SENI	Steam electric-	Net income	(\$/Yr)
SENP	Steam electric-	Normal physical assets	(\$)
SENPC	Steam electric-	New plants completed	(\$/Yr)
SENTM	Steam electric-	New technology cost multiplier	(Dimensionless)
SEPA	Steam electric-	Physical assets	(\$)
SEPACUF	Steam electric-	Policy avg. capacity utilization factor	(Fraction)
SEPAMI	Steam electric-	Physical assets of a mature industry	(\$)
SEPC	Steam electric-	Production capacity	(Btu/Yr)
SEPCST	Steam electric-	Production cost	(\$/Yr)
SEPCUFT	Steam electric-	PACUF table	(Table)
SEPLAS	Steam electric-	Price-level accounting schedule	(Dimensionless)
SEPLAST	Steam electric-	Price-level accounting schedule table	(Table)
SEPR	Steam electric-	Production rate	(Btu/Yr)
SEPROE	Steam electric-	Policy return on equity	(Fraction/Yr)
SEPUC	Steam electric-	Plants under construction	(\$)
SEREV	Steam electric-	Revenue	(\$/Yr)
SEROI	Steam electric-	Return on investment	(Fraction/Yr)
SEROIN	Steam electric-	Return on investment normal	(Fraction/Yr)
SEROIR	Steam electric-	Return on investment real	(Fraction/Yr)
SEROIX	Steam electric-	Return on investment index	(Dimensionless)
SERRT	Steam electric-	Regulation delay time	(Year)
SERRTT	Steam electric-	Regulation delay time table	(Table)
SERRY	Steam electric-	Rate reform initiation year	(Year)
SESCMT	Steam electric-	Secondary constraint multiplier table	(Table)
SESPA	Steam electric-	Smoothed physical assets	(\$)
SESPA	Steam electric-	Smoothed physical assets initial	(\$)
SETGR	Steam electric-	Time for growth rate	(Year)
SETR	Steam electric-	Tax rate	(Fraction)
SETRT	Steam electric-	Tax rate table	(Table)
SEUBGY	Steam electric-	Utility backout initiation year	(Year)
SEUBM	Steam electric-	Utility backout multiplier	(Dimensionless)

SEVLI	Steam electric- Value loss due to inflation	(\$/Yr)
SEWF	Steam electric- Weighting factor	(Dimensionless)
SGCCR	Synthetic gas- Capital charge rate	(Fraction/Yr)
SGCCRC	Synthetic gas- Capital charge due to interest under const.	(Fraction/Yr)
SGCCRR	Synthetic gas- Capital charge due to risk	(Fraction/Yr)
SGHFCT	Synthetic gas- Historical facility construction time	(Year)
SGPFCT	Synthetic gas- Policy facility construction time	(Year)
SHAGR	Shale oil- Assets for growth rate	(\$)
SHARF	Shale oil- Asset retirement factor	(Fraction/Yr)
SHAW	Shale oil- Allocation weight	(Dimensionless)
SHCC	Shale oil- Capital cost	(\$/(Btu/Yr))
SHCCF	Shale oil- Capital cost factor	(Fraction/Yr)
SHDCY	Shale oil- Construction delay change year	(Year)
SHCP	Shale oil- Capital productivity	((Btu/Yr)/\$)
SHCPN	Shale oil- Capital productivity normal	((Btu/Yr)/\$)
SHCST	Shale oil- Cost	(\$/Yr)
SHCY	Shale oil- Commercialization year	(Year)
SHDMS	Shale oil- Desired market share	(Fraction)
SHDMT	Shale oil- Depletion multiplier table	(Table)
SHECR	Shale oil- Excess charge due to risk	(Fraction/Yr)
SHEDC	Shale oil- Excess charge due to interest under const.	(Fraction/Yr)
SHFCR	Shale oil- Facility completion rate	(\$/Yr)
SHFCT	Shale oil- Facility construction time	(Year)
SHGR	Shale oil- Growth rate	(Fraction/Yr)
SHGS	Shale oil- Government subsidy	(\$/Btu)
SHHFCT	Shale oil- Historical facility construction time	(Year)
SHIMWC	Shale oil- Investment multiplier from water constraint	(Dimensionless)
SHIMWCT	Shale oil- Investment multiplier water constr. table	(Table)
SHINV	Shale oil- Investment	(\$/Yr)
SHLGY	Shale oil- Loan guarantee initiation year	(Year)
SHMCST	Shale oil- Marginal cost	(\$/Btu)
SHNTC	Shale oil- Ness tax credit	(\$/Btu)
SHNTCM	Shale oil- Ness tax credit multiplier	(Dimensionless)
SHNTCT	Shale oil- Ness tax credit table	(Table)
SHNTCY	Shale oil- Ness tax credit initiation year	(Year)
SHOMC	Shale oil- Operating and maintenance <O&M> cost	(\$/Btu)
SHPA	Shale oil- Physical assets	(\$)
SHPAR	Shale oil- Physical asset retirements	(\$/Yr)
SHPC	Shale oil- Production capacity	(Btu/Yr)
SHPCWC	Shale oil- Production capacity under water constraint	(Btu/Yr)
SHPFCT	Shale oil- Policy facility construction time	(Year)
SHPR	Shale oil- Production rate	(Btu/Yr)
SHPSY	Shale oil- Price-support initiation year	(Year)
SHPUC	Shale oil- Plants under construction	(\$)
SHR	Shale oil- Resources	(Btu)
SHRDR	Shale oil- Reserves depletion rate	(Btu/Yr)
SHRI	Shale oil- Resources initial	(Btu)
SHSCC	Shale oil- Specific capital cost	(\$/(Btu/Yr))
SHSCM	Shale oil- Secondary constraint multiplier	(Dimensionless)
SHSP	Shale oil- Support price	(\$/Btu)
SHST	Shale oil- Severance tax	(\$/Btu)
SNCE	Synthetic natural gas- Conversion efficiency	(Dimensionless)
SNCR	Synthetic natural gas- Consumption rate	(Btu/Yr)
SNDO	Synthetic natural gas- Demand for oil	(Btu/Yr)
SNOMC	Synthetic natural gas- Operating and maintenance <O&M> cost	(\$/Btu)
SNPR	Synthetic natural gas- Production rate	(Btu/Yr)
SNPRT	Synthetic natural gas- Production rate table	(Table)
SNWP	Synthetic natural gas- Wellhead price	(\$/Btu)
SOCCR	Synthetic oil- Capital charge rate	(Fraction/Yr)
SOCCRC	Synthetic oil- Capital charge due to interest under const.	(Fraction/Yr)
SOCCRR	Synthetic oil- Capital charge due to risk	(Fraction/Yr)
STACC	Solar thermal- Average capital cost	(\$/(Btu/Yr))
STAGR	Solar thermal- Assets for growth rate	(\$)
STARF	Solar thermal- Asset retirement factor	(Fraction/Yr)
STAW	Solar thermal- Allocation weight	(Dimensionless)
STCC	Solar thermal- Capital cost	(\$/(Btu/Yr))
STCCP	Solar thermal- Capital cost of production plant	(\$/(Btu/Yr))
STCCR	Solar thermal- Capital charge rate	(Fraction/Yr)
STCCRR	Solar thermal- Capital charge due to risk	(Fraction/Yr)

STCCT	Solar thermal- Capital cost table	(Table)
STCST	Solar thermal- Cost	(\$/Yr)
STCUFP	Solar thermal- Capacity utilization factor for planning	(Fraction)
STCY	Solar thermal- Commercialization year	(Year)
STECR	Solar thermal- Excess charge due to risk	(Fraction/Yr)
STFCR	Solar thermal- Facility completion rate	(\$/Yr)
STFCT	Solar thermal- Facility construction time	(Year)
STGR	Solar thermal- Growth rate	(Fraction/Yr)
STINV	Solar thermal- Investment	(\$/Yr)
STLGY	Solar thermal- Loan guarantee initiation year	(Year)
STMCS	Solar thermal- Marginal cost	(\$/Btu)
STOMC	Solar thermal- Operating and maintenance <O&M> cost	(\$/Btu)
STPA	Solar thermal- Physical assets	(\$)
STPAR	Solar thermal- Physical asset retirements	(\$/Yr)
STPC	Solar thermal- Production capacity	(Btu/Yr)
STPR	Solar thermal- Production rate	(Btu/Yr)
STPUC	Solar thermal- Plants under construction	(\$)
STSCC	Solar thermal- Specific capital cost	(\$/(Btu/Yr))
STSCM	Solar thermal- Secondary constraint multiplier	(Dimensionless)
TDCR	Transmission and distribution- Capital cost	(\$/(Btu/Yr))
TDCCT	Transmission and distribution- Capital cost table	(Table)
TDCST	Transmission and distribution- Cost	(\$/Yr)
TDOMC	Transmission and distribution- Operating and maintenance <O&M> cost	(\$/Btu)
TECR	Total electric- Consumption rate	(Btu/Yr)
TECSY	Total electric- Conservation savings initiation year	(Year)
TEDC	Total electric- Demand for coal	(Btu/Yr)
TEDE	Total electric- Distributional efficiency	(Fraction)
TEDMA	Total electric- Demand multiplier from availability	(Dimensionless)
TEDMI	Total electric- Demand multiplier from income	(Dimensionless)
TEDMIT	Total electric- Demand multiplier from income table	(Table)
TEDMP	Total electric- Demand multiplier from price	(Dimensionless)
TEDMPT	Total electric- Demand multiplier from price table	(Table)
TEEUD	Total electric- End-use demand	(Btu/Yr)
TEGD	Total electric- Gross demand	(Btu/Yr)
TEND	Total electric- Net demand	(Btu/Yr)
TEP	Total electric- Price	(\$/Btu)
TEPCS	Total electric- Policy conservation savings	(Fraction/Yr)
TEPDR	Total electric- Production demand ratio	(Dimensionless)
TEPI	Total electric- Price initial	(\$/Btu)
TEPM	Total electric- Price markup	(\$/Btu)
TEPR	Total electric- Production rate	(Btu/Yr)
TEPR70	Total electric- Price in 1970	(\$/Btu)
TGCR	Total gas- Consumption rate	(Btu/Yr)
TGCSY	Total gas- Conservation savings initiation year	(Year)
TGDC	Total gas- Demand for coal	(Btu/Yr)
TGDCHG	Total gas- Delivery charge	(\$/Btu)
TGDE	Total gas- Distributional efficiency	(Fraction)
TGDMA	Total gas- Demand multiplier from availability	(Dimensionless)
TGDMI	Total gas- Demand multiplier from income	(Dimensionless)
TGDMIT	Total gas- Demand multiplier from income table	(Table)
TGDMP	Total gas- Demand multiplier from price	(Dimensionless)
TGDMPT	Total gas- Demand multiplier from price table	(Table)
TGDP	Total gas- Delivered price	(\$/Btu)
TGEUD	Total gas- End-use demand	(Btu/Yr)
TGGD	Total gas- Gross demand	(Btu/Yr)
TGND	Total gas- Net demand	(Btu/Yr)
TGP	Total gas- Price	(\$/Btu)
TGPCR	Total gas- Production-consumption ratio	(Dimensionless)
TGPCS	Total gas- Policy conservation savings	(Fraction/Yr)
TGPDR	Total gas- Production demand ratio	(Dimensionless)
TGPR	Total gas- Production rate	(Btu/Yr)
TGPR70	Total gas- Price in 1970	(\$/Btu)
TGPXT	Total gas- Policy excise tax	(\$/Btu)
TGXTY	Total gas- Excise tax initiation year	(Year)
TOAWP	Total oil- Average wellhead price	(\$/Btu)
TOCR	Total oil- Consumption rate	(Btu/Yr)
TODC	Total oil- Demand for coal	(Btu/Yr)
TODCHG	Total oil- Delivery charge	(\$/Btu)
TODE	Total oil- Distributional efficiency	(Fraction)

TODP	Total oil- Delivered price	(\$/Btu)
TOEUD	Total oil- End-use demand	(Btu/Yr)
TOGD	Total oil- Gross demand	(Btu/Yr)
TOND	Total oil- Net demand	(Btu/Yr)
TOP	Total oil- Price	(\$/Btu)
TOPDR	Total oil- Production demand ratio	(Dimensionless)
TOFR	Total oil- Production rate	(Btu/Yr)
TOPXT	Total oil- Policy excise tax	(\$/Btu)
TOXTY	Total oil- Excise tax initiation year	(Year)
UCACR	Underground coal- Assets for growth rate	(\$)
UCAR	Underground coal- Adjustment rate	(Dimensionless)
UCARF	Underground coal- Asset retirement factor	(Fraction/Year)
UCAW	Underground coal- Allocation weight	(Dimensionless)
UCCC	Underground coal- Capital cost	(\$/(Btu/Yr))
UCCCR	Underground coal- Capital charge rate	(Fraction/Yr)
UCCF	Underground coal- Cost factor	(Fraction/Yr)
UCCLM	Underground coal- Capital/labor multiplier	(Dimensionless)
UCCLMT	Underground coal- Capital/labor multiplier table	(Table)
UCCLR	Underground coal- Capital-to-labor ratio	(\$-capital/Laborer)
UCCLRN	Underground coal- Capital-to-labor ratio normal	(\$-capital/Laborer)
UCCP	Underground coal- Capital productivity	((Btu/Yr)/\$)
UCCPN	Underground coal- Capital productivity normal	((Btu/Yr)/\$)
UCCST	Underground coal- Cost	(\$/Yr)
UCDMT	Underground coal- Depletion multiplier table	(Table)
UCFCP	Underground coal- Facility completion rate	(\$/Yr)
UCGR	Underground coal- Growth rate	(Fraction/Yr)
UCINV	Underground coal- Investment	(\$/Yr)
UCINVI	Underground coal- Investment initial	(\$/Yr)
UCLCST	Underground coal- Labor cost	(\$/Btu)
UCLW	Underground coal- Labor wages	(\$/Laborer-Yr)
UCLWM	Underground coal- Labor wage multiplier	(Dimensionless)
UCLWMT	Underground coal- Labor wage multiplier table	(Table)
UCLWN	Underground coal- Labor wages normal	(\$/Laborer-Yr)
UCMCST	Underground coal- Marginal cost	(\$/Btu)
UCNSS	Underground coal- Normal safety standards	(Dimensionless)
UCOMC	Underground coal- Operating and maintenance <O&M> cost	(\$/Btu)
UCPA	Underground coal- Physical assets	(\$)
UCPAR	Underground coal- Physical asset retirements	(\$/Yr)
UCPC	Underground coal- Production capacity	(Btu/Yr)
UCPMS	Underground coal- Productivity multiplier from safety	(Dimensionless)
UCPMST	Underground coal- PMS table	(Table)
UCPP	Underground coal- Production rate	(Btu/Yr)
UCPUC	Underground coal- Plants under construction	(\$)
UCR	Underground coal- Resources	(Btu)
UCRDR	Underground coal- Reserves depletion rate	(Btu/Yr)
UCRI	Underground coal- Resources initial	(Btu)
UCRSS	Underground coal- Regulated safety standards	(Dimensionless)
UCSCC	Underground coal- Specific capital cost	(\$/(Btu/Yr))
UCSCM	Underground coal- Secondary constraint multiplier	(Dimensionless)
UCTM	Underground coal- Technology multiplier	(Dimensionless)
UCTMT	Underground coal- Technology multiplier table	(Table)
UFYR	Uranium fuel- Reprocessing initiation year	(Year)
UGACE	Unconventional gas- Assets for growth rate	(\$)
UGARF	Unconventional gas- Asset retirement factor	(Fraction/Yr)
UGAW	Unconventional gas- Allocation weight	(Dimensionless)
UGCC	Unconventional gas- Capital cost	(\$/(Btu/Yr))
UGCCF	Unconventional gas- Capital cost factor	(Fraction/Yr)
UGCCP	Unconventional gas- Capital charge rate	(Fraction/Yr)
UGCCRR	Unconventional gas- Capital charge due to risk	(Fraction/Yr)
UGCP	Unconventional gas- Capital productivity	((Btu/Yr)/\$)
UGCPN	Unconventional gas- Capital productivity normal	((Btu/Yr)/\$)
UGCST	Unconventional gas- Cost	(\$/Yr)
UGCY	Unconventional gas- Commercialization year	(Year)
UGDMS	Unconventional gas- Desired market share	(Fraction)
UGDNT	Unconventional gas- Depletion multiplier table	(Table)
UGEGR	Unconventional gas- Excess charge due to risk	(Fraction/Yr)
UGFCR	Unconventional gas- Facility completion rate	(\$/Yr)
UGGRI	Unconventional gas- Growth rate indicated	(Fraction/Yr)
UGGS	Unconventional gas- Government subsidy	(\$/Btu)

UGINV	Unconventional gas- Investment	(\$/Yr)
UGMCST	Unconventional gas- Marginal cost	(\$/Btu)
UGNTC	Unconventional gas- Ness tax credit	(\$/Btu)
UGNTCM	Unconventional gas- Ness tax credit multiplier	(Dimensionless)
UGNTCY	Unconventional gas- Ness tax credit initiation year	(Year)
UGOMC	Unconventional gas- Operating and maintenance <O&M> cost	(\$/Btu)
UGPA	Unconventional gas- Physical assets	(\$)
UGPAR	Unconventional gas- Physical asset retirements	(\$/Yr)
UGPC	Unconventional gas- Production capacity	(Btu/Yr)
UGPR	Unconventional gas- Production rate	(Btu/Yr)
UGPSY	Unconventional gas- Price-support initiation year	(Year)
UGPUC	Unconventional gas- Plants under construction	(\$)
UGR	Unconventional gas- Resources	(Btu)
UGRDR	Unconventional gas- Reserves depletion rate	(Btu/Yr)
UGRI	Unconventional gas- Resources initial	(Btu)
UGSCC	Unconventional gas- Specific capital cost	(\$/(Btu/Yr))
UGSCM	Unconventional gas- Secondary constraint multiplier	(Dimensionless)
UGSCST	Unconventional gas- Support cost	(\$/Btu)
UGSP	Unconventional gas- Support price	(\$/Btu)
WEACC	Wind electric- Average capital cost	(\$/(Btu/Yr))
WEAGR	Wind electric- Assets for growth rate	(\$)
WEARF	Wind electric- Asset retirement factor	(Fraction/Yr)
WEAW	Wind electric- Allocation weight	(Dimensionless)
WECC	Wind electric- Capital cost	(\$/(Btu/Yr))
WECCP	Wind electric- Capital cost of production plant	(\$/(Btu/Yr))
WECCR	Wind electric- Capital charge rate	(Fraction/Yr)
WECCRR	Wind electric- Capital charge due to risk	(Fraction/Yr)
WECCT	Wind electric- Capital cost table	(Table)
WECST	Wind electric- Cost	(\$/Yr)
WECUFP	Wind electric- Capacity utilization factor for planning	(Fraction)
WECY	Wind electric- Commercialization year	(Year)
WEECR	Wind electric- Excess charge due to risk	(Fraction/Yr)
WEFCR	Wind electric- Facility completion rate	(\$/Yr)
WEFCT	Wind electric- Facility construction time	(Year)
WEGR	Wind electric- Growth rate	(Fraction/Yr)
WEINV	Wind electric- Investment	(\$/Yr)
WELGY	Wind electric- Loan guarantee initiation year	(Year)
WEMCST	Wind electric- Marginal cost	(\$/Btu)
WEOMC	Wind electric- Operating and maintenance <O&M> cost	(\$/Btu)
WEPA	Wind electric- Physical assets	(\$)
WEPAR	Wind electric- Physical asset retirements	(\$/Yr)
WEPC	Wind electric- Production capacity	(Btu/Yr)
WEPR	Wind electric- Production rate	(Btu/Yr)
WEPUC	Wind electric- Plants under construction	(\$)
WESCC	Wind electric- Specific capital cost	(\$/(Btu/Yr))
WESCM	Wind electric- Secondary constraint multiplier	(Dimensionless)

Variable name	Defining equation	Used in equations			
ACAW	71660 (A)	71650 (A)	ACINV	73570 (A)	SEAW
ACINV	71650 (A)	71700 (R)	NCINV	71880 (R)	ECINV
ACMGST	71670 (A)	71660 (A)	ACAW		
AGCR	34190 (A)	30290 (A)	DGGD	30340 (A)	TGPR
AGNSP	34200 (A)	34190 (A)	AGCR		30550 (A) TGP
AGNSPY	34210 (C)	34200 (A)	AGNSP		
AGSSP	34220 (A)	34190 (A)	AGCR		
AGSSP1	34230 (A)	34220 (A)	AGSSP		
AGSSP1T	34240 (T)	34230 (A)	AGSSP1		
AGSSP2	34250 (A)	34220 (A)	AGSSP		
AGSSP2T	34260 (T)	34250 (A)	AGSSP2		
AGWP	34270 (A)	30550 (A)	TGP		
AONNS	44230 (A)	44170 (A)	AONSP		
AONNST	44240 (T)	44230 (A)	AONNS		
AONSP	44170 (A)	44140 (A)	AOPR		
AOONS	44180 (A)	44170 (A)	AONSP		
AOONS1	44190 (A)	44180 (A)	AOONS		
AOONS1T	44200 (T)	44190 (A)	AOONS1		
AOONS2	44210 (A)	44180 (A)	AOONS		
AOONS2T	44220 (T)	44210 (A)	AOONS2		
AOPP	44140 (A)	40250 (A)	DOGD	40340 (A)	TOPR
AOSSP	44150 (A)	44140 (A)	AOPR	40570 (A)	TOAWP
AOSSPT	44160 (T)	44150 (A)	AOSSP	40580 (A)	DOAWP
AOWP	44250 (A)	40580 (A)	DOAWP		
BMACC	76090 (A)	76080 (A)	BMPC		
BMAGR	73250 (A)	73240 (A)	BMGR		
BHARF	76030 (C)	70910 (A)	SEAR2	76020 (R)	BMPAR
BMAW	73140 (A)	73120 (R)	BMINV	73570 (A)	SEAW
BMCC	76100 (A)	71390 (A)	SECC2	76090 (A)	BMACC
BMCCP	76110 (A)	73210 (A)	BMSCC	76100 (A)	BMCC
BMCCR	73170 (C)	73160 (A)	BMMCST		
BMCCRR	73190 (C)	73180 (A)	BMECR		
BMCCT	76120 (T)	76110 (A)	BMCCP		
BMCCE	76160 (C)	76150 (A)	BMFCST		
BMCST	76130 (A)	70810 (A)	SEPCST		
BMCUFF	73220 (C)	73210 (A)	BMSCC		
BMCY	73150 (C)	73140 (A)	BMAW		
BMECR	73180 (A)	73160 (A)	BMMCST		
BMFCR	76040 (R)	71480 (A)	SEAFIC2	71500 (A)	SENPC
BMFCST	76150 (A)	73160 (A)	BMMCST	76130 (A)	BMCST
BMECT	76050 (C)	71480 (A)	SEAFIC2	76040 (R)	BMECR
BMGR	73240 (A)	73230 (A)	BMSCH		
BMINV	73120 (R)	73130 (N)		76040 (R)	BMFCR
BMLGY	73200 (C)	73180 (A)	BMECR		
BMMCST	73160 (A)	73140 (A)	BMAW		
BMMPC	76210 (C)	76190 (A)	BMPM		
BHOMC	76140 (C)	73160 (A)	BMMCST	76130 (A)	BMCST
BMP	76170 (A)	76150 (A)	BMFCST		
BMPA	76000 (L)	70910 (A)	SEAR2	71390 (A)	SECC2
		76000 (L)	BMPA	76010 (N)	
		76000 (L)	BMPA		
BMPAR	76020 (R)			71410 (A)	SEPA
				76020 (R)	BMPAR
				76080 (A)	BMPC
				73180 (A)	BMECR
				73250 (A)	BMAGR

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BNPC	76080 (A)	70290 (A) SEPC	76070 (A) BNPR	76190 (A) BNPH
BNPH	76190 (A)	76170 (A) BMP		
BHPMT	76200 (T)	76190 (A) BHPM		
BHPN	76180 (C)	76170 (A) BMP		
BNPR	76070 (A)	70320 (A) SEPR	76130 (A) BNCST	
BNPUC		71430 (A) SEPUC	73250 (A) BNAGE	76040 (R) BNFCR
BNSCC	73210 (A)	73160 (A) BNMCST		
BNSCH	73230 (A)	73210 (A) BNSCC		
BNACC	77200 (A)	77190 (A) BNPC		
BNAGR	72950 (A)	72940 (A) BNGR		
BNARF	77150 (C)	70910 (A) SEAR2	77140 (R) BNPAE	
BNAW	72810 (A)	72790 (R) BNINV	73570 (A) SEAW	
BNBR	77500 (C)	77490 (A) BNTECR		
BNCC	77210 (A)	71390 (A) SECC2	77200 (A) BNACC	77270 (R) BNDRF
BNCCP	77220 (C)	72910 (A) BNSCC	77210 (A) BNCC	
BNCCR	72850 (C)	72840 (A) BNMCST		
BNCCRC	72900 (C)	72890 (A) BNEIDC		
BNCCRP	72870 (C)	72860 (A) BNECR		
BNCE	77260 (C)	77250 (A) BNFCST	77270 (R) BNDRF	77490 (A) BNTECR
BNCST	77230 (A)	70810 (A) SEPCST		
BNCUFP	72920 (C)	72910 (A) BNSCC	77270 (R) BNDRF	
BNCY	72820 (C)	72810 (A) BNAW	77450 (R) PFRR	
BNDRF	77270 (R)	77390 (L) RFR		
BNECR	72860 (A)	72840 (A) BNMCST		
BNEFF	77280 (C)	77250 (A) BNFCST	77270 (R) BNDRF	
BNEIDC	72890 (A)	72840 (A) BNMCST		
BNFCR	77160 (R)	71480 (A) SFAFC2	71500 (A) SENPC	77120 (L) BNPA
BNFCST	77250 (A)	72840 (A) BNMCST	77230 (A) BNCST	77270 (R) BNDRF
BNGR	72940 (A)	72930 (A) BNSCH		
BNINV	72790 (R)	72800 (N)	77160 (R) BNFCR	
BNLGY	72880 (C)	72860 (A) BNECR		
BNMCST	72840 (A)	72810 (A) BNAW		
BNMY	72830 (C)	72810 (A) BNAW	77460 (R) PFRR	
BNOMC	77240 (C)	72840 (A) BNMCST	77230 (A) BNCST	
BNPA	77120 (L)	70910 (A) SEAR2	71390 (A) SECC2	71410 (A) SEPA
		77120 (L) BNPA	77130 (N)	77140 (R) BNPAE
BNPAP	77140 (R)	77120 (L) BNPA		72860 (A) BNECR
BNPC	77190 (A)	70290 (A) SEPC	77180 (A) BNPR	77190 (A) BNPC
BNPR	77180 (A)	70320 (A) SEPR	77230 (A) BNCST	
BNPUC		71430 (A) SEPUC	72950 (A) BNAGR	77490 (A) BNTECR
BHRFAF	77290 (C)	77250 (A) BNFCST		77160 (R) BNFCR
BNSCC	72910 (A)	72840 (A) BNMCST		
BNSCH	72930 (A)	72910 (A) BNSCC		
BNTECR	77490 (A)	77460 (R) PFRR		
CCACC	74870 (A)	74860 (A) CCPC		
CCAGR	72300 (A)	72290 (A) CGR		
CCARF	74810 (C)	70890 (A) SEAR1	74800 (R) CCPAR	
CCAW	72180 (A)	72160 (R) CCINV	73570 (A) SEAW	
CCCC	74880 (A)	71370 (A) SECC1	74870 (A) CCACC	
CCCCP	74890 (C)	72260 (A) CCSCC	74880 (A) CCCC	
CCCCR	72210 (C)	72200 (A) CCMCST		
CCCCRC	72220 (C)	72200 (A) CCMCST		
CCCCRP	72240 (C)	72230 (A) CCECR		
CC	74940 (C)	74920 (A) CCFCST	74930 (A) CCDC	

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CCGST	74900 (A)	70910 (A) SEPCST				
CCCUFP	72270 (C)	72260 (A) CGSCC				
CCCY	72190 (C)	72180 (A) CCAW				
CCDC	74930 (A)	77870 (A) TEND				
CCECR	72230 (A)	72200 (A) CCMCST				
CCFCR	74820 (R)	71460 (A) SEAFCl	71500 (A) SENPC	74780 (L) CCPA		
CCFCST	74920 (A)	72200 (A) CCMCST	74900 (A) CCCST			
CCFCT	74830 (C)	71460 (A) SEAFCl	74820 (R) CCFCR			
CCGR	72290 (A)	72280 (A) CCSCH				
CGINV	72160 (R)	72170 (N)	74820 (R) CCFCR			
CCLGY	72250 (C)	72230 (A) CCFCR				
CCMCST	72200 (A)	72180 (A) CCAW				
CCOMC	74910 (C)	72200 (A) CCMCST	74900 (A) CCCST			
CCPA	74780 (L)	70890 (A) SEARl	71370 (A) SECCI	71410 (A) SEPA	72230 (A) CCECR	72300 (A) CCAGR
		74780 (L) CCPA	74790 (N)	74800 (R) CCPAR	74860 (A) CCPC	
CCPAR	74800 (R)	74780 (L) CCPA				
CCPC	74860 (A)	70290 (A) SEPC	74850 (A) CCPR	74930 (A) CCDC		
CCPR	74850 (A)	70320 (A) SEPR	74900 (A) CCCST			
CCPUC		71430 (A) SEPUC	72300 (A) CCAGR	74820 (R) CCFCR		
CCSCC	72260 (A)	72200 (A) CCMCST				
CCSCM	72280 (A)	72260 (A) CGSCC				
CEAP	22040 (A)	22010 (A) DSDMP	22060 (N)			
CECR	22070 (A)	22040 (A) CEAP				
CEEUE	22030 (C)	22010 (A) DSDMP				
CEFCF	74100 (C)	33720 (A) HGF CST	43690 (A) CLFCST	74050 (A) NCF CST	74390 (A) ECF CST	74660 (A) FDF CST
		74920 (A) CCFCST				
CGAGR	31700 (A)	31680 (A) CGCRI				
CGARF	32490 (C)	30970 (A) DGARF	32480 (R) CGPAR			
CGAW	31620 (A)	31600 (R) CGINV	32350 (A) DGAW			
CGCC	32600 (A)	31650 (A) CGSCC	32610 (A) CGEOMC	32730 (A) CCRMC		
CGCCR	31640 (C)	31630 (A) CCMCST				
CGCP	32570 (A)	32560 (A) CGRER	32600 (A) CGCC			
CGCPN	32590 (C)	32570 (A) CGCP				
CGCST	32860 (A)	30910 (A) DGCST				
CGDNT	32580 (T)	32570 (A) CGCP				
CGDR	32780 (R)	32760 (L) CGRES	32860 (A) CGCST			
CGECF	32620 (C)	32610 (A) CGEOMC				
CGEOMC	32610 (A)	32860 (A) CGCST	32900 (A) CGOMC			
CGFCR	32500 (R)	31400 (A) DGAFCT	31420 (A) DGNPC	32460 (L) CCPA		
CGGRI	31680 (A)	31660 (A) CGSCM				
CGINV	31600 (R)	31610 (N)	32500 (R) CGFCR			
CGLBF	32630 (A)	32610 (A) CGEOMC				
CGLFT	32640 (T)	32630 (A) CGLBF				
CGMCST	31630 (A)	31620 (A) CCAW				
CGMPPR	32820 (A)	32810 (A) CGPC				
CGOMC	32900 (A)	31630 (A) CGMCST				
CGPA	32460 (L)	30970 (A) DGARF	31380 (A) DGPA	31700 (A) CGAGR	32460 (L) CCPA	32470 (N)
		32480 (R) CGPAR	32560 (A) CGRER			
CGPAR	32480 (R)	32460 (L) CGPA				
CGPC	32810 (A)	30330 (A) DGPC	32800 (A) CCPR			
CGPDF	32700 (C)	32680 (R) CGURA	32690 (N)	32780 (R) CGDR		
CGPOMC	32840 (C)	32860 (A) CGCST	32900 (A) CGOMC			
CGPR	32800 (A)	30350 (A) DGPR	30590 (A) DGHP	32790 (R) CGRDR	32860 (A) CCCST	
CGPUC		31390 (A) DGPUC	31700 (A) CCAGR	32500 (R) CGFCR		

CGR	32530 (L)	32530 (L) CGR	32540 (N)	32570 (A) CGCP	
CGRDR	32790 (R)	32760 (L) CGRES			
CGRER	32560 (A)	32530 (L) CGR	32680 (R) CGURA	32780 (R) CGDR	
CGRES	32760 (L)	32760 (L) CGRES	32770 (N)	32810 (A) CGPC	
CGRI	32550 (C)	32540 (N)	32570 (A) CGCP		
CGROMC	32730 (A)	32860 (A) CGCST			
CGRP	32880 (A)	32860 (A) CGCST	32900 (A) CGOMC		
CGRPRT	32830 (T)	32820 (A) CGMRPR			
CGRPPT	32890 (T)	32880 (A) CGEP			
CGRX	32710 (R)	32660 (L) CGURES	32760 (L) CGRES	32860 (A) CGCST	
CGPXC	32740 (C)	32730 (A) CGROMC			
CGRXD	32720 (C)	32710 (R) CGRX			
CGRXF		32680 (R) CGURA	32690 (N)		
CGSCC	31650 (A)	31630 (A) CGMCST			
CGSCH	31660 (A)	31650 (A) CGSCC			
CGURA	32680 (R)	32660 (L) CGURES			
CGURES	32660 (L)	32660 (L) CGURES	32670 (N)	32710 (R) CGRX	
CLAGR	42240 (A)	42230 (A) CLGR			
CLAMS	42280 (A)	42150 (A) CLSP			
CLARF	43560 (C)	41170 (A) DOARF	43550 (R) CLPAR		
CLAW	42130 (A)	42110 (R) CLINV	42580 (A) DOAW		
CLCC	43660 (A)	42210 (A) CLSCC	42270 (A) CLSCST	42280 (A) CLAMS	
CLCDCY	43610 (C)	42200 (A) CLEIDC	43580 (A) CLFCT		
CLCE	43700 (C)	43690 (A) CLFCST	43710 (A) CLDC		
CLCP	43650 (C)	43640 (A) CLPC	43660 (A) CLCC		
CLCST	43670 (A)	41110 (A) DOGST			
CLCY	42140 (C)	42130 (A) CLAW			
CLDC	43710 (A)	44450 (A) TODC			
CLDMS	42160 (C)	42150 (A) CLSP			
CLECR	42180 (A)	42170 (A) CLMCST	42270 (A) CLSCST		
CLEIDC	42200 (A)	42170 (A) CLMCST	42270 (A) CLSCST		
CLFCR	43570 (R)	41620 (A) DOAFCT	41640 (A) DONPC	43530 (L) CLPA	
CLFCST	43690 (A)	42170 (A) CLMCST	42270 (A) CLSCST	43670 (A) CLCST	
CLFCT	43580 (A)	41620 (A) DOAFCT	43570 (R) CLFCR		
CLGR	42230 (A)	42220 (A) CLSCM			
CLGS	42250 (A)	41050 (A) DOGS	42150 (A) CLSP		
CLHFCT	43590 (C)	43580 (A) CLFCT			
CLINV	42110 (R)	42120 (N)	43570 (R) CLFCR		
CLLGY	42100 (C)	42180 (A) CLFCR			
CLMCST	42170 (A)	42150 (A) CLSP			
CLOMC	43680 (C)	42170 (A) CLMCST	42270 (A) CLSCST	43670 (A) CLCST	
CLPA	43530 (L)	41170 (A) DOARF	41600 (A) DOPA	42180 (A) CLECR	42240 (A) CLAGR
		43530 (L) CLPA	43540 (N)	43550 (R) CLPAR	43640 (A) CLPC
CLPAR	43550 (R)	43530 (L) CLPA			
CLPC	43640 (A)	40290 (A) DOPC	43630 (A) CLPR	43710 (A) CLDC	
CLPFCT	43600 (C)	43580 (A) CLFCT			
CLPR	43630 (A)	40350 (A) DOPR	41050 (A) DOGS	43670 (A) CLCST	
CLPSY	42260 (C)	42250 (A) CLGS			
CLPUC		41610 (A) DOPUC	42240 (A) CLAGR	42280 (A) CLAMS	43570 (R) CLFCR
CLSCC	42210 (A)	42170 (A) CLMCST			
CLSCH	42220 (A)	42210 (A) CLSCC			
CLSCST	42270 (A)	42250 (A) CLGS			
CLSP	42150 (A)	42130 (A) CLAW			
COAGR	41910 (A)	41890 (A) COGR			

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COAPP	42720 (C)	41170 (A) DOARF	42710 (R) COPAR			
COAW	41820 (A)	41800 (R) COINV	42580 (A) DOAW			
COCC	42830 (A)	41860 (A) COSCC	42840 (A) COEOMC	42970 (A) COROMC		
COCF	42800 (A)	42790 (A) CORER	42830 (A) COCC			
COCPII	42820 (C)	42800 (A) COCP				
COCST	43100 (A)	41110 (A) DOCST				
CODMT	42810 (T)	42800 (A) COCP				
CODR	43020 (R)	43000 (L) CORES	43100 (A) COCST			
COFCF	42850 (C)	42840 (A) COEOMC				
COFOMC	42840 (A)	43100 (A) COCST	43140 (A) COOMC			
COFCR	42730 (R)	41620 (A) DOAFCT	41640 (A) DONPC	42690 (L) COPA		
COFCT	42740 (C)	41620 (A) DOAFCT	42730 (R) COFCR			
COGR	41890 (A)	41870 (A) COSCM				
COINV	41800 (R)	41810 (N)	42730 (R) COFCR			
COLBF	42860 (A)	42840 (A) COEOMC				
COLBFT	42870 (T)	42860 (A) COLBF				
COMCST	41840 (A)	41820 (A) COAV				
COMRPR	43060 (A)	43050 (A) COPC				
COOMC	43140 (A)	41840 (A) COMCST				
COPA	42690 (L)	41170 (A) DOARF	41600 (A) DOPA	41910 (A) COAGR	42690 (L) COPA	42700 (N)
		42710 (R) COPAR	42790 (A) CORER			
COPAR	42710 (R)	42690 (L) COPA				
COPC	43050 (A)	40290 (A) DOPC	43040 (A) COPR			
COPDF	42930 (C)	42920 (R) COURA	42940 (A) CORXF	43020 (R) CODR		
COPOMC	43080 (C)	43100 (A) COCST	43140 (A) COOMC			
COPR	43040 (A)	40350 (A) DOPR	40620 (A) DOIWP	41090 (A) DOWPFR	43030 (R) CORDR	43100 (A) COCST
COPUC		41610 (A) DOPUC	41910 (A) COAGR	42730 (R) COFCR		
COR	42760 (L)	42760 (L) COR	42770 (N)	42800 (A) COCP		
CORDR	43030 (R)	43000 (L) CORES				
CORER	42790 (A)	42760 (L) COR	42920 (R) COURA	43020 (R) CODR		
CORES	43000 (L)	43000 (L) CORES	43010 (N)	43050 (A) COPC		
CORT	42780 (C)	42770 (N)	42800 (A) COCP			
COROMC	42970 (A)	43100 (A) COCST				
CORP	43120 (A)	43100 (A) COCST	43140 (A) COOMC			
CORPF	43130 (C)	43120 (A) CORP				
CORPRT	43070 (T)	43060 (A) COMRPR				
CORX	42950 (R)	42890 (L) COURES	43000 (L) CORES	43100 (A) COCST		
CORXCF	42980 (C)	42970 (A) COROMC				
CORXD	42960 (C)	42950 (R) CORX				
CORXF	42940 (A)	42920 (R) COURA				
COSCC	41860 (A)	41840 (A) COMCST				
COSCM	41870 (A)	41860 (A) COSCC				
COURA	42920 (R)	42890 (L) COURES				
COURES	42890 (L)	42890 (L) COURES	42900 (N)	42950 (R) CORX		
COURESI	42910 (C)	42900 (N)				
DCACST	60510 (A)	60490 (A) DCMIP				
DCAPP	60830 (C)	60820 (A) DCNA				
DCARF	60760 (C)	60750 (R) DCCAR	61110 (A) DCFN			
DCAW	61630 (A)	61360 (R) SCINV	61500 (R) DCINV			
DCBLC	60940 (C)	60930 (A) DCDFP				
DCCC	61210 (A)	61160 (A) DCNPA				
DCCR	20780 (A)	20710 (A) NEAP	20750 (A) NECR	22040 (A) CEAP	22070 (A) CECR	
DCCSDT	20970 (C)	20930 (A) DCEUD				
DCCST	60710 (A)	60510 (A) DCACST	60670 (A) DCNI			

DCCSY	20960 (C)	20930 (A) DCFUD			
DCCUF	60240 (A)	61840 (A) SCPR	62230 (A) UCPR		
DCCUFI	60570 (C)	60520 (A) DCPMN			
DCCUFP	61170 (C)	61160 (A) DCNPA	61430 (A) SCSCC	61560 (A) UCSCC	
DCCUFT	60250 (T)	60240 (A) DCCUF			
DCDCHG	60460 (A)	60440 (A) DCP			
DCDE	60270 (C)	60260 (A) DCGD			
DCDEBT	60860 (A)	60880 (A) DCINT	60910 (A) DCDEMT	60990 (A) DCROI	
DCDEP	60930 (A)	60710 (A) DCCST	60960 (A) DCIF		
DCDF		60860 (A) DCDERT	60870 (N)		
DCDIV	60970 (A)	60960 (A) DCIF			
DCDL	60920 (C)	60910 (A) DCDRMT			
DCDMA	21060 (A)	20930 (A) DCEUD			
DCDMI	20990 (A)	20930 (A) DCEUD			
DCDMIT	21000 (T)	20990 (A) DCDMI			
DCDNP	21020 (A)	20930 (A) DCEUD			
DCDMPT	21030 (T)	21020 (A) DCDMP			
DCDPOT	60980 (T)	60970 (A) DCDIV			
DCDRMT	60910 (A)	60960 (A) DCIF			
DCEAT	61040 (C)	61010 (A) DCROIN	61030 (A) DCROIX	61150 (A) DCFPA	61180 (L) DCSPA
DCED	60290 (A)	60280 (A) DCND			
DCEDT	60300 (T)	60290 (A) DCED			
DCEF	60850 (C)	60840 (A) DCEQ	60870 (N)		
DCEFA	61070 (A)	61060 (A) DCFA			
DCEQ	60840 (A)	60520 (A) DCPMN	60990 (A) DCROI		
DCEUD	20930 (A)	20780 (A) DCCR	21720 (A) TOEUD	60280 (A) DCND	
DCFA	61060 (A)	61250 (A) DCINV			
DCFCEN	61130 (C)	61110 (A) DCFN	61250 (A) DCINV		
DCFCHG	60480 (A)	60460 (A) DCDCHG			
DCFCT	61140 (C)	61110 (A) DCFN	61150 (A) DCFPA	61770 (R) SCFCR	62160 (R) UCFCR
DCFN	61110 (A)	61250 (A) DCINV			
DCFPA	61150 (A)	61110 (A) DCFN			
DCGA	60730 (L)	60730 (L) DCGA	60740 (N)	60750 (R) DCGAR	60770 (R) DCVLI
		60930 (A) DCDEP	61070 (A) DCEFA		60820 (A) DCNA
DCGAR	60750 (R)	60730 (L) DCGA			
DCGD	60260 (A)	60240 (A) DCCUF	60330 (A) DCPDR	60550 (A) DCPMN	61160 (A) DCNPA
DCCR	61080 (A)	61070 (A) DCEFA			
DCGR	61090 (T)	61080 (A) DCCR			
DCCHG	60470 (C)	60460 (A) DCDCHG	60480 (A) DCFCCHG		
DCROEN	60540 (C)	60530 (A) DCROEN			
DCIF	60960 (A)	61060 (A) DCFA			
DCINT	60880 (A)	60710 (A) DCCST	60990 (A) DCROI		
DCINV	61250 (A)	60730 (L) DCGA	61360 (R) SCINV	61500 (R) UGINV	
DCIR	60890 (A)	60880 (A) DCINT			
DCIRN	60900 (C)	60890 (A) DCIR			
DCITC	60690 (C)	60670 (A) DCNI			
DCMMP	60490 (A)	33460 (A) HGFCST	60440 (A) DCP	60500 (N)	60700 (A) DCREV
DCNA	60820 (A)	60840 (A) DCEQ	60860 (A) DCDERT		
DCND	60280 (A)	60260 (A) DCGD			
DCNI	60670 (A)	60960 (A) DCIF	60970 (A) DCDIV	60990 (A) DCROI	
DCNPA	61160 (A)	61150 (A) DCFPA	61180 (L) DCSPA		
DCNPC	61240 (A)	60670 (A) DCNI			
DCP	60440 (A)	20710 (A) NEAP	21020 (A) DCDMP	22040 (A) CEAP	33720 (A) HGFCST
		60450 (N)	74050 (A) HCFCST	74390 (A) ECFCST	43690 (A) CLFCST
				74660 (A) FBFCST	74920 (A) CCFCST

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DCPA	61220 (A)	61110 (A) DCFN	61210 (A) DCCC			
DCPAMI	61610 (C)	61470 (A) SCAGR	61590 (A) UCAGR			
DCPC	60310 (A)	60240 (A) DCCUF	60520 (A) DCPMH	60550 (A) DCPMH	61210 (A) DCCC	
DCPCS	20950 (C)	20930 (A) DCEUD				
DCPDR	60330 (A)	20780 (A) DCCR	21060 (A) DCDHA	33400 (A) HGPR	33660 (A) MGPR	43630 (A) CLPR
		60340 (N)	73950 (A) NCPR	74310 (A) ECPR	74590 (A) FBPR	74850 (A) CCPR
DCPHM	60550 (A)	60490 (A) DCMMP				
DCPMME	60560 (T)	60550 (A) DCPMH				
DCPHN	60520 (A)	60490 (A) DCMMP				
DCPR	60320 (A)	60330 (A) DCPDR	60510 (A) DCACST	60700 (A) DCREV		
DCPR70	21040 (C)	21020 (A) DCDMP				
DCPUC	61230 (A)	61110 (A) DCFN				
DCREV	60700 (A)	60670 (A) DCNI				
DCROEN	60530 (A)	60520 (A) DCPMH				
DCROI	60990 (A)	60970 (A) DCDIV	61000 (N)	61030 (A) DCROIX		
DCROIN	61010 (A)	61030 (A) DCROIX				
DCROIR	61020 (C)	61010 (A) DCROIN				
DCROIX	61030 (A)	61080 (A) DCGR				
DCSAT	61900 (C)	61890 (A) SCPMS	62300 (A) UCPMS			
DCSCHT	61640 (T)	61440 (A) SCSCM	61570 (A) UCSCM			
DCSPA	61180 (L)	61150 (A) DCFPA	61180 (L) DCSPA	61190 (N)		
DCSPAI	61200 (C)	61190 (N)				
DCTGR	61260 (C)	61460 (A) SCGR	61580 (A) UCGR			
DCTR	60680 (C)	60520 (A) DCPMH	60670 (A) DCNI			
DCVLI	60770 (R)	60730 (L) DCGA				
DCWF	61620 (C)	61390 (A) SCAW	61530 (A) UCAW			
DEGNP	20240 (A)	20580 (A) NEDMI	20990 (A) DCDMI	21210 (A) TEDMI	21430 (A) TGDMI	
DEGNPI	20310 (C)	20300 (N)	20580 (A) NEDMI	20990 (A) DCDMI	21210 (A) TEDMI	21430 (A) TGDMI
DEGNPIR	20320 (R)	20290 (L) DEPGNP				
DEGNPM	20250 (A)	20240 (A) DEGNP				
DEHINF	20380 (C)	20370 (A) DEINF				
DEINF	20370 (A)	30680 (A) DGROEN	30980 (R) DGVLI	31080 (A) DGIR	31190 (A) DGROIN	40810 (A) DOROEN
		41180 (R) DOVLI	41280 (A) DOIR	41390 (A) DOROIN	60530 (A) DGROEN	60770 (R) DGVLI
		60890 (A) DCIR	61010 (A) DCROIN	70550 (A) SEALROE	70930 (R) SEVLI	71040 (A) SEIR
		71150 (A) SEROIN				
DELCCR	20330 (A)	20320 (R) DEGNPIR				
DELGGRT	20340 (T)	20330 (A) DELCCR				
DEPAT	20270 (C)	20250 (A) DEGNPM				
DEPE	20260 (C)	20250 (A) DEGNPM				
DEPGNP	20290 (L)	20240 (A) DEGNP	20290 (L) DEPGNP	20300 (N)	20320 (R) DEGNPIR	
DEPINF	20390 (C)	20370 (A) DEINF				
DERYGR	20350 (A)	20320 (R) DEGNPIR				
DERYGR	20360 (T)	20350 (A) DERYGR				
DCACST	30660 (A)	30640 (A) DGUWP	30650 (A) DCRWP			
DCADF	31020 (C)	31010 (A) DGHM				
DCAFCT	31400 (A)	31290 (A) DGFH	31340 (L) DCSPA			
DCAGR	31500 (A)	31490 (A) DGGRI				
DCARF	30970 (A)	30960 (R) DGGAR	31290 (A) DGFH			
DCAW	32350 (A)	31600 (R) CGINV	31750 (R) UGINV	31960 (R) HGINV	32160 (R) MGINV	
DCBLC	31130 (C)	31120 (A) DGDGP				
DGCC	31370 (A)	31330 (A) DGNPA				
DGCEL	31470 (A)	31440 (A) DGINV				
DGCELT	31480 (T)	31470 (A) DGCEL				
DGCP	30750 (A)	30640 (A) DGUWP				

DGCPST	30760 (T)	30750 (A) DGCPS				
DGCST	30910 (A)	30660 (A) DGCACST	30860 (A) DGHI			
DGCUP	30230 (A)	30400 (A) DGCUR	32800 (A) CGPR	33100 (A) UGPR	33380 (A) HGDC	33400 (A) HGPR
		33640 (A) NGPC	33660 (A) MGPR			
DGCUFN	30740 (C)	30670 (A) DCPMN	30720 (A) DCPMM	31330 (A) DGNPA	31650 (A) CGSCC	
DGCUFP	32360 (C)	31840 (A) UGSCC	31900 (A) UGSCST	32070 (A) HGSCC	32140 (A) HGSCST	32260 (A) MGSCC
		32330 (A) MGSCST				
DGCUFT	30270 (T)	30260 (A) DGUCUF				
DCCUR	30400 (A)	20770 (A) TCCR	30370 (A) TGPCR	30410 (A) DCCURO	30430 (A) DGCURC	
DCCURC	30430 (A)	20780 (A) DCCR	6C280 (A) DCND			
DCCURO	30410 (A)	20760 (A) TOCR	4C280 (A) TOND			
DGDEBT	31050 (A)	31070 (A) DGIHT	31100 (A) DCDRMT	31180 (A) DGROI		
DGDEP	31120 (A)	30910 (A) DGCST	31150 (A) DGIF			
DGDF		31050 (A) DGDEBT	31060 (N)			
DGNIV	31160 (A)	31150 (A) DGIF				
DGDL	31110 (C)	31100 (A) DCDRMT				
DGDPT	31170 (T)	31160 (A) DGDIV				
DGDRMT	31100 (A)	31150 (A) DGIF				
DGDRT	30630 (C)	30610 (A) DGDS				
DGDS	30610 (A)	30590 (A) DGP				
DGDSU	30280 (A)	30230 (A) DGCUP				
DGDYI	30620 (C)	30280 (A) DGDSU	30610 (A) DGDS	30750 (A) DGCPS		
DGEAT	31220 (C)	30280 (A) DGDSU	31190 (A) DGROI	31210 (A) DGROI		
DGEF	31040 (C)	31030 (A) DGEQ	31060 (N)			
DGEFA	31250 (A)	31240 (A) DGFA				
DGEQ	31030 (A)	30670 (A) DCPMN	31180 (A) DGROI			
DGFA	31240 (A)	31440 (A) DGINV				
DGFCE	31450 (A)	31440 (A) DGINV				
DGFCEN	31310 (C)	31290 (A) DGFN				
DGFCET	31460 (T)	31450 (A) DGFCE				
DGFDO	30420 (C)	30410 (A) DGCURC	30430 (A) DGCURC			
DGFEDP	30440 (A)	33910 (A) LNDALC	34450 (A) PGDALC			
DGFEDPT	30450 (T)	30440 (A) DGFEDP				
DGFN	31290 (A)	31440 (A) DGINV				
DGFPA	31320 (A)	31290 (A) DGFN				
DGGA	30940 (L)	30940 (L) DGGA	30950 (N)	30960 (R) DGGAR	30980 (R) DGVLI	31010 (A) DGNA
		31120 (A) DGDEP	31250 (A) DGFEA			
DGGAR	30960 (R)	30940 (L) DGGA				
DGGO	30290 (A)	30260 (A) DGUCUF	30400 (A) DCCUR	30460 (A) DGIND	30720 (A) DCPMM	31330 (A) DGNPA
DGGR	31260 (A)	31250 (A) DGFEA				
DGGRI	31490 (A)	31470 (A) DCCEL				
DGGRT	31270 (T)	31260 (A) DCCR				
DGGS	30900 (A)	30890 (A) DGREV				
DGHROEN	30690 (C)	30680 (A) DGRON				
DGIF	31150 (A)	31240 (A) DGFA				
DGIND	30460 (A)	33910 (A) LNDALC	34450 (A) PGDALC			
DGINT	31070 (A)	30910 (A) DGCST	31180 (A) DGROI			
DGINV	31440 (A)	30940 (L) DGGA	31600 (R) CGINV	31750 (R) UGINV	31960 (R) HGINV	32150 (R) MGINV
DGIR	31080 (A)	31070 (A) DGINT				
DGIRN	31090 (C)	31080 (A) DGIR				
DGIRC	30880 (C)	30860 (A) DGN				
DGNA	31010 (A)	31030 (A) DGEQ	31050 (A) DGDEBT			
DGNI	30860 (A)	31150 (A) DGIF	31160 (A) DGDIV	31180 (A) DGROI		
DGNPA	31330 (A)	31320 (A) DGFP	31340 (L) DGSPA			

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DGNPC	31420 (A)	30860 (A) DGNL	31400 (A) DGAFCT			
DGPA	31380 (A)	30970 (A) DGARF	31290 (A) DGPN	31370 (A) DGCC	31500 (A) DGAGR	
DGPAMI	32370 (C)	31250 (A) DGEFA	31700 (A) CGAGR	31820 (A) UGECR	31870 (A) UGAGR	32020 (A) HGEGR
		32100 (A) HGAGR	32230 (A) MGEGR	32290 (A) HGAGR		
DGPC	30330 (A)	30260 (A) DGUUUF	30400 (A) DGCUR	30460 (A) DGINH	30670 (A) DGPMM	30720 (A) DGPMM
		31370 (A) DGCC				
DGPLAY	30990 (C)	30980 (R) DGVLI				
DGPMH	30720 (A)	30640 (A) DGUMP				
DGPMHT	30730 (T)	30720 (A) DGPMM				
DGPMN	30670 (A)	30640 (A) DGUMP	30650 (A) DGRWP			
DGPR	30350 (A)	30340 (A) TGPR	30550 (A) TGP	30590 (A) DGWP	30660 (A) DGACST	30890 (A) DGREV
		30900 (A) DGCS				
DGPROEN	30700 (C)	30680 (A) DGROEN				
DGPUC	31390 (A)	31290 (A) DGPN	31500 (A) DGAGR			
DGRCUF	30240 (A)	30230 (A) DGCUF				
DGRCUFM	30250 (C)	30240 (A) DGRCUF				
DGREV	30890 (A)	30860 (A) DGNL				
DGROEN	30680 (A)	30670 (A) DGPMM				
DGROT	31180 (A)	31160 (A) DGDIV	31210 (A) DGROIX			
DGROIN	31190 (A)	31160 (A) DGDIV	31210 (A) DGROIX			
DGROIP	31200 (C)	31190 (A) DGROIN				
DGROIX	31210 (A)	31250 (A) DCCR	31450 (A) DGFCF			
DGRPY	30710 (C)	30680 (A) DGROEN				
DGRWP	30650 (A)	30590 (A) DGWP				
DGSCMT	31670 (T)	31660 (A) CGSCM	31850 (A) UGSCM	32080 (A) HGSCM	32270 (A) HGSCM	
DGSPA	31340 (L)	31320 (A) DGFFA	31340 (L) DGSPA	31350 (N)		
DGSPAI	31360 (C)	31350 (N)				
DGTGR	31690 (C)	31490 (A) DGGRI	31680 (A) CGGRI	31860 (A) UGGRI	32090 (A) HGGRI	32280 (A) HGGRI
DGTR	30870 (C)	30670 (A) DGPMM	30860 (A) DGNL			
DGUUUF	30260 (A)	30230 (A) DGCUF	30240 (A) DGRCUF			
DGUWP	30640 (A)	30590 (A) DGWP				
DGVLI	30980 (R)	30940 (L) DGCA				
DGWF	32380 (C)	31620 (A) CGAW	31770 (A) UGAW	31980 (A) HCAW	32180 (A) HCAW	
DGWP	30590 (A)	30550 (A) TGP	30600 (N)	30890 (A) DGREV	31880 (A) UGCS	32110 (A) HGGs
		32300 (A) HGCS	32880 (A) CGRP			
DIBP79	41080 (A)	41060 (A) DOWET				
DICR	40390 (A)	40340 (A) TOPR	40570 (A) TOAWP			
DIGP	40910 (C)	40890 (A) DIP				
DIIMD	40410 (A)	40390 (A) DICR	40400 (A) POPR	42250 (A) CLGS		
DIP	40890 (A)	40570 (A) TOAWP	40590 (A) DOWP	40710 (A) DOWWP		
DIQUOT	40420 (A)	40410 (A) DIIMD				
DIQUOTT	40430 (T)	40420 (A) DIQUOT				
DIQY	40440 (C)	40420 (A) DIQUOT				
DITARY	40900 (C)	40890 (A) DIP				
DOACST	40790 (A)	40610 (A) DODWP	40780 (A) DORRWP			
DOADF	41220 (C)	41210 (A) DONA				
DOAFCT	41620 (A)	41500 (A) DOPN	41560 (L) DOSPA			
DOARF	41170 (A)	41160 (R) DOGAR	41500 (A) DOPN			
DOAW	42580 (A)	41800 (R) COINV	41940 (R) EOINV	42110 (R) CLINV	42340 (R) SHINV	
DOAWP	40580 (A)	40570 (A) TOAWP				
DORLC	41330 (C)	41320 (A) DODEP				
DOCC	41590 (A)	41540 (A) DONPA				
DOCFCT	40310 (T)	40300 (A) DDCUFC				
DOGST	41110 (A)	40790 (A) DOACST	41010 (A) DONI			

DOCUF	40230 (A)	43040 (A) COPR	43350 (A) EOPR	43630 (A) CLPR	43710 (A) CLDC	43950 (A) SHPR
DOCUFC	40300 (A)	40230 (A) DOCUF	40320 (N)			
DOCUFF	41550 (C)	41540 (A) DOPPA				
DOCUEN	40870 (C)	40800 (A) DOPEN	40850 (A) DOPEN	41260 (A) COSCC	42040 (A) EOSCC	
DOCUFP	42590 (C)	42210 (A) CLSCC	42270 (A) CLSCST	42430 (A) SHSCC		
DOCUFT	40240 (T)	40230 (A) DOCUF				
DOCUFY	40330 (C)	40300 (A) DOCUFC				
DODERT	41250 (A)	41270 (A) DOINT	41300 (A) DODRMT	41380 (A) DOROI		
DODEP	41320 (A)	41110 (A) DDCST	41350 (A) DOIF			
DODF		41250 (A) DODERT	41260 (N)			
DODIV	41360 (A)	41350 (A) DOIF				
DODL	41310 (C)	41300 (A) DODRMT				
DODPOT	41370 (T)	41360 (A) DODIV				
DODRMT	41300 (A)	41350 (A) DOIF				
DOPRT	40690 (C)	40670 (A) DODS2				
DODS	40630 (A)	40620 (A) DOINP	41060 (A) DOWEI			
DODS1	40650 (A)	40630 (A) DODS				
DODS1T	40660 (T)	40650 (A) DODS1				
DODS2	40670 (A)	40630 (A) DODS				
DODS2T	40680 (T)	40670 (A) DODS2				
DODSS	40640 (C)	40630 (A) DODS				
DODWP	40610 (A)	40300 (A) DOCUFC	40590 (A) DOWP	40710 (A) DOWWP		
DODYI	40700 (C)	40670 (A) DODS2				
DOEAT	41410 (C)	41390 (A) DOROIN	41420 (A) DOROTX	44250 (A) AOWP		
DOEF	41240 (C)	41230 (A) DOEQ	41260 (N)			
DOEFA	41460 (A)	41450 (A) DOFA				
DOEP1T	40750 (T)	40740 (A) DOEPCA1				
DOEP2T	40770 (T)	40760 (A) DOEPCA2				
DOEPCA1	40740 (A)	40730 (A) DOERWP				
DOEPCA2	40760 (A)	40730 (A) DOERWP				
DOEQ	41230 (A)	40800 (A) DOPMN	41380 (A) DORCI			
DOERWP	40730 (A)	40720 (A) DORWP				
DOFA	41450 (A)	41660 (A) DOINV				
DOFCE	41680 (A)	41660 (A) DOINV				
DOFCEN	41520 (C)	41500 (A) DOPN				
DOFCET	41690 (T)	41680 (A) DOFCE				
DOPN	41500 (A)	41560 (A) DOINV				
DOPPA	41530 (A)	41500 (A) DOPN				
DOCA	41140 (L)	41140 (L) DOCA	41150 (N)	41160 (R) DOGAR	41180 (R) DOVLI	41210 (A) DONA
		41320 (A) DODEP	41460 (A) DOEFA			
DOGAR	41160 (R)	41140 (L) DOCA				
DOGD	40250 (A)	40230 (A) DOCUF	40410 (A) DIIND	40850 (A) DOPMN	41540 (A) DONPA	
DOGR	41470 (A)	41460 (A) DOEFA				
DOGRT	41480 (T)	41470 (A) DOGR				
DOGS	41050 (A)	41040 (A) DOREV				
DOHROEN	40820 (C)	40810 (A) DOROEN				
DOIF	41350 (A)	41450 (A) DOFA				
DOINT	41270 (A)	41110 (A) DDCST	41380 (A) DOROI			
DOINV	41660 (A)	41140 (L) DOCA	41570 (N)	41800 (R) COINV	41940 (R) EOINV	42110 (R) CLINV
		42340 (R) SHINV				
DOIR	41280 (A)	41270 (A) DOINT				
DOIRN	41290 (C)	41280 (A) DOIR				
DOITC	41030 (C)	41010 (A) DONI				
DOITM	40620 (A)	40590 (A) DOWP				

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DONA	41210 (A)	41230 (A) DDEQ	41250 (A) DDEBT			
DONI	41010 (A)	41350 (A) DOIF	41360 (A) DODIV	41380 (A) DOROI		
DONPA	41540 (A)	41530 (A) DOFPA	41560 (L) DOSPA			
DONPC	41640 (A)	41010 (A) DONI	41620 (A) DOAFCT			
DOPA	41600 (A)	41170 (A) DOARF	41500 (A) DOFN	41590 (A) DOCC		
DOPAMI	42330 (C)	41910 (A) COAGR	42010 (A) EOECR	42070 (A) EOAGR	42180 (A) CLECR	42240 (A) CLAGR
		42400 (A) SHECR	42460 (A) SHAGR			
DOPC	40290 (A)	40230 (A) DOCLIF	40800 (A) DOPEN	40850 (A) DOPMM	41590 (A) DOCC	
DOPLAY	41190 (C)	41180 (R) DOVLI				
DOPMM	40850 (A)	40610 (A) DODWP				
DOPMIT	40860 (T)	40850 (A) DOPMM				
DOPMN	40800 (A)	40610 (A) DODWP	40780 (A) DORRWP			
DOPR	40350 (A)	40340 (A) TOPR	40410 (A) DIIMD	40570 (A) TOAWP	40580 (A) DOAWP	40620 (A) DOIWP
		40790 (A) DOACST	41040 (A) DOREV	41050 (A) DOGS		
DOPROEN	40830 (C)	40810 (A) DOROEN				
DOPUC	41610 (A)	41500 (A) DOFN				
DOREV	41040 (A)	41010 (A) DONI				
DOROEN	40810 (A)	40800 (A) DOPMN				
DOROI	41380 (A)	41360 (A) DODIV	41420 (A) DOROIX			
DOROIN	41390 (A)	41360 (A) DODIV	41420 (A) DOROIX			
DOROIR	41400 (C)	41390 (A) DOROIN				
DOROIX	41420 (A)	41470 (A) DOGR	41680 (A) DOFCE			
DORPY	40840 (C)	40810 (A) DOROEN				
DORRWP	40780 (A)	40720 (A) DORWP				
DORWP	40720 (A)	40620 (A) DOIWP				
DOSCHT	42325 (T)	41870 (A) COSCH	42050 (A) EOSCH	42220 (A) CLSCH	42440 (A) SHSCH	
DOSPA	41560 (L)	41530 (A) DOFPA	41560 (L) DOSPA	41570 (N)		
DOSPAI	41580 (C)	41570 (N)				
DOTGR	41900 (C)	41890 (A) COGR	42060 (A) EOGR	42230 (A) CLGR	42450 (A) SHGR	
DOTR	41020 (C)	40800 (A) DOPEN	41010 (A) DONI			
DOUMP	40710 (A)	40300 (A) DOCLIF	40620 (A) DOIWP	41060 (A) DOWET		
DOVLI	41180 (R)	41140 (L) DOGA				
DOWET	41060 (A)	41040 (A) DOREV	41840 (A) COMCST	41990 (A) EOMCST		
DOWETY	41070 (C)	41060 (A) DOWET				
DOUF	41830 (C)	41820 (A) COAW	41960 (A) EOAW	42130 (A) CLAW	42360 (A) SHAW	
DOWP	40590 (A)	40300 (A) DOCLIF	40580 (A) DOAWP	40600 (N)	41040 (A) DOREV	42080 (A) EOGS
		42250 (A) CLGS	42470 (A) SHGS	43120 (A) CORP		
DOWPPR	41090 (A)	41040 (A) DOREV				
DSCR	20800 (A)	20710 (A) NEAP	20750 (A) NECR			
DSDMI	21980 (A)	21960 (A) DSEUD				
DSDMIT	21990 (T)	21980 (A) DSDMI				
DSDMP	22010 (A)	21960 (A) DSEUD				
DSDMPT	22020 (T)	22010 (A) DSDMP				
DSEUD	21960 (A)	20500 (A) NEED	20800 (A) DSCR			
DSP	22031 (A)	20710 (A) NEAP	22010 (A) DSDMP			
DSPR75	22033 (C)	22010 (A) DSDMP				
DSPTT	22032 (T)	22031 (A) DSP				
DT		20290 (L) DEPGHP	30940 (L) DGGA	31340 (L) DGSPA	32460 (L) CGPA	32530 (L) CGR
		32660 (L) CGURES	32760 (L) CGRES	33000 (L) HGPA	33060 (L) UGR	33280 (L) HGPA
		33560 (L) HGPA	33850 (L) LNNLC	34390 (L) PGNLC	41140 (L) DOGA	41560 (L) DOSPA
		42690 (L) COPA	42760 (L) COR	42890 (L) COURES	43000 (L) CORES	43240 (L) EOPA
		43310 (L) EOR	43530 (L) CLPA	43810 (L) SHPA	43910 (L) SHR	60730 (L) DCGA
		61180 (L) DCSPA	61730 (L) SCPA	61790 (L) SCR	62120 (L) HGPA	62180 (L) UCR
		70840 (L) SEGA	71330 (L) SESPA	73840 (L) HGPA	74210 (L) FCPA	74520 (L) FBPA

ECACC	74330 (A)	74780 (L) CCPA	75040 (L) OUPA	75500 (L) PVPA	75750 (L) OTPA	76000 (L) BMPA
ECAGR	71980 (A)	76310 (L) STPA	76550 (L) WEPa	76790 (L) LWPA	77120 (L) BNPA	77390 (L) RFR
ECARF	74240 (C)	74320 (A) ECPC				
ECCC	74340 (A)	71970 (A) ECCR				
ECCCP	74350 (A)	70890 (A) SEAR1	74230 (R) ECPAR			
ECCCR	71910 (C)	71370 (A) SECC1	74330 (A) ECACC			
ECCCRG	71930 (C)	71940 (A) ECSCC	74340 (A) ECCC			
ECCCT	74360 (T)	71900 (A) ECHCST				
ECCDGT	74280 (C)	71920 (A) ECEIDC				
ECCDGY	74290 (C)	74350 (A) ECCC				
ECCE	74410 (A)	71920 (A) ECFIDC	74260 (A) ECFCT			
ECCET	74420 (T)	71920 (A) ECEIDC	74260 (A) ECFCT			
ECCST	74370 (A)	74390 (A) ECFCT	74400 (A) ECDC			
ECCUPP	71950 (C)	74410 (A) ECCE				
ECDC	74400 (A)	70810 (A) SEPCST				
ECEIDC	71920 (A)	71940 (A) ECSCC				
ECFCR	74250 (R)	77870 (A) TEDC				
ECFCST	74390 (A)	71900 (A) ECHCST				
ECFCT	74260 (A)	71460 (A) SEAFCl	71500 (A) SENPC	71670 (A) ACMCST	74210 (L) ECPA	
ECFCTT	74270 (T)	71900 (A) ECHCST	74370 (A) ECCST			
ECCR	71970 (A)	71460 (A) SEAFCl	74250 (R) ECFCR			
ECINV	71880 (R)	74260 (A) ECFCT				
ECHCST	71900 (A)	71960 (A) ECSCM				
ECOMC	74380 (C)	71890 (N)	74250 (R) ECFCR			
ECPA	74210 (L)	71670 (A) ACMCST				
		71900 (A) ECHCST	74370 (A) ECCST			
ECPAR	74230 (R)	70890 (A) SEAR1	71370 (A) SECC1	71410 (A) SEPA	71980 (A) ECAGR	74210 (L) ECPA
ECPC	74320 (A)	74220 (N)	74230 (R) ECPAR	74320 (A) ECPC		
ECPR	74310 (A)	74210 (L) ECPA				
ECPUC		70290 (A) SEPC	74310 (A) ECPR	74400 (A) ECDC		
ECSCC	71940 (A)	70320 (A) SEPR	74370 (A) ECCST			
ECSCM	71960 (A)	71430 (A) SEPUC	71980 (A) ECAGE	74250 (R) ECFCR		
EOAGR	42070 (A)	71900 (A) ECHCST				
EOARF	43270 (C)	71940 (A) ECSCC				
EOAW	41960 (A)	42060 (A) ECCR				
EOCC	43400 (A)	41170 (A) DOARF	43260 (R) EOPAR			
EOCCF	43420 (C)	41940 (R) EOINV	42580 (A) DOAW			
EOCCR	42000 (C)	42040 (A) EOSCC	43410 (A) EOOMC			
EOCCRR	42020 (C)	43410 (A) EOOMC				
EOCP	43370 (A)	41990 (A) ECHCST				
EOCPH	43390 (C)	42010 (A) EOECR				
EOCST	43430 (A)	43360 (A) EOPC	43400 (A) EOCC			
EOCY	41970 (C)	43370 (A) EOPC				
EODMT	43380 (T)	41110 (A) DOEST				
EOECR	42010 (A)	41960 (A) EOAW				
EOFCR	43280 (R)	43370 (A) EOPC				
EOFCT	43290 (C)	41990 (A) ECHCST				
EOGR	42060 (A)	41620 (A) DOAFCT	41640 (A) DONPC	43240 (L) EOPA		
EOGS	42080 (A)	41620 (A) DOAFCT	43280 (R) EOFGR			
EOINV	41940 (R)	42050 (A) EOSCM				
EOLOGY	42030 (C)	41050 (A) DOCS	41980 (A) EOSP			
EOLOGY	41990 (A)	41950 (N)	43280 (R) EOFGR			
		42010 (A) EOECR				
		41980 (A) EOSP	42080 (A) FOGS			

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EOMC	43410 (A)	41990 (A) EOMCST	43430 (A) EOCST			
EOPA	43240 (L)	41170 (A) DOARF	41600 (A) DOPA	42010 (A) EOECR	42070 (A) EOAGR	43240 (L) EOPA
		43250 (N)	43260 (R) EOPAR	43360 (A) EOPC		
EOPAR	43260 (R)	43240 (L) EOPA				
EOPC	43360 (A)	40290 (A) DOPC	43350 (A) EOPR			
EOPR	43350 (A)	40350 (A) DOPR	41050 (A) DOGS	41090 (A) DOWPPR	43340 (R) EORDR	43430 (A) EOCST
EOPSY	42090 (C)	42080 (A) EOGS				
EOPUC		41610 (A) DOPUC	42070 (A) EOAGR	43280 (R) EOFCR		
EOR	43310 (L)	43310 (L) EOR	43320 (N)	43370 (A) EDCP		
EORDR	43340 (R)	43310 (L) EOR				
EORI	43330 (C)	43320 (N)	43370 (A) FOCP			
EOSCC	42040 (A)	41990 (A) EOMCST				
EOSCM	42050 (A)	42040 (A) EOSCC				
EOSP	41980 (A)	41960 (A) EOAW				
EOWEY	41100 (C)	41090 (A) DOWPPR	41990 (A) EOMCST			
FBACC	74610 (A)	74600 (A) FBPC				
FBAGR	72140 (A)	72130 (A) FBGR				
FBARF	74550 (C)	70890 (A) SEARI	74540 (R) FBPAR			
FBAR	72020 (A)	72000 (R) FBINV	73570 (A) SEAW			
FECC	74620 (A)	71370 (A) SECCI	74610 (A) FBACC			
FRCCP	74630 (C)	72100 (A) FBSCC	74620 (A) FBCC			
FBCCR	72050 (C)	72040 (A) FBMCST				
FRCCRC	72060 (C)	72040 (A) FBMCST				
FRCCRR	72080 (C)	72070 (A) FBECR				
FRCE	74680 (C)	74660 (A) FRFCST	74670 (A) FBDC			
FRGST	74640 (A)	70810 (A) SEPCST				
FRCUFP	72110 (C)	72100 (A) FBSCC				
FRGY	72030 (C)	72020 (A) FBAR				
FRDC	74670 (A)	77870 (A) TEDC				
FBECR	72070 (A)	72040 (A) FBMCST				
FBFCF	74560 (R)	71460 (A) SEAFCI	71500 (A) SENPC	74520 (L) FBPA		
FBFCST	74660 (A)	72040 (A) FBMCST	74640 (A) FRGST			
FRFCT	74570 (C)	71460 (A) SEAFCI	74560 (R) FRFCR			
FRGR	72130 (A)	72120 (A) FBSCM				
FBINV	72000 (R)	72010 (N)	74560 (R) FBFCR			
FBLCY	72090 (C)	72070 (A) FBECR				
FBMCST	72040 (A)	72020 (A) FBAR				
FBOMC	74650 (C)	72040 (A) FBMCST	74640 (A) FRGST			
FBPA	74520 (L)	70890 (A) SEARI	71370 (A) SECCI	71410 (A) SEPA	72070 (A) FBECR	72140 (A) FBAGR
		74520 (L) FBPA	74530 (N)	74540 (R) FBPAR	74600 (A) FBPC	
FBPAR	74540 (R)	74520 (L) FBPA				
FBPC	74600 (A)	70290 (A) SEPC	74590 (A) FBPR	74670 (A) FBDC		
FBPR	74590 (A)	70320 (A) SEPR	74640 (A) FBGST			
FRPUC		71430 (A) SEPUC	72140 (A) FBAGR	74560 (R) FBFCR		
FBSCC	72100 (A)	72040 (A) FBMCST				
FBSCM	72120 (A)	72100 (A) FBSCC				
GEFCF	75370 (C)	75360 (A) GEFCST				
GEFCST	75360 (A)	75290 (A) OUFEST				
HEPR	77660 (A)	70250 (A) SED	70310 (A) TEPR			
HEPRT	77670 (T)	77660 (A) HEPR				
HGAGR	32100 (A)	32090 (A) HGGRI				
HGARF	33310 (C)	30970 (A) DGARF	33300 (R) HGPAR			
HGAW	31980 (A)	31960 (R) HGINV	32350 (A) DGAW			
HGCC	33430 (A)	32070 (A) HGSCC	32140 (A) HGSCST			

HGCCY	33360 (C)	32050 (A) HGEIDC	33330 (A) HGFCT			
HGCF	33390 (C)	33380 (A) HGDC	33460 (A) HGFCST			
HGCP	33420 (C)	33410 (A) HGPC	33430 (A) HGCC			
HGCSST	33440 (A)	30910 (A) DGCST				
HGDC	33380 (A)	34570 (A) TGDC				
HGDMS	32120 (C)	32110 (A) HGGs				
HGEER	32020 (A)	32000 (A) HGMCSST	32140 (A) HGSCST			
HGEIDC	32050 (A)	32000 (A) HGMCSST	32140 (A) HGSCST			
HGFCR	33320 (R)	31400 (A) DGAFCT	31420 (A) DGNPC	33280 (L) HGPA		
HGFCST	33460 (A)	32000 (A) HGMCSST	32140 (A) HGSCST	33440 (A) HGCST		
HGFCT	33330 (A)	31400 (A) DGAFCT	33320 (R) HGFCR			
HGGRI	32090 (A)	32000 (A) HGSCH				
HGGS	32110 (A)	30900 (A) DGCS	31990 (A) HGSP			
HGINV	31960 (R)	31970 (A)	33320 (R) HGFCR			
HGICV	32040 (C)	32020 (A) HGEER				
HGMCSST	32000 (A)	31990 (A) HGSP				
HGONC	33450 (C)	32000 (A) HGMCSST	32140 (A) HGSCST	33440 (A) HGCST		
HGPA	33280 (L)	30970 (A) DGARF	31380 (A) DGPA	32020 (A) HGEER	32100 (A) HGAGR	33280 (L) HGPA
		33290 (N)	33300 (R) HGPAR	33410 (A) HGPC		
HGPAR	33300 (R)	33280 (L) HGPA				
HGPC	33410 (A)	30330 (A) DGPC	33380 (A) HGDC	33400 (A) HGPR		
HGPR	33400 (A)	30350 (A) DGPR	30900 (A) DGGS	32110 (A) HGGs	33440 (A) HGCST	
HGPSY	32130 (C)	32110 (A) HGGs				
HGPUC		31390 (A) DGPUC	32100 (A) HGAGR	33320 (R) HGFCR		
HGSCC	32070 (A)	32000 (A) HGMCSST				
HGSCM	32080 (A)	32070 (A) HGSCC				
HGSCST	32140 (A)	32110 (A) HGGs				
HGSP	31990 (A)	31980 (A) HGAW				
HTPR	77760 (A)	70250 (A) SED	70310 (A) TEPR			
HTPET	77770 (T)	77760 (A) HTPR				
LNCL	33900 (C)	33880 (A) LNLCIR	33920 (R) LNLCER			
LNCR	33820 (A)	30260 (A) DGUCUF	30340 (A) TGPR	30400 (A) DGCCR	30460 (A) DGIMD	30550 (A) TGP
LNCRH	33830 (A)	33820 (A) LNCR				
LNCRF	33840 (T)	33830 (A) LNCRH				
LNDALC	33910 (A)	33880 (A) LNLCIR				
LNLCIR	33880 (A)	33870 (R) LNLCIR				
LNLCAT	33890 (C)	33880 (A) LNLCIR				
LNLCER	33920 (R)	33850 (L) LNNLC				
LNLCIR	33870 (R)	33850 (L) LNNLC				
LNNLC	33850 (L)	33820 (A) LNCR	33850 (L) LNNLC	33860 (N)	33880 (A) LNLCIR	33920 (R) LNLCER
LNWP	33930 (A)	30440 (A) DGFEDP	30550 (A) TGP			
LNWPT	33940 (T)	33930 (A) LNWP				
LWACC	76910 (A)	76900 (A) LWPC				
LWAGR	72770 (A)	72760 (A) LWGR				
LWAF	76820 (C)	70910 (A) SFAR2	76810 (R) LWPAR			
LWAW	72630 (A)	72610 (R) LWINV	73570 (A) SEAW			
LWBR	77480 (C)	77470 (A) LWTFGR				
LWCC	76920 (A)	71390 (A) SECC2	76910 (A) LWACC			
LWCCP	76930 (A)	72730 (A) LWSCC	76920 (A) LWCC			
LWCCR	72670 (C)	72660 (A) LWMCSST				
LWCCRC	72690 (C)	72680 (A) LWEIDC				
LWCCT	76940 (T)	76930 (A) LWCCP				
LWCE	76980 (C)	76970 (A) LWFCST	76990 (R) LWDRF	77470 (A) LWTFGR		
LWCT	76950 (A)	70810 (A) SEPCST				

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LWCIFF	72740 (C)	72730 (A) LWSCC			
LWCY	72640 (C)	72630 (A) LWAW			
LWDRF	76990 (R)	77390 (L) RFR			
LWEFF	77000 (A)	76970 (A) LWFCST	76990 (R) LWDRF		
LWEFFN	77010 (C)	77000 (A) LWEFF			
LWEIDC	72680 (A)	72660 (A) LWMCST			
LWERR	72700 (A)	72660 (A) LWMCST			
LWERRT	72710 (T)	72700 (A) LWERR			
LVERY	72720 (C)	72700 (A) LWERR			
LWFCR	76830 (R)	71480 (A) SEAPC2	71500 (A) SENPC	76790 (L) LWPA	
LWFCST	76970 (A)	72660 (A) LWMCST	76950 (A) LWCST		
LWGR	72760 (A)	72750 (A) LWSCN			
LWINV	72610 (R)	72620 (N)	76830 (R) LWFCR		
LWMCST	72660 (A)	72630 (A) LWAW			
LWNY	72650 (C)	72630 (A) LWAW			
LWONC	76960 (C)	72660 (A) LWMCST	76950 (A) LWCST		
LWPA	76790 (L)	70910 (A) SEAR2	71390 (A) SECC2	71410 (A) SEPA	72770 (A) LWAGR
		76800 (N)	76810 (R) LWPAR	76900 (A) LWPC	75790 (L) LWPA
LWPAR	76810 (R)	76790 (L) LWPA			
LWPC	76900 (A)	70290 (A) SEPC	76890 (A) LWPR	76990 (R) LWDRF	
LWPR	76890 (A)	70320 (A) SEPR	76950 (A) LWCST	77470 (A) LWFCR	
LWPUC		71430 (A) SEPUC	72770 (A) LWAGR	76830 (R) LWFCR	
LWSCC	72730 (A)	72660 (A) LWMCST			
LWSCN	72750 (A)	72730 (A) LWSCC			
LWTFCR	77470 (A)	77460 (R) PFRR			
MGAGR	32290 (A)	32280 (A) MGGR			
MGARF	33500 (C)	30970 (A) DGARF	33580 (R) MGPAR		
MGAW	32180 (A)	32160 (R) MGINV	32350 (A) DGAW		
MGCC	33690 (A)	32260 (A) MGSCC	32330 (A) MGSCST		
MGCCDCY	33620 (C)	32250 (A) MGEIDC	33610 (A) MGFCST		
MGCC	33650 (C)	33640 (A) MGDC	33720 (A) MGFCST		
MGCP	33680 (C)	33670 (A) MGPC	33690 (A) MGCC		
MGCST	33700 (A)	30910 (A) DGCST			
MGDC	33640 (A)	34570 (A) TCDC			
MGMMS	32310 (C)	32300 (A) MGGS			
MGEGR	32230 (A)	32220 (A) MGMCST	32330 (A) MGSCST		
MGEIDC	32250 (A)	32220 (A) MGMCST	32330 (A) MGSCST		
MGEFCR	33600 (R)	31400 (A) DGAFCT	31420 (A) DGNPC	33560 (L) MGPA	
MGFCST	33720 (A)	32220 (A) MGMCST	32330 (A) MGSCST	33700 (A) MGCST	
MGTCT	33610 (A)	31400 (A) DGAFCT	33600 (R) MGEFCR		
MGGRI	32280 (A)	32270 (A) MGSCN			
MGGS	32300 (A)	30900 (A) MGGS	32210 (A) MGSP		
MGINV	32160 (R)	32170 (N)	33600 (R) MGEFCR		
MGLGY	32240 (C)	32230 (A) MGEGR			
MGMCMST	32220 (A)	32210 (A) MGSP			
MGMMS	32190 (A)	32180 (A) MGAW			
MGMCMST	32200 (T)	32190 (A) MGMMS			
MGOMC	33710 (C)	32220 (A) MGMCST	32330 (A) MGSCST	33700 (A) MGCST	
MGPA	33560 (L)	30970 (A) DGARF	31380 (A) DGPA	32230 (A) MGEGR	32290 (A) MGAGR
		33570 (N)	33580 (R) MGPAR	33670 (A) MGPC	33560 (L) MGPA
MGPAR	33580 (R)	33560 (L) MGPA			
MGPC	33670 (A)	30330 (A) DGPC	32190 (A) MGMMS	33640 (A) MGDC	33660 (A) MGPR
MGPR	33660 (A)	30350 (A) DGPR	30900 (A) MGGS	32300 (A) MGGS	33700 (A) MGCST
MGPSY	32320 (C)	32300 (A) MGGS			

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MGPU		31390 (A) DGPUC	32290 (A) NGAGR	33600 (R) NGFCR
MGSCC	32260 (A)	32220 (A) MGHCST		
MGSCM	32270 (A)	32260 (A) MGSCC		
MGSCST	32330 (A)	32300 (A) MGGS		
MGSP	32210 (A)	32180 (A) MGAW		
MCACC	73970 (A)	73960 (A) NCPC		
MCACCI	73990 (C)	73980 (H)		
MCAGR	71860 (A)	71840 (A) NCGR		
MCARF	73880 (C)	70890 (A) SEARI	73870 (R) NCPAR	
NCCC	74000 (A)	71370 (A) SECCI	73970 (A) NCACC	73980 (N)
NCCCP	74010 (A)	71810 (A) NCSCC	74000 (A) NCCC	
NCCCR	71780 (C)	71770 (A) MGHCST		
NCCCRRC	71800 (C)	71790 (A) NCEIDC		
NCCCT	74020 (T)	74010 (A) NCCCP		
NCCDCT	73920 (C)	71790 (A) NCEIDC	73900 (A) NCFCT	
NCCDCY	73930 (C)	71790 (A) NCEIDC	73900 (A) NCFCT	
NCCE	74070 (A)	74050 (A) NCFCT	74060 (A) NCDC	
NCCET	74080 (T)	74070 (A) NCCE	75400 (A) OUCCE	
NCCST	74030 (A)	70810 (A) SEPCST		
NCCUFP	71820 (C)	71810 (A) NCSCC		
NCDC	74060 (A)	77870 (A) TEDC		
NCEIDC	71790 (A)	71770 (A) NCMCST		
NCFCR	73890 (R)	71460 (A) SEAFCI	71500 (A) SENPC	71670 (A) ACMCST
NCFCST	74050 (A)	71770 (A) NCMCST	74030 (A) NCCST	73840 (L) NCPA
NCFCT	73900 (A)	71460 (A) SEAFCI	73890 (R) NCFCR	
NCFCTT	73910 (T)	73900 (A) NCFCT		
NCGR	71840 (A)	71830 (A) NCSCM		
NCINV	71700 (R)	71710 (R)	73890 (R) NCFCR	
NCINVI	71720 (C)	71710 (N)		
NCHCST	71770 (A)	71670 (A) ACMCST		
NCMS	71730 (A)	71700 (R) NCINV	71880 (R) ECIHV	
NCHST	71740 (T)	71730 (A) NCMS		
NCHT	71750 (C)	71730 (A) NCMS		
NCHY	71760 (C)	71730 (A) NCMS		
NCOMC	74040 (C)	71770 (A) NCHCST	74030 (A) NCCST	
NCPA	73840 (L)	70890 (A) SEARI	71370 (A) SECCI	71410 (A) SEPA
		73850 (N)	73870 (R) NCPAR	71860 (A) NCAGR
		73850 (H)		73960 (A) NCPC
NCPAI	73860 (C)	73840 (L) NCPA		
NCPAR	73870 (R)	70290 (A) SEPC	73950 (A) NCPR	74060 (A) NCDC
NCPC	73960 (A)	70320 (A) SEPR	74030 (A) NCCST	
NCPR	73950 (A)	71430 (A) SEPUC	71860 (A) NCAGR	73890 (R) NCFCR
NCPU		71770 (A) NCHCST		
NCSCC	71810 (A)	71810 (A) NCSCC		
NCSCM	71830 (A)	20650 (A) HEDMA	21060 (A) DCDMA	21280 (A) TEDMA
NEAAT	20660 (C)	20250 (A) DEGNPM	20680 (A) NEOP	20730 (H)
NEAP	20710 (A)	20250 (A) DEGNPM	20610 (A) NEOP	20730 (N)
NEAP50	20740 (C)	20543 (A) NEPD	20930 (A) DCEUD	21160 (A) TFEUD
NECD	20490 (A)	20650 (A) HEDMA	20820 (N)	21380 (A) TGEUD
NECDR	20810 (A)	20710 (A) NEAP	20810 (A) NECDR	
NECR	20750 (A)	20510 (A) NECD	20543 (A) NEPD	21160 (A) TFEUD
NECSDT	20540 (C)	20510 (A) NECD		21380 (A) TGEUD
NECSY	20530 (C)	20510 (A) NECD		
NED	20510 (A)	20490 (A) NECD	21960 (A) DSEUD	
NED50	20542 (C)	20541 (A) NEID		

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NEDAT	20620 (C)	20610 (A) NEDMP	21020 (A) DCDMP	21240 (A) TEDMP	21460 (A) TGDMP	22010 (A) DSDMP
NEDD	20500 (A)	20490 (A) NECD	20810 (A) NECDR			
NEDMA	20650 (A)	20541 (A) NEID				
NEDMI	20580 (A)	20541 (A) NEID				
NEDMP	20610 (A)	20541 (A) NEID				
NEDP	20680 (A)	20610 (A) NEDMP				
NEID	20541 (A)	20510 (A) NED				
NEIE	20590 (C)	20580 (A) NEDMI				
NEOCS	20544 (C)	20543 (A) NEPD				
NEOCSY	20545 (C)	20543 (A) NEPD				
NEPCS	20520 (C)	20510 (A) NED				
NEPD	20543 (A)	20810 (A) NECDR	21720 (A) TOEUD			
NEPE	20630 (C)	20610 (A) NEDMP				
NEPXT	20690 (C)	20680 (A) NEDP				
NEXTY	20700 (C)	20680 (A) NEDP				
NGFCT	32510 (C)	31400 (A) DGAFCT	32500 (R) CGFCR	33040 (R) UGFCR		
NOCCR	41850 (C)	41840 (A) COMCST				
NUCDCT	76860 (C)	72680 (A) LWEIDC	72890 (A) RNEIDC	76840 (A) NUFCT		
NUCDCY	76870 (C)	72680 (A) LWEIDC	72890 (A) BNEIDC	76840 (A) NUFCT		
NUFCT	76840 (A)	71480 (A) SEAFCT2	76830 (R) LWFCR	77160 (R) BNFCR		
NUFCTT	76850 (T)	76840 (A) NUFCT				
OCCIR	75120 (A)	75110 (R) OCCVR				
OCCVR	75110 (R)	73840 (L) NCPA	75040 (L) OUPA			
OCCYC	75150 (C)	75110 (R) OCCVR	75120 (A) OCCIR			
OCCYI	75140 (C)	75110 (R) OCCVR	75120 (A) OCCIR			
OCCG77	75130 (C)	75120 (A) OCCIR				
OEFCF	75390 (C)	34080 (A) SHWP	75380 (A) OEFCST			
OEFCST	75380 (A)	75290 (A) OUFCT				
OOP	80170 (A)	31920 (A) UGNTC	33930 (A) LNWP	34270 (A) AGWP	34470 (A) PGWP	40890 (A) DIP
		42500 (A) SHNTC	44250 (A) AOWP			
OOP1	80210 (A)	80190 (A) OOPA79				
OOP1T	80220 (T)	80210 (A) OOP1				
OOP2	80230 (A)	80200 (A) OOP32				
OOP2T	80240 (T)	80230 (A) OOP2				
OOP3	80250 (A)	80200 (A) OOP32				
OOP32	80200 (A)	80190 (A) OOPA79				
OOP3T	80260 (T)	80250 (A) OOP3				
OOPA79	80190 (A)	80180 (A) OOPPB				
OOPDR	80160 (A)	40390 (A) NTCR				
OOPPB	80180 (A)	80170 (A) OOP				
OTACC	75840 (A)	75830 (A) OTPC				
OTAGR	73100 (A)	73090 (A) OTGR				
OTARF	75780 (C)	70890 (A) SEARI	75770 (R) OTPAR			
OTAW	72990 (A)	72970 (R) OTIHV	73570 (A) SEAW			
OTCC	75850 (A)	71370 (A) SECCI	75840 (A) OTACC			
OTCCP	75870 (A)	73060 (A) OTSCC	75850 (A) OTCC			
OTCCR	73020 (C)	73010 (A) OTMCST				
OTCCRR	73040 (C)	73030 (A) OTECR				
OTCCT	75880 (T)	75870 (A) OTCCP				
OTCST	75890 (A)	70810 (A) SEPCST				
OTCUFP	73070 (C)	73060 (A) OTSCC				
OTCY	73000 (C)	72990 (A) OTAW				
OTECR	73030 (A)	73010 (A) OTMCST				
OTFCR	75790 (R)	71460 (A) SEAFCT1	71500 (A) SENPC	75750 (L) OTPA		

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OTFCT	75800 (C)	71460 (A) SEAFCL	75790 (R) OTFCR			
OTGR	73090 (A)	73080 (A) OTSCM				
OTINV	72970 (R)	72980 (N)	75790 (R) OTFCR			
OTLGY	73050 (C)	73030 (A) OTECR				
OTMCST	73010 (A)	72990 (A) OTAW				
OTOMC	75900 (C)	73010 (A) OTMCST	75890 (A) OTCST			
OTPA	75750 (L)	70890 (A) SEAR1	71370 (A) SECCI	71410 (A) SEPA	73030 (A) OTECR	73100 (A) OTAGR
		75750 (L) OTPA	75760 (N)	75770 (R) OTPAR	75830 (A) OTPC	
OTPAR	75770 (R)	75750 (L) OTPA				
OTPC	75830 (A)	70290 (A) SEPC	75820 (A) OTPR			
OTPR	75820 (A)	70320 (A) SEPR	75890 (A) OTCST			
OTPUC		71430 (A) SEPUC	73100 (A) OTAGR	75790 (R) OTFCR		
OTSCC	73060 (A)	73010 (A) OTMCST				
OTSCN	73080 (A)	73060 (A) OTSCC				
OTTDCC	75860 (C)	75850 (A) OTCC				
OUACC	75190 (A)	75180 (A) OUPC				
OUACCI	75210 (C)	75200 (N)				
OUAGR	72440 (A)	72430 (A) OUGR				
OUARF	75080 (C)	70890 (A) SEAR1	75070 (R) OUPAR			
OUAW	72350 (A)	72320 (R) OUIINV	73570 (A) SEAW			
OUCC	75240 (A)	71370 (A) SECCI	75120 (A) OCCIR	75190 (A) OUACC	75200 (N)	
OUCCP	75250 (A)	72400 (A) OUSCC	75240 (A) OUCC			
OUCCR	72390 (C)	72370 (A) OUMCST				
OUCCST	75260 (T)	75250 (A) OUCCP				
OUCE	75400 (A)	75300 (A) OUDOG	75360 (A) GEFCST	75380 (A) OEFCST		
OUCHMP	75220 (A)	72400 (A) OUSCC	75180 (A) OUPC			
OUCHPT	75230 (T)	75220 (A) OUCHMP				
OU CST	75270 (A)	70810 (A) SEPCST				
OUCHFP	72410 (C)	72400 (A) OUSCC				
OU CY	72360 (C)	72350 (A) OUAW				
OU DG	75320 (A)	30320 (A) TOND	75330 (A) OUDO			
OU DO	75330 (A)	40280 (A) TOND				
OU DOG	75300 (A)	75320 (A) OUDG	75330 (A) OUDO			
OUFCR	75090 (R)	71460 (A) SEAFCL	71500 (A) SENPC	75040 (L) OUPA		
OUFCST	75290 (A)	72370 (A) OUMCST	75270 (A) OUCST			
OUFCT	75100 (C)	71460 (A) SEAFCL	75090 (R) OUFCR			
OUFDG	75340 (A)	75290 (A) OUFCST	75320 (A) OUDG	75410 (A) OUPDR		
OUFDGT	75350 (T)	75340 (A) OUFDG				
OUFR	72430 (A)	72420 (A) OUSCH				
OUTNV	72320 (R)	72330 (N)	75090 (R) OUFCR			
OUTHVI	72340 (C)	72330 (N)				
OUMCST	72370 (A)	72350 (A) OUAW				
OU MY	72380 (C)	72370 (A) OUMCST				
OUOMC	75280 (C)	72370 (A) OUMCST	75270 (A) OUCST			
OU PA	75040 (L)	70890 (A) SEAR1	71370 (A) SECCI	71410 (A) SEPA	72440 (A) OUAGR	75040 (L) OUPA
		75050 (N)	75070 (R) OUPAR	75180 (A) OUPC		
OU PAI	75060 (C)	75050 (N)				
OU PAR	75070 (R)	75040 (L) OUPA				
OU PC	75180 (A)	70290 (A) SEPC	75170 (A) OUPR	75300 (A) OUDOG		
OUPDR	75410 (A)	75170 (A) OUPR				
OUPR	75170 (A)	70320 (A) SEPR	75270 (A) OUCST			
OUPHC		71430 (A) SEPUC	72440 (A) OUAGR	75090 (R) OUFCR		
OUSCC	72400 (A)	72370 (A) OUMCST				
OUSCM	72420 (A)	72400 (A) OUSCC				

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PCASE	80270 (C)	80190 (A) OOPA79	80200 (A) OOP32			
PFRR	77460 (R)	77390 (L) RFR				
PGCL	34440 (C)	34420 (A) PGILCIR	34460 (R) PGLCER			
PGCR	34360 (A)	30260 (A) DGUCHF	30340 (A) TGPR	30400 (A) DGCUR	30460 (A) DGIMD	30550 (A) TGP
PGCPM	34370 (A)	34360 (A) PGCR				
PGCRT	34380 (T)	34370 (A) PGCRM				
PGDALC	34450 (A)	34420 (A) PGILCIR				
PGILCIR	34420 (A)	34410 (R) PGLCIR				
PGLCAT	34430 (C)	34420 (A) PGILCIR				
PGLCER	34460 (R)	34390 (L) PGNLC				
PGLCIR	34410 (R)	34390 (L) PGNLC				
PGNLC	34390 (L)	34360 (A) PGCR	34390 (L) PGNLC	34400 (N)	34420 (A) PGILCIR	34460 (R) PGLCER
PGWP	34470 (A)	30440 (A) DGFEDP	30550 (A) TGP			
POPR	40400 (A)	40340 (A) TOPR	40390 (A) DICR	40570 (A) TOAMP		
POPRM	44340 (A)	40400 (A) POPR				
POPRMT	44350 (T)	44340 (A) POPRM				
PVACC	75590 (A)	75580 (A) PVFC				
PVAGR	72590 (A)	72580 (A) PVGR				
PVARF	75530 (C)	70910 (A) SEAR2	75520 (R) PVPAR			
PVAW	72480 (A)	72460 (R) PVINV	73570 (A) SEAW			
PVCC	75600 (A)	71390 (A) SECC2	75590 (A) PVACC			
PVCCP	75610 (A)	72550 (A) PVSCC	75600 (A) PVCC			
PVCCR	72510 (C)	72500 (A) PVMCST				
PVCCR	72530 (C)	72520 (A) PVECR				
PVCCT	75620 (T)	75610 (A) PVCCP				
PVCST	75630 (A)	70810 (A) SEPST				
PVCUPP	72560 (C)	72550 (A) PVSCC				
PVCY	72490 (C)	72480 (A) PVAW				
PVECR	72520 (A)	72500 (A) PVMCST				
PVFCR	75540 (R)	71480 (A) SEAF2	71500 (A) SENPC	75500 (L) PVPA		
PVFCT	75550 (C)	71480 (A) SEAF2	75540 (R) PVFCR			
PVGR	72580 (A)	72570 (A) PVSCM				
PVINV	72460 (R)	72470 (N)	75540 (R) PVFCR			
PVLGY	72540 (C)	72520 (A) PVECR				
PVICST	72500 (A)	72480 (A) PVAW				
PVOMC	75640 (C)	72500 (A) PVMCST	75630 (A) PVCST			
PVPA	75500 (L)	70910 (A) SEAR2	71390 (A) SECC2	71410 (A) SEPA	72520 (A) PVECR	72590 (A) PVAGR
		75500 (L) PVPA	75510 (N)	75520 (R) PVPAR	75580 (A) PVPC	
PVPAR	75520 (R)	75500 (L) PVPA				
PVPC	75580 (A)	70290 (A) SEPC	75570 (A) PVPR			
PVPR	75570 (A)	70320 (A) SEPR	75630 (A) PVCST			
PVPUC		71430 (A) SEPUC	72590 (A) PVAGR	75540 (R) PVFCR		
PVSCC	72550 (A)	72500 (A) PVMCST				
PVSCM	72570 (A)	72550 (A) PVSCC				
RFED	77430 (R)	77390 (L) RFR				
RFEDT	77440 (T)	77430 (R) RFED				
RFP	77520 (A)	76970 (A) LWFPCST	77250 (A) BNFCST			
RFPM	77550 (A)	77520 (A) RFP				
RFPMT	77560 (T)	77550 (A) RFPM				
RFPR	77530 (A)	77520 (A) RFP				
RFPRT	77540 (T)	77530 (A) RFPR				
RFR	77390 (L)	77390 (L) RFR	77400 (N)	77530 (A) RFPR		
RFRI	77410 (C)	77400 (N)	77530 (A) RFPR			
SCAGR	61470 (A)	61460 (A) SCGR				

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SCARF	61760 (C)	61750 (R) SPCAR				
SCAW	61390 (A)	61360 (R) SCINV	61630 (A) DCAW			
SCCC	61910 (A)	61430 (A) SCSCC	61920 (A) SCOMC			
SCCCR	61420 (A)	61400 (A) SCHCST				
SCCF	61930 (C)	61920 (A) SCOMC				
SCCP	61860 (A)	61850 (A) SCPC	61910 (A) SCCC			
SCCPN	61880 (C)	61860 (A) SCCC				
SCCST	61940 (A)	60710 (A) DCCST				
SCDCNG	61410 (C)	61400 (A) SCHCST				
SCDMT	61870 (T)	61860 (A) SCCC				
SCFCR	61770 (R)	61240 (A) DCNPC	61730 (L) SCPA			
SCGR	61460 (A)	61440 (A) SCSCM				
SCINV	61360 (R)	61370 (N)	61770 (R) SCFCR			
SCINVI	61380 (C)	61370 (N)				
SCIRSC	62020 (C)	62000 (A) SCRSC				
SCMCST	61400 (A)	61390 (A) SCAW				
SCMY	61480 (C)	61390 (A) SCAW				
SCOMC	61920 (A)	61400 (A) SCHCST	61940 (A) SCCST			
SCPA	61730 (L)	61220 (A) DCPA	61470 (A) SCAGR	61730 (L) SCPA	61740 (N)	61750 (R) SPCAR
		61850 (A) SCPC				
SCPAR	61750 (R)	61730 (L) SCPA				
SCPC	61850 (A)	60310 (A) DCPC	61840 (A) SCPE			
SCPHS	61990 (A)	61860 (A) SCCC				
SCPR	61840 (A)	60320 (A) DCPR	61820 (R) SCRER	61940 (A) SCCST		
SCPUC		61230 (A) DCPUC	61470 (A) SCAGR	61770 (R) SCFCR		
SCR	61790 (L)	61790 (L) SCR	61800 (N)	61860 (A) SCCC		
SCRDR	61820 (R)	61790 (L) SCR				
SCRI	61810 (C)	61800 (N)	61860 (A) SCCC			
SCRSC	62000 (A)	61920 (A) SCOMC				
SCRSY	62010 (C)	62000 (A) SCRSC				
SCSCC	61430 (A)	61400 (A) SCHCST				
SCSCM	61440 (A)	61430 (A) SCSCC				
SCST	61950 (A)	61920 (A) SCOMC				
SCSTPT	61980 (C)	61950 (A) SCST				
SCSTPY	61990 (C)	61950 (A) SCST				
SCSTT	61970 (T)	61950 (A) SCST				
SCSTY	61960 (C)	61950 (A) SCST				
SEACST	70530 (A)	70500 (A) SEALP				
SEACHF	70600 (A)	71320 (A) SEDPC				
SEACUFT	70620 (T)	70610 (A) SEHACH				
SEADF	70980 (C)	70970 (A) SENA				
SEAFCT1	71460 (A)	71450 (A) SEAFCT				
SEAFCT2	71480 (A)	71450 (A) SEAFCT				
SEAFCT	71450 (A)	71280 (A) SEFN	71330 (L) SESPA			
SEALP	70500 (A)	70450 (A) TEP	70510 (N)			
SEALPI	70520 (C)	70510 (N)				
SEALROE	70550 (A)	70540 (A) TEPH				
SEAR1	70890 (A)	70880 (A) SEARF				
SEAR2	70910 (A)	70880 (A) SEARF				
SEARF	70980 (A)	70870 (R) SEGAR	71280 (A) SEFN			
SEATPA	74110 (C)	73970 (A) NCACC	74330 (A) ECACC	74610 (A) FBACC	74870 (A) CCACC	75190 (A) OUACC
		75590 (A) PVACC	75840 (A) OTACC	76090 (A) BMACC	76400 (A) STACC	75640 (A) UEACC
		76910 (A) LMACC	77200 (A) RMACC			
		71650 (A) ACINV	72000 (R) FBINV	72160 (R) CCINV	72320 (R) OUVINV	72460 (R) PVINV
	73570 (A)					

		72610 (R) LWINV	72790 (R) BNINV	72970 (R) OTINV	73120 (R) BMINV	73270 (R) STINV
		73420 (R) WEINV				
SERLC	71090 (C)	71080 (A) SEDEF				
SECC	71360 (A)	71310 (A) SENPA				
SECC1	71370 (A)	71360 (A) SECC				
SECC2	71390 (A)	71360 (A) SECC				
SECST	70800 (A)	70530 (A) SEACST	70750 (A) SENI			
SECUP	70230 (A)	70530 (A) SEACST	70540 (A) TEFM	73950 (A) NCPR	74060 (A) NCDC	74310 (A) ECPR
		74400 (A) ECDC	74590 (A) FBPR	74670 (A) FBDC	74850 (A) CCPR	74930 (A) CCDC
		75170 (A) OUPR	75300 (A) OUDOC	75570 (A) PVPR	75820 (A) OTPR	76070 (A) BMPR
		76380 (A) STPR	76620 (A) WEPR	76890 (A) LWPR	76990 (R) LWDRF	77180 (A) BNPR
SECUFF	70240 (T)	70230 (A) SECUF				
SED	70250 (A)	70230 (A) SECUF	71320 (A) SEDPC			
SEDEBT	71010 (A)	71030 (A) SEINT	71060 (A) SEDRMT	71140 (A) SEROI		
SEDEF	71080 (A)	70800 (A) SECST	71110 (A) SEIF			
SEDF		71010 (A) SEDEBT	71020 (N)			
SEDIV	71120 (A)	71110 (A) SEIF				
SEDL	71070 (C)	71060 (A) SEDRMT				
SEDPC	71320 (A)	71310 (A) SENPA				
SEDPDF	71130 (C)	71120 (A) SEDIV				
SEDRMT	71060 (A)	71110 (A) SEIF				
SEFAT	71180 (C)	71150 (A) SEROIN	71170 (A) SEROIX			
SEEF	71000 (C)	70990 (A) SEEQ	71020 (N)			
SEFEA	71220 (A)	71210 (A) SEFA				
SEEDICT	73620 (T)	71790 (A) NCEIDC	71920 (A) ECEIDC	72680 (A) LWEIDC	72890 (A) BNEIDC	
SEFQ	70990 (A)	70540 (A) TEFM	71140 (A) SEROI			
SEFA	71210 (A)	71530 (A) SEINV				
SEFCE	71560 (C)	71280 (A) SEFN	71530 (A) SEINV			
SEFN	71280 (A)	71530 (A) SEINV				
SEFPA	71300 (A)	71280 (A) SEFN				
SEGA	70840 (L)	70840 (L) SEGA	70850 (N)	70870 (R) SEGAR	70930 (R) SEVLI	70970 (A) SENA
		71080 (A) SEDEF	71220 (A) SEFEA			
SEGAI	70860 (C)	70850 (N)				
SEGAR	70870 (R)	70840 (L) SEGA				
SEGR	71230 (A)	71220 (A) SEFEA				
SEGR	71240 (T)	71230 (A) SEGR				
SEHACHF	70610 (A)	70600 (A) SEACUF				
SEHROE	70560 (C)	70550 (A) SEALROE				
SEIF	71110 (A)	71210 (A) SEFA				
SEINT	71030 (A)	70800 (A) SECST	71140 (A) SEROI			
SEINV	71530 (A)	70840 (L) SEGA	71540 (N)	71650 (A) ACINV	72000 (R) FBINV	72160 (R) CCINV
		72320 (R) OUVINV	72460 (R) PVINV	72610 (R) LWINV	72790 (R) BNINV	72970 (R) OTINV
		73120 (R) BNINV	73270 (R) STINV	73420 (R) WEINV		
		71540 (N)				
SEINVI	71550 (C)	71030 (A) SEINT				
SEIR	71040 (A)	71040 (A) SEIR				
SEIPN	71050 (C)	70750 (A) SENI				
SELTC	70780 (C)	70600 (A) SEACUF				
SELPY	70650 (C)	70990 (A) SEEQ	71010 (A) SEDERT			
SEFA	70970 (A)	71110 (A) SEIF	71120 (A) SEDIV	71140 (A) SEROI		
SENI	70750 (A)	71300 (A) SEFPA	71330 (L) SESPA			
SENPA	71310 (A)	70750 (A) SENI	71450 (A) SEAFCT			
SENPC	71500 (A)	75610 (A) PVCCP	75870 (A) OTCCP	76110 (A) BNCCP	76420 (A) STCCP	76660 (A) WECCP
SENTN	75660 (C)	70880 (A) SEARE	71280 (A) SEFN	71310 (A) SENPA	71360 (A) SECC	
SEPA	71410 (A)					

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SEPACUF	70630 (A)	70600 (A) SEACUF				
SEPAMI	73610 (C)	71860 (A) NCAGR	*1980 (A) ECAGR	72070 (A) FRECR	72140 (A) FBAGR	72230 (A) CCECR
		72300 (A) CCAGR	*2440 (A) OUAGR	72520 (A) PVECR	72590 (A) PVAGR	72770 (A) LWAGR
		72860 (A) BNECR	*2950 (A) BNAGR	73030 (A) OTECR	73100 (A) OTAGR	73180 (A) BMECR
		73250 (A) BNAGR	*3330 (A) STECR	73400 (A) STAGR	73480 (A) WEECR	73550 (A) WEAGR
SEPC	70290 (A)	70230 (A) SECUF	*0550 (A) SEACST	70540 (A) TEPH	71310 (A) SENPA	
SEPCST	70810 (A)	70800 (A) SECST				
SEPCUFT	70640 (T)	70630 (A) SEPACUF				
SEPLAS	70940 (A)	70930 (R) SEVLI				
SEPLAST	70950 (T)	70940 (A) SEPLAS				
SEPR	70320 (A)	70310 (A) TEPR	*0790 (A) SREV	73740 (A) TDCST		
SEPROE	70570 (C)	70550 (A) SEALROE				
SEPUC	71430 (A)	71280 (A) SEFN				
SEREV	70790 (A)	70750 (A) SENI				
SEROI	71140 (A)	71170 (A) SEROIX				
SEROIN	71150 (A)	71170 (A) SEROIX				
SEROIR	71160 (C)	71150 (A) SEROIN				
SEROIX	71170 (A)	71230 (A) SEGR				
SERRT	70480 (A)	70450 (A) TEP				
SERRTT	70490 (T)	70480 (A) SERRT				
SERRY	70580 (C)	70550 (A) SEALROE				
SESCMT	73600 (T)	71830 (A) NCSCM	*1960 (A) ECSCM	72120 (A) FRSCM	72280 (A) CCSCM	72420 (A) OUSCM
		72570 (A) PVSCM	*2750 (A) LWSCM	72930 (A) BNSCM	73080 (A) OTSCM	73230 (A) BMSCM
		73380 (A) STSCM	*3530 (A) WESCM			
SESPA	71330 (L)	71300 (A) SEFPA	*1330 (L) SESPA	71340 (H)		
SESPAI	71350 (C)	71340 (H)				
SETGR	73630 (C)	71840 (A) NCGR	*1970 (A) ECCR	72130 (A) FBGR	72290 (A) CGGR	72430 (A) OUGR
		72580 (A) PVGR	*2760 (A) LWGR	72940 (A) BNGR	73090 (A) OTGR	73240 (A) BMGR
		73390 (A) STGR	*3540 (A) WEGR			
SETR	70760 (A)	70540 (A) TEPH	*0750 (A) SENI			
SETRT	70770 (T)	70760 (A) SETR				
SEURGY	71250 (C)	71230 (A) SFGR				
SEURM	71260 (C)	71230 (A) SEGR				
SEVLI	70930 (R)	70840 (L) SEGA				
SEWF	73590 (C)	71660 (A) ACAW	*2020 (A) FBAW	72180 (A) CCAW	72350 (A) OUAW	72480 (A) PVAW
		72630 (A) LWAW	*2810 (A) BNAW	72990 (A) OTAW	73140 (A) BMAW	73290 (A) STAW
		73440 (A) WEAW				
SGCCR	32010 (C)	32000 (A) HGMCST	32140 (A) HGSCST	32220 (A) MGMCST	32330 (A) MGSCST	
SGCCRC	32060 (C)	32050 (A) HGFDIC	32250 (A) NGEIDC			
SGCCRR	32030 (C)	32020 (A) HGEGR	32230 (A) MGEGR			
SGHFCT	33340 (C)	33330 (A) HGFCT	33610 (A) HGFCT			
SGPFCT	33350 (C)	33330 (A) HGFCT	33610 (A) MGFCT			
SHAGR	42460 (A)	42450 (A) SHGR				
SHARF	43840 (C)	41170 (A) DOARF	43830 (R) SHPAR			
SHAW	42360 (A)	42340 (R) SHINV	42580 (A) DOAW			
SHCC	44000 (A)	42430 (A) SHSCC	42540 (A) SHIMKC	44010 (A) SHOMC		
SHCCF	44020 (C)	44010 (A) SHOMC				
SHCCPY	43890 (C)	42420 (A) SHEIDC	43860 (A) SHFCT			
SHCP	43970 (A)	43960 (A) SHPC	44000 (A) SHCC			
SHCPH	43990 (C)	43970 (A) SHCP				
SHCST	44040 (A)	41110 (A) DOCST				
SHCY	42370 (C)	42360 (A) SHAW				
SHDMS	42480 (C)	42470 (A) SHCS				
SHD	43980 (T)	43970 (A) SHCP				

SHECR	42400 (A)	42390 (A) SHMCST				
SHEIDC	42420 (A)	42390 (A) SHMCST				
SHFCR	43850 (P)	41620 (A) DOAFCT	41640 (A) DONPC	43810 (L) SHPA		
SHFCT	43860 (A)	41620 (A) DOAFCT	43850 (R) SHFCR			
SHGR	42450 (A)	42440 (A) SHSCM				
SHGS	42470 (A)	41050 (A) DOCS	42380 (A) SHSP			
SHHECT	43870 (C)	43860 (A) SHFCT				
SHHWC	42540 (A)	42360 (A) SHAW				
SHIMKCT	42550 (T)	42540 (A) SHIMWC				
SHINV	42340 (R)	42350 (N)	43850 (R) SHFCR			
SHLGY	42410 (C)	42400 (A) SHECR				
SHMCST	42390 (A)	42380 (A) SHSP	42470 (A) SHGS			
SHNTC	42500 (A)	41010 (A) DONI	42380 (A) SHSP			
SHNTCM	42520 (C)	42500 (A) SHNTC				
SHNCT	42510 (T)	31920 (A) UGHTC	42500 (A) SHNTC			
SHNTCY	42530 (C)	42500 (A) SHNTC				
SHOMC	44010 (A)	42390 (A) SHMCST	44040 (A) SHCST			
SHPA	43810 (L)	41170 (A) DOARF	41600 (A) DOPA	42400 (A) SHECR	42460 (A) SHAGR	42540 (A) SHIMWC
		43810 (L) SHPA	43820 (N)	43830 (R) SHPAR	43960 (A) SHPC	
SHPAR	43830 (R)	43810 (L) SHPA				
SHPC	43960 (A)	40290 (A) DOPC	43950 (A) SHPR			
SHPCMC	42560 (C)	42540 (A) SHIMWC				
SHPFCT	43880 (C)	43860 (A) SHFCT				
SHPR	43950 (A)	40350 (A) DOPC	41010 (A) DONI	41050 (A) DOCS	42470 (A) SHGS	43940 (R) SHRDR
		44040 (A) SHCST				
SUPSY	42490 (C)	42470 (A) SHGS				
SHPUC		41610 (A) DOPUC	42460 (A) SHAGR	42540 (A) SHIMWC	43850 (R) SHFCR	
SHR	43910 (L)	43910 (L) SHR	43920 (N)	43970 (A) SHCP		
SHRDR	43940 (R)	43910 (L) SHR				
SHRI	43930 (C)	43920 (N)	43970 (A) SHCP			
SHSCC	42430 (A)	42390 (A) SHMCST				
SHSCH	42440 (A)	42430 (A) SHSCC				
SHSP	42380 (A)	42360 (A) SHAW				
SHST	44030 (C)	44010 (A) SHOMC				
SNCE	34070 (C)	34060 (A) SNDO	34080 (A) SNWP			
SNCR	34030 (A)	30290 (A) DCGD	30340 (A) TGPR	30550 (A) TGP		
SNDO	34060 (A)	40280 (A) TOND				
SNOMC	34090 (C)	34080 (A) SNWP				
SNPR	34040 (A)	34030 (A) SNCR	34060 (A) SNDO			
SNPRT	34050 (T)	34040 (A) SNPR				
SNWP	34080 (A)	30550 (A) TGP				
SOCCR	42300 (C)	42170 (A) CLMCST	42270 (A) CLSCST	42390 (A) SHMCST		
SOCCRC	42320 (C)	42200 (A) CLFIDC	42420 (A) SHEIDC			
SOCCPR	42310 (C)	42180 (A) CLECR	42400 (A) SHECR			
STACC	76400 (A)	76390 (A) STPC				
STAGR	73400 (A)	73390 (A) STGR				
STARF	76340 (C)	70910 (A) SEAR2	76330 (R) STPAR			
STAW	73290 (A)	73270 (R) STINV	73570 (A) SEAW			
STCC	76410 (A)	71390 (A) SECC2	76400 (A) STACC			
STCCP	76420 (A)	73360 (A) STSCC	76410 (A) STCC			
STCCR	73320 (C)	73310 (A) STMCST				
STCCRP	73340 (C)	73330 (A) STECR				
STCCT	76430 (T)	76420 (A) STCCP				
STCST	76440 (A)	70810 (A) SEPCST				

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STCHFP	73370 (C)	73360 (A)	STSCC				
STCY	73300 (C)	73290 (A)	STAW				
STECR	73330 (A)	73310 (A)	STMCST				
STFCR	76350 (R)	71480 (A)	SEAFPC2	71500 (A)	SENPC	76310 (L)	STPA
STFCT	76360 (C)	71480 (A)	SEAFPC2	76350 (R)	STFCR		
STCR	73390 (A)	73380 (A)	STSCN				
STINV	73270 (R)	73280 (N)		76350 (R)	STFCR		
STLGY	73350 (C)	73330 (A)	STECR				
STMCST	73310 (A)	73290 (A)	STAW				
STOMC	76450 (C)	73310 (A)	STMCST	76440 (A)	STCST		
STPA	76310 (L)	70910 (A)	SEAR2	71390 (A)	SECC2	71410 (A)	SEPA
		76310 (L)	STPA	76320 (N)		76330 (P)	STPAR
STPAR	76330 (R)	76310 (L)	STPA			73330 (A)	STECR
STPC	76390 (A)	70290 (A)	SEPC	76380 (A)	STER	76390 (A)	STPC
STPR	76380 (A)	70320 (A)	SEPR	76440 (A)	STCST		
STPUC		71430 (A)	SEPUC	73400 (A)	STAGR	76350 (R)	STFCR
STSCC	73360 (A)	73310 (A)	STMCST				
STSCN	73380 (A)	73360 (A)	STSCC				
TGCC	73710 (A)	74000 (A)	NCCC	74340 (A)	ECCC	74620 (A)	FBCC
		75600 (A)	PVCC	76100 (A)	BMCC	74880 (A)	CCCC
		77210 (A)	BNCC			76650 (A)	WECC
		73710 (A)	TGCC				75240 (A)
		70810 (A)	SEPCST				OWCC
TDCCT	73720 (T)	73740 (A)	TDCST				76920 (A)
TDCST	73740 (A)	73740 (A)	TDCST				LWCC
TDOMC	73730 (C)	20710 (A)	NEAP	20750 (A)	NECR	22040 (A)	CEAP
TECR	20790 (A)	21160 (A)	TEEUD			22070 (A)	CECR
TECSY	21190 (C)	60280 (A)	DCND				
TEDC	77870 (A)	70260 (A)	TEGD	70530 (A)	SEACST	70540 (A)	TEPM
TEDE	70280 (C)	21160 (A)	TEEUD			70790 (A)	SEREV
TEDMA	21280 (A)	21160 (A)	TEEUD				73740 (A)
TEDMI	21210 (A)	21210 (A)	TEDMI				TDCST
TEDMIT	21220 (T)	21160 (A)	TEEUD				
TEDMP	21240 (A)	21240 (A)	TEDMP				
TEDMPT	21250 (T)	20790 (A)	TECR	21720 (A)	TOEUD	70270 (A)	TEND
TEEUD	21160 (A)	70250 (A)	SED	70340 (A)	TEPDR		
TEGD	70260 (A)	70260 (A)	TEGD				
TEND	70270 (A)	20710 (A)	NEAP	21240 (A)	TEBHP	22040 (A)	CEAP
TEP	70450 (A)	21160 (A)	TEEUD			70460 (N)	
TEPCS	21180 (C)	20790 (A)	TECR	21280 (A)	TEDMA	70350 (N)	
TEPDR	70340 (A)	70460 (N)					
TEPI	70470 (C)	70500 (A)	SEALP				
TEPM	70540 (A)	70340 (A)	TEPDR				
TEPR	70310 (A)	21240 (A)	TEDMP				
TEPR70	21260 (C)	20710 (A)	NEAP	20750 (A)	NECR	22040 (A)	CEAP
TCCR	20770 (A)	21380 (A)	TGEUD			22070 (A)	CECR
TGCSY	21410 (C)	60280 (A)	DCND				
TGDC	34570 (A)	30550 (A)	TCP				
TGDCHC	30580 (C)	30300 (A)	TGGD				
TGDE	30310 (C)	21380 (A)	TGEUD				
TGDMA	21500 (A)	21380 (A)	TGEUD				
TGDNI	21430 (A)	21430 (A)	TGDNI				
TGDMIT	21440 (T)	21380 (A)	TGEUD				
TGDMP	21460 (A)	21460 (A)	TGDMP				
TC-----	21470 (T)	20710 (A)	NEAP	21460 (A)	TGDMP	22040 (A)	CEAP
TC	21520 (A)						

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TGEUD	21380 (A)	20770 (A) TGCR	21720 (A) TOEUD	30320 (A) TGND		
TGCD	30300 (A)	30290 (A) DGCD	30360 (A) TGPDR	30370 (A) TGPCR		
TGND	30320 (A)	30300 (A) TGCD	32190 (A) MGMS			
TGP	30550 (A)	21520 (A) TGDP	30570 (N)	75360 (A) GEFCST		
TGPCR	30370 (A)	75410 (A) OUPDR				
TGPCS	21400 (C)	21780 (A) TGEUD				
TGPDR	30360 (A)	21500 (A) TGDMA	30380 (H)			
TGPF	30340 (A)	30360 (A) TGPDR	30370 (A) TGPCR	30550 (A) TGP	31880 (A) UGGS	32110 (A) HGGS
		32300 (A) HGGS				
TGPR70	21480 (C)	21460 (A) TGDMP				
TGPTX	21610 (C)	21520 (A) TGD				
TGXTY	21620 (C)	21520 (A) TGD				
TOARP	40570 (A)	40540 (A) TOP				
TOCR	20760 (A)	20710 (A) NEAP	20750 (A) NECR	22040 (A) CEAP	22070 (A) CECR	
TODC	44450 (A)	60280 (A) DCND				
TODCHC	40560 (C)	40540 (A)				
TODE	40270 (C)	40260 (A) D				
TODP	21740 (A)	20710 (A) NEAP	21020 (A) DCDMP	21240 (A) TEDMP	21460 (A) TGDMP	22040 (A) CEAP
TOEUD	21720 (A)	20760 (A) TOCR	40280 (A) TOND			
TGCD	40260 (A)	40250 (A) DOD	40360 (A) TOPDR	40420 (A) DIQUOT		
TOND	40280 (A)	40260 (A) TOND				
TOP	40540 (A)	21740 (A) TOPP	34080 (A) SNWP	40550 (N)	75380 (A) OEFCST	
TOPDR	40360 (A)	20760 (A) TOCR	21060 (A) DCDMA	21280 (A) TEDMA	21500 (A) TGDMA	40370 (N)
		40590 (A) DOWP	40710 (A) DOWP	75410 (A) OUPDR		
		40360 (A) TOPDR	40570 (A) TOAWP	42470 (A) SHGS		
TOPR	40340 (A)	21740 (A) TOPP				
TOPXT	21840 (C)	21740 (A) TOPP				
TOXTY	21850 (C)	21740 (A) TOPP				
UCAGR	61590 (A)	61580 (A) UCCR				
UCAR	62320 (A)	62300 (A) UCPMS				
UCARP	62150 (C)	62140 (R) UCPAR				
UCAW	61530 (A)	61500 (R) UCINV	61630 (A) DCAW			
UCCC	62350 (A)	61560 (A) UCSCC	62360 (A) UCOMC	62390 (A) UCLCST		
UCCCR	61550 (A)	61540 (A) UCMCST				
UCCF	62370 (C)	62360 (A) UCONC				
UCCLM	62460 (A)	62440 (A) UCCLR				
UCCLMT	62470 (T)	62460 (A) UCCLM				
UCCLR	62440 (A)	62390 (A) UCLCST				
UCCLRN	62450 (C)	62440 (A) UCCLR				
UCCP	62250 (A)	62240 (A) UCPC	62350 (A) UCCC			
UCCPN	62270 (C)	62250 (A) UCCP				
UCCST	62380 (A)	60710 (A) DCCST				
UCDHT	62260 (T)	62250 (A) UCCP				
UCFCR	62160 (R)	61240 (A) DCNFC	62120 (L) UCPA			
UCCR	61580 (A)	61570 (A) UCSCN				
UCINV	61500 (R)	61510 (N)	62160 (R) UCFCR			
UCINVI	61520 (C)	61510 (N)				
UCLCST	62390 (A)	61540 (A) UCMCST	62380 (A) UCCST			
UCLV	62400 (A)	62390 (A) UCLCST				
UCLWM	62420 (A)	62400 (A) UCLW				
UCLWMT	62430 (T)	62420 (A) UCLWM				
UCLWM	62410 (C)	62400 (A) UCLW				
UCMCST	61540 (A)	61530 (A) UCAW				
UCNSS	62330 (C)	62320 (A) UCAR				
UCONC	62360 (A)	61540 (A) UCMCST	62380 (A) UCCST			

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UCPA	62120 (L)	61220 (A) DCPA	61590 (A) UCAGR	62120 (L) UCPA	62130 (N)	62140 (R) UCPAR
UCPAR	62140 (R)	62240 (A) UCPC				
UCPC	62240 (A)	62120 (L) UCPA				
UCPMS	62300 (A)	60310 (A) DCPC	62230 (A) UCPR			
UCPMST	62310 (T)	62250 (A) UCCP				
UCPR	62230 (A)	62300 (A) UCPMS				
UCPUC		60320 (A) DCPR	62210 (R) UCRDR	62380 (A) UCCST		
UCR	62180 (L)	61230 (A) DCPUC	61590 (A) UCAGR	62160 (R) UGFCR		
UCRDR	62210 (R)	62180 (L) UCR	62190 (N)	62250 (A) UCCP		
UCRI	62200 (C)	62180 (L) UCR				
UCRSS	62340 (C)	62190 (N)	62250 (A) UCCP			
UCSCC	61560 (A)	62320 (A) UCAR				
UCSCM	61570 (A)	61540 (A) UCHCST				
UCTH	62280 (A)	61560 (A) UCSCC				
UCTMT	62290 (T)	62250 (A) UCCP				
UEFY	77020 (C)	62280 (A) UCTM				
UGAGR	31870 (A)	77000 (A) LWEPF				
UGARF	33030 (C)	31860 (A) UCGRI				
UGAW	31770 (A)	30970 (A) DGARF	33020 (R) UGFAR			
UGCC	33150 (A)	31750 (R) UGINV	32350 (A) DGAW			
UGCCF	33180 (C)	31840 (A) UGSCC	31900 (A) UGSCST	33170 (A) UGOMC		
UGCCR	31810 (C)	33170 (A) UGOMC				
UGCCRR	31830 (C)	31800 (A) UGHCST	31900 (A) UGSCST			
UGCP	33120 (A)	31820 (A) UGFCR				
UGCPN	33140 (C)	33110 (A) UGPC	33150 (A) UGCC			
UGCST	33160 (A)	33120 (A) UGCP				
UGCY	31780 (C)	30910 (A) DGCST				
UGDMS	31890 (C)	31770 (A) UCAW				
UGDMT	33130 (T)	31880 (A) UGGS				
UGEER	31820 (A)	33120 (A) UGCP				
UGFCR	33040 (R)	31800 (A) UGHCST	31900 (A) UGSCST			
UGGRI	31860 (A)	31400 (A) DCAFCST	31420 (A) DGMPC	33000 (L) UGPA		
UGGS	31880 (A)	31850 (A) UGSCM				
UGINV	31750 (R)	30900 (A) DGCS	31790 (A) UGSP			
UGHCST	31800 (A)	31760 (N)	33040 (R) UGFCR			
UGNTC	31920 (A)	31790 (A) UGSP				
UGNTCM	31930 (C)	30860 (A) DGNI	31790 (A) UGSP			
UGNTCY	31940 (C)	31920 (A) UGNTC				
UGOMC	33170 (A)	31920 (A) UGNTC				
UGPA	33000 (L)	31800 (A) UGHCST	31900 (A) UGSCST	33160 (A) UGCST		
		30970 (A) DGARF	31380 (A) DCPA	31820 (A) UGEER	31870 (A) UCAGR	33000 (L) UGPA
		33010 (N)	33020 (R) UGPAR	33110 (A) UGPC		
UGPAR	33020 (R)	33000 (L) UGPA				
UGPC	33110 (A)	30330 (A) DGPC	33100 (A) UGPR			
UGPR	33100 (A)	30350 (A) DGPR	30860 (A) DGH	30900 (A) DGGS	31880 (A) UGGS	33090 (R) UCRDR
		33160 (A) UGCST				
UGPSY	31910 (C)	31880 (A) UGGS				
UGPUC		31390 (A) DGPUC	31870 (A) UCAGR	33040 (R) UGFCR		
UGR	33060 (L)	33060 (L) UGR	33070 (N)	33120 (A) UCCP		
UGRDR	33090 (R)	33060 (L) UGR				
UGRI	33080 (C)	33070 (N)	33120 (A) UCCP			
UGSCC	31840 (A)					
UGSCM	31850 (A)	31800 (A) UGHCST				
UGT	31900 (A)	31840 (A) UGSCC				
		31880 (A) UGGS				

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UCSP	31790 (A)	31770 (A) UGAW			
WEACC	76640 (A)	76630 (A) WEPC			
WEACP	73550 (A)	73540 (A) WEGR			
WEARF	76580 (C)	70910 (A) SEAR2	76570 (R) WEPAR		
WEAW	73440 (A)	73420 (B) WEINW	73570 (A) SEAW		
WECC	76650 (A)	71390 (A) SECC2	76640 (A) WEACC		
WECCP	76660 (A)	73510 (A) WESCC	76650 (A) WECC		
WECCR	73470 (C)	73460 (A) WEMCST			
WECCRR	73490 (C)	73480 (A) WEECR			
WECCCT	76670 (T)	76660 (A) WECCP			
WECCST	76680 (A)	70810 (A) SEPCST			
WECHFP	73520 (C)	73510 (A) WESCC			
WECH	73450 (C)	73440 (A) WFAW			
WEFCR	73480 (A)	73460 (A) WEMCST			
WEFCR	76590 (R)	71480 (A) SEAF2	71500 (A) SENPC	76550 (L) WEPAR	
WEFCT	76600 (C)	71480 (A) SEAF2	76590 (R) WEFGR		
WEGR	73540 (A)	73530 (A) WESCH			
WEINW	73420 (R)	73430 (N)	76590 (R) WEFGR		
WEIGY	73500 (C)	73480 (A) WEECR			
WEMCST	73460 (A)	73440 (A) WFAW			
WEOMC	76690 (C)	73460 (A) WEMCST	76680 (A) WECST		
WEPA	76550 (L)	70910 (A) SEAR2	71390 (A) SECC2	71410 (A) SEPA	73480 (A) WEECR
		76550 (L) WEPAR	76560 (N)	76570 (R) WEPAR	73550 (A) WEAGR
		76550 (L) WEPAR			
WEPAR	76570 (R)	70290 (A) SEPC	76620 (A) WEPAR		
WEPC	76630 (A)	70320 (A) SEPR	76680 (A) WECST		
WEPR	76620 (A)	71430 (A) SEPUC	73550 (A) WEAGR		
WEPUC		73460 (A) WEMCST			
WESCC	73510 (A)	73510 (A) WESCC			
WESCH	73530 (A)				

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