

GE Energy

GE-PSLF LOAD FLOW DATA EXPORT/IMPORT FILE

for

PSLF VERSION 15.1

June 2005



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PSLF Version 15.1 June 2005

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1. GENERAL

The PSLF load flow data file contains data items in free-format records. Data items in each record are separated from one another by blanks; a string of several blanks is equivalent to a single blank, hence multiple blanks may be used to line up columns and otherwise to improve the appearance of the file.

The data records are grouped by type. Each group of records is preceded by a keyword record identifying its type.

Data records may be continued by placing a / character at the end of the "incomplete" line. Any number of continuations may be used in a record.

A file may contain comment records anywhere. Comment records are ignored when the file is read by the REPC command. Each comment record must have a # as its first character, and may contain any text after the # character. The # character may not be preceded by blanks.

The complete <number><name><kv> identifier of the bus must be used in each bus data record. In branch section, transformer, generator, load, shunt, and controlled shunt data records the bus number, name, base voltage, circuit identifier, and section entries may be replaced by the ! character if they are not to be used or if the default value is acceptable. Bus name and base voltage are not needed in these records if the bus numbers are being used to identify the system locations and vice versa. The 2-character identifier defaults to "1 " if a ! is used in its place. The branch

section number defaults to 1 if a ! is used in its place. The records where the use of the ! character is used are identified by a : character after the last entry in which a ! is allowed.

The last record of each file must be a keyword record containing the keyword "end".

2. RECORD GROUPS

The load flow data file contains groups of records, each preceded by an identifying keyword record as follows:

<i>Record Group</i>	<i>Described in Section</i>	<i>Keywords</i>
Title	3	title
Comments	4	comments
Solution Parameters	5	solution parameters
Bus Data	6	bus data
Branch Section Data	7	branch data
Transformer Data	8	transformer data
Generator Data	9	generator data
Load Data	10	load data
Shunt Data	11	shunt data
Controlled Shunt Data	12	svd data
Area Data	13	area data
Zone Data	14	zone data
Interface data	15	interface data
Interface branch data	16	interface branch data
DC Bus Data	17	dc bus data
DC Line Data	18	dc line data
DC Converter Data	19	dc converter data
Transformer Impedance Adjustment Data	20	z table data
UPFC Data	21	gcd data
Transaction Data	22	transaction data
Owner Data	23	owner data
Induction motor Data	24	motor data
Line Data	25	line data
Generator Reactive Capability Curves	26	qtable data

These groups of records may appear in any order, except that the Bus Data group must precede all groups appearing after it in the above table. Any group of records may be omitted.

3. TITLE

The title of the case. The title consists of any number of lines of text with a maximum length of 80 characters. The last record of the title must contain ! in its first column. The first five, or fewer,

title lines preceding the ! record are read into the case title. Title lines beyond the fifth are skipped and ignored.

4. COMMENTS

Comments describing the case. The comments consists of any number of lines of text with a maximum length of 80 characters. The last record of the comments must contain ! its first column. The first fifteen, or fewer, comment lines preceding the ! record are read into the case comments table. Comment lines beyond the fifteenth are skipped and ignored.

5. SOLUTION PARAMETERS

Records containing the load flow solution control flags. Each record must contain one of the following keyword/value pairs.

tap	<1 or 0>	TCUL adjustment flag
phas	<1 or 0>	Phase shifter adjustment flag
area	<1 or 0>	Area interchange control flag
svd	<1 or 0>	Control shunt adjustment flag
dctap	<1 or 0>	DC converter control flag
gcd	<1 or 0>	GCD control flag
jump	<value>	Jumper threshold impedance, pu
toler	<value>	Newton solution tolerance, MVA
sbase	<value>	System base, MVA

These records may appear in any order. The last record of this group must be followed by a record with a ! in its first column.

6. BUS DATA

A record for each bus in the load flow, containing:

```
<number> <"name"> <kV> : <ty> <vs> <vt> <an> <ar> <z> <vma> <vmi> <d_in>
<d_out> <projid> <level> <owner> <stisol> <latitude> <longitude> <islnum>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<number>	Bus number (integer from 1 to 99999999)	
<"name">	Alphanumeric string containing 1 to 8 characters and at least one non-numeric character within quotation marks	
<kV>	Base voltage	(kV)
<ty>	Bus type {0,1,2,-2}	

	0 = swing bus (voltage magnitude and phase fixed)	
	1 = load bus (unconstrained voltage angle and magnitude)	
	2 = generator bus (voltage control [terminal or remote] within generator limits)	
	-2 = generator bus with unlimited reactive power limits	
<vs>	Scheduled voltage	(pu)
<vt>	Bus voltage magnitude	(pu)
<an>	Bus voltage phase angle	(degrees)
<ar>	Bus area	
<z>	Bus zone	
<vma>	Voltage checking limit	(pu)
<vmi>	Voltage checking limit	(pu)
<d_in>	In service date	(yyymmdd)
<d_out>	Retirement date	(yyymmdd)
<proj id>	Project Identifier (information only)	
<level>	Level number (information only)	
<owner>	Bus owner	
<stisol>	Isolation status (future use)	
<latitude>	Latitude coordinate (information only)	
<longitude>	Longitude coordinate (information only)	
<islnum>	Island number (future use)	

7. BRANCH SECTION DATA

A record for each branch section in the load flow, containing:

```
<f bus> <"f name"> <f bkv> <t bus> <"t name"> <t bkv> <"ck"> <sec> <"long id">:
/
<st> <r> <x> <b> <r1> <r2> <r3> <r4> <a1> <l> <ar> <z> <gi> <tf> <tt> /
<d_in> <d_out> <proj id> <nst> <type> <r5> <r6> <r7> <r8> /
<o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4> <o5> <p5> <o6> <p6> <o7> <p7> <o8> <p8>
<ohms>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<f bus>	From bus number	
<"f name">	From bus name enclosed in quotation marks	
<f bkv>	From bus base voltage	(kV)
<t bus>	To bus number	
<"t name">	To bus name enclosed in quotation marks	
<t bkv>	To bus base voltage	(kV)
<"ck">	Two character circuit identifier enclosed in quotation marks	
<sec>	Section number (1-9 in ascending order beginning at "from" end)	

<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	Branch status 1=in service; 0=out of service	
<r>	Branch section resistance	(pu)
<x>	Branch section reactance	(pu)
	Branch section susceptance	(pu)
<r1>	First Branch Rating	(MVA)
<r2>	Second Branch Rating	(MVA)
<r3>	Third Branch Rating	(MVA)
<r4>	Fourth Branch Rating	(MVA)
<al>	Loss factor (0.0 - 1.0) used to assign losses. 1.0 = 100% loss assigned to "from" end of branch 0.0 = 100% loss assigned to "to" end of branch	
<l>	Branch length (information only)	
<ar>	Branch area number	
<z>	Branch Zone number	
<gi>	Transformer magnetizing (line terminated transformers)	
<tf>	Transformer "from" bus tap (line terminated transformers)	
<tt>	Transformer "to" bus tap (line terminated transformers)	
<d_in>	In service date	(yyymmdd)
<d_out>	Retirement date	(yyymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal branch status 1=in service; 0=out of service	
<type>	Type of line 0=normal line	
<r5>	Fifth Branch Rating	(MVA)
<r6>	Sixth Branch Rating	(MVA)
<r7>	Seventh Branch Rating	(MVA)
<r8>	Eighth Branch Rating	(MVA)
<o1>	Branch owner 1	
<p1>	Branch owner 1 participation factor (0.0 - 1.0)	
<o2>	Branch owner 2	
<p2>	Branch owner 2 participation factor (0.0 - 1.0)	
<o3>	Branch owner 3	
<p3>	Branch owner 3 participation factor (0.0 - 1.0)	
<o4>	Branch owner 4	
<p4>	Branch owner 4 participation factor (0.0 - 1.0)	
<o5>	Branch owner 5	
<p5>	Branch owner 5 participation factor (0.0 - 1.0)	
<o6>	Branch owner 6	
<p6>	Branch owner 6 participation factor (0.0 - 1.0)	
<o7>	Branch owner 7	
<p7>	Branch owner 7 participation factor (0.0 - 1.0)	
<o8>	Branch owner 8	
<p8>	Branch owner 8 participation factor (0.0 - 1.0)	
<ohms>	Ohmic data flag 1 if impedances in ohms 0 if in per unit	

8. TRANSFORMER DATA

A record for each transformer in the load flow, containing:

```
<f bus> <"f name"> <f bkv> <t bus> <"t name"> <t bkv> <"ck"> <"long id">:
<st> <type> <kreg bus> <"kreg name"> <kreg bkv> <zt> <iint bus> <"iint name"> /
<iint bkv> <tert bus> <"tert name"> <tert bkv> <area> <zone> <tbase> <zpsr> /
<zpsx> <zptr> <zptx> <ztsr> <ztsx> <vnomp> <vnoms> <vnomt> <anglp> <gmag> /
<bmag> <r1> <r2> <r3> <r4> <aloss> <tmax> <tmin> <vtmax> <vtmin> <stepp> <tapp>
<tapfp> <tapfs> <tapft> <date_in> <date_out> <projid> <stn> /
<r5> <r6> <r7> <r8> <o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4> <o5> <p5> /
<o6> <p6> <o7> <p7> <o8> <p8> <ohms> <tbasept> <tbasets> <angls> <anglt> /
<rs1> <rs2> <rs3> <rt1> <rt2> <rt3> <alosss> <alosst> <rxunits> <gbunits> /
<tunits> <rcomp> <xcomp>
```

where

<i>Name</i>	<i>Description</i>
<f bus>	From bus number
<"f name">	From bus name enclosed in quotation marks
<f bkv>	From bus base voltage (kV)
<t bus>	To bus number
<"t name">	To bus name enclosed in quotation marks
<t bkv>	To bus base voltage (kV)
<"ck">	Two character circuit identifier enclosed in quotation marks
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks
<st>	Transformer status 1=in service; 0=out of service
<type>	Control type {1,11,2,12,4,14} 1 or 11= None 2 or 12= Controls a voltage by adjusting TCUL ratio 4 or 14= Controls real power flow by adjusting ps angle
<kreg bus>	Number of bus whose voltage is controlled by this transformer if type is not a 1.
<"kreg name">	Regulating bus name enclosed in quotation marks
<kreg bkv>	Regulating bus base voltage
<iztbl>	Transformer impedance table number
<iint bus>	3-winding point bus number
<"iint name">	3-winding point bus name enclosed in quotation marks
<iint bkv>	3-winding point bus base voltage
<tert bus>	Tertiary winding bus number
<"tert name">	Tertiary winding bus name enclosed in quotation marks
<tert bkv>	Tertiary winding bus base voltage
<area>	Area assignment

<zone>	Owner Zone	
<tbase>	Transformer Base (primary to secondary)	(MVA)
<zpsr>	Resistance primary to secondary	(pu on tbase)
<zpsx>	Reactance primary to secondary	(pu on tbase)
<zptr>	Resistance primary to tertiary	(pu on tbasept)
<zptx>	Reactance primary to tertiary	(pu on tbasept)
<ztsr>	Resistance tertiary to secondary	(pu on tbasest)
<ztsx>	Reactance tertiary to secondary	(pu on tbasest)
<vnomp>	Primary winding nominal voltage	(kV)
<vnoms>	Secondary winding nominal voltage	(kV)
<vnomt>	Tertiary winding nominal voltage	(kV)
<anglp>	Primary winding phase angle	(degrees)
<gmag>	Magnetizing conductance	(pu on tbase)
<bmag>	Magnetizing susceptance	(pu on tbase)
<r1>	First Transformer Rating	(MVA)
<r2>	Second Transformer Rating	(MVA)
<r3>	Third Transformer Rating	(MVA)
<r4>	Fourth Transformer Rating	(MVA)
<aloss>	Loss factor (0.0 - 1.0) used to assign losses. 1.0 = 100% loss assigned to "from" side of transformer	
<tmax>	Maximum TCUL ratio if type 2 Maximum phase angle if type 4	(pu) (degrees)
<tmin>	Minimum TCUL ratio if type 2 Minimum phase angle if type 4	(pu) (degrees)
<vtmax>	Upper limit of controlled voltage band if type 2 Upper limit of controlled MW flow band if type 4	(pu) (pu)
<vtmin>	Lower limit of controlled voltage band if type 2 Lower limit of controlled MW flow band if type 4	(pu) (pu)
<stepp>	Ratio step of TCUL unit if type is 2 Angle step of TCUL unit if type is 4	(pu) (degrees)
<tapp>	TCUL tap position (primary winding)	(pu)
<tapfp>	Primary winding fixed tap position	(pu)
<tapfs>	Secondary winding fixed tap position	(pu)
<tapft>	Tertiary winding fixed tap position	(pu)
<date_in>	In service date	(yyymmdd)
<date_out>	Retirement date	(yyymmdd)
<projid>	Project Identifier (information only)	
<stn>	Normal transformer status 1 = in service 0 = out of service	
<r5>	Fifth Branch Rating	(MVA)
<r6>	Sixth Branch Rating	(MVA)
<r7>	Seventh Branch Rating	(MVA)
<r8>	Eighth Branch Rating	(MVA)
<o1>	Transformer owner 1	
<p1>	Transformer owner 1 participation factor (0.0 - 1.0)	

<o2>	Transformer owner 2	
<p2>	Transformer owner 2 participation factor (0.0 - 1.0)	
<o3>	Transformer owner 3	
<p3>	Transformer owner 3 participation factor (0.0 - 1.0)	
<o4>	Transformer owner 4	
<p4>	Transformer owner 4 participation factor (0.0 - 1.0)	
<o5>	Transformer owner 5	
<p5>	Transformer owner 5 participation factor (0.0 - 1.0)	
<o6>	Transformer owner 6	
<p6>	Transformer owner 6 participation factor (0.0 - 1.0)	
<o7>	Transformer owner 7	
<p7>	Transformer owner 7 participation factor (0.0 - 1.0)	
<o8>	Transformer owner 8	
<p8>	Transformer owner 8 participation factor (0.0 - 1.0)	
<ohms>	Ohmic data flag 1 if impedances in ohms 0 if in per unit	
<tbasept>	Transformer Base (primary to tertiary)	(MVA)
<tbasets>	Transformer Base (tertiary to secondary)	(MVA)
<angls>	Secondary winding phase angle	(degrees)
<anglt>	Tertiary winding phase angle	(degrees)
<rs1>	Secondary rating 1	(MVA)
<rs2>	Secondary rating 2	(MVA)
<rs3>	Secondary rating 3	(MVA)
<rt1>	Tertiary rating 1	(MVA)
<rt2>	Tertiary rating 1	(MVA)
<rt3>	Tertiary rating 1	(MVA)
<alosss>	Secondary Loss factor (0.0 - 1.0)	
<alosst>	Tertiary Loss factor (0.0 - 1.0)	
<rxunits>	R, X units (future use)	
<gbunits>	G, B units (future use)	
<tunits>	Tap units (future use)	
<rcomp>	Compensating resistance (future use)	(pu)
<xcomp>	Compensating reactance (future use)	(pu)

9. GENERATOR DATA

A record for each generator in the load flow, containing:

```
<bus> <"name"> <bkv> <"id"> <"long id"> : <st> <igreg bus> <"igreg name"> /
<igreg bkvr> <prf> <qrf> <ar> <z> <pgen> <pmax> <pmin> <qgen> <qmax> <qmin> /
<mbase> <rcomp> <xcomp> <zgenr> <zgenx> <h bus> <"h name"> <h bkvr> <t bus> /
<"t name"> <t bkvr> <d_in> <d_out> <projid> <snt> <rtr> <xtr> <gtap> /
<o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4> <o5> <p5> <o6> <p6> <o7> <p7> <o8> <p8>
<gov_flag> <agc_flag> <dispatch_flag> <baseload_flag> <air_temp> /
<turbine_type> <qtab> <pmax2>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
-------------	--------------------	--------------

<bus>	Generator terminal bus	
<"name">	Generator terminal bus name enclosed in quotation marks	
<bkv>	Generator terminal bus base voltage	(kV)
<"id">	2 character generator identifier enclosed in quotation marks	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	Generator status 1 = in service 0 = out of service	
<igreg bus>	Number of bus whose voltage is controlled by this generator	
<"igreg name">	Regulating bus name enclosed in quotation marks	
<igreg bkv>	Regulating bus base voltage	
<prf>	Real power regulating assignment factor (0.0 - 1.0)	
<qrf>	Reactive power regulating assignment factor (0.0 - 1.0)	
<ar>	Area assignment	
<z>	Zone assignment	
<pgen>	Actual real power output	(MW)
<pmax>	Maximum real power output	(MW)
<pmin>	Minimum real power output	(MW)
<qgen>	Actual reactive power output	(MVA _r)
<qmax>	Maximum reactive power output	(MVA _r)
<qmin>	Minimum reactive power output	(MVA _r)
<mbase>	Generator base	(MVA)
<rcomp>	Compensating resistance	(pu)
<xcomp>	Compensating reactance	(pu)
<zgenr>	Generator characteristic resistance	(pu)
<zgenx>	Generator characteristic reactance	(pu)
<h bus>	Number of high voltage bus of step up transformer	
<"h name">	High voltage bus name enclosed in quotation marks	
<h bkv>	High voltage bus base kv	
<t bus>	Number of generator terminal bus	
<"t name">	Generator terminal bus name enclosed in quotation marks	
<t bkv>	Generator terminal bus base voltage	
<d_in>	In service date	(yyymmdd)
<d_out>	Retirement date	(yyymmdd)
<projid>	Project Identifier (information only)	
<stn>	Normal generator status 1 = in service 0 = out of service	
<rtr>	Resistance of generator stepup transformer	(pu)
<xtr>	Reactance of generator stepup transformer	(pu)
<gtap>	Tap ratio of generator stepup transformer	(pu)

<o1>	Generator owner 1
<p1>	Generator owner 1 participation factor (0.0 - 1.0)
<o2>	Generator owner 2
<p2>	Generator owner 2 participation factor (0.0 - 1.0)
<o3>	Generator owner 3
<p3>	Generator owner 3 participation factor (0.0 - 1.0)
<o4>	Generator owner 4
<p4>	Generator owner 4 participation factor (0.0 - 1.0)
<o5>	Generator owner 5
<p5>	Generator owner 5 participation factor (0.0 - 1.0)
<o6>	Generator owner 6
<p6>	Generator owner 6 participation factor (0.0 - 1.0)
<o7>	Generator owner 7
<p7>	Generator owner 7 participation factor (0.0 - 1.0)
<o8>	Generator owner 8
<p8>	Generator owner 8 participation factor (0.0 - 1.0)
<gov_flag>	= 0 no governor control = 1 under governor control
<agc_flag>	= 0 no agc control = 1 agc control
<dispatch_flag>	= 0 not dispatchable = 1 dispatchable under manual load
<baseload_flag>	= 0 not at maximum output = 1 at maximum output
<air_temp>	ambient air temperature in degrees C (def =15)
<turbine_type>	= 1 non-reheat steam = 2 reheat steam = 3 steam cross-compound = 4 steam in combined cycle (separate shaft) = 5 hydro = 6 diesel non turbo charged = 7 diesel turbo charged = 11 industrial GT (single shaft) = 12 aero derivative GT = 13 single shaft combined cycle = 21 wind turbine
<qtab>	Reactive limits selection: = 0, use qmax, qmin = 1, use Q table if present
<pmax2>	Maximum real power output #2 (MW)

10. LOAD DATA

A record for each load in the load flow, containing:

```
<bus> <"name"> <bkv> <"id"> <"long id"> : <st> <p> <q> <ip> <iq> <g> <b> /
<ar> <z> <d_in> <d_out> <proj id> <nst> <owner>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<bus>	Load terminal bus	
<"name">	Load terminal bus name enclosed in quotation marks	
<bkv>	Load terminal bus base voltage	(kV)
<"id">	Two character load identifier enclosed in quotation marks	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	Load status 1 = in service 0 = out of service	
<p>	Constant real power	(MW)
<q>	Constant reactive power	(MVAR)
<ip>	Constant current real power	(MW)
<iq>	Constant current reactive power	(MVAR)
<g>	Constant admittance real power	(MW)
	Constant admittance reactive power	(MVAR)
<a>	Load area number	
<z>	Load Zone number	
<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal load status 1=in service; 0=out of service	
<owner>	Load owner	

11. SHUNT DATA

A record for each fixed shunt element in the load flow, containing:

```
<fbus> <"fname"> <fbkv> <"id"> <tbus> <"tname"> <tbkv> <"ck"> <sec> /
<"long id"> : <st> <ar> <z> <g> <b> <d_in> <d_out> <proj id> <nst> /
<ol> <p1> <o2> <p2> <o3> <p3> <o4> <p4> <reg bus> <"rname"> <rkv>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<fbus>	From shunt terminal bus	
<"fname">	From shunt terminal bus name enclosed in quotation marks	
<fbkv>	From shunt terminal bus base voltage	(kV)
<"id">	Two character shunt identifier enclosed in quotation marks	
<tbus>	To shunt terminal bus	
<"tname">	To shunt terminal bus name enclosed in quotation marks	

<tbkv>	To shunt terminal bus base voltage	(kV)
<"ck">	Two character shunt circuit enclosed in quotation marks	
<sec>	Section number (1-9 in ascending order beginning at "from" end)	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	Shunt status 1 = in service 0 = out of service	
<g>	Actual shunt conductance	(MW)
	Actual shunt susceptance	(MVAR)
<a>	Shunt area number	
<z>	Shunt Zone number	
<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal shunt status 1 = in service, 0 = out of service	
<o1>	Shunt owner 1	
<p1>	Shunt owner 1 participation factor (0.0 - 1.0)	
<o2>	Shunt owner 2	
<p2>	Shunt owner 2 participation factor (0.0 - 1.0)	
<o3>	Shunt owner 3	
<p3>	Shunt owner 3 participation factor (0.0 - 1.0)	
<o4>	Shunt owner 4	
<p4>	Shunt owner 4 participation factor (0.0 - 1.0)	
<reg bus>	Number of bus whose voltage is controlled by this shunt	
<"rname">	Regulating bus name enclosed in quotation marks	
<rkvv>	Regulating bus base voltage	

12. CONTROLLED SHUNT DATA

A record for each controlled shunt (SVD-Static VAR device) in the load flow, containing:

```
<bus> <"name"> <bkv> <"id"> <"long id"> : <st> <ty> <kreg bus> <"kreg name"> /
<kreg bkvv> <ar> <z> <g> <b> <bmin> <bmax> <vband> <befmin> <befmax> /
<d_in> <d_out> <proj id> <nst> <o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4> /
<n1 b1> <n2 b2> ... <n10 b10>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<bus>	SVD terminal bus	
<"name">	SVD terminal bus name enclosed in quotation marks	
<bkv>	SVD terminal bus base voltage	(kV)
<"id">	Two character SVD identifier enclosed in quotation marks	

<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	SVD status	
	1 = in service	
	0 = out of service	
<ty>	Device type	
	0 = Locked (Susceptance is held constant)	
	1 = Switched stepwise control. Steps switched on/off as necessary	
	2 = Artificial continuous control. Continuous control between total maximum and minimum susceptance	
<kreg bus>	Bus number whose bus voltage is regulated by this SVD	
<"kreg name">	Regulated bus name enclosed in quotation marks	
<kreg bkv>	Regulated bus base voltage	
<ar>	SVD area number	
<z>	SVD zone number	
<g>	Constant admittance real power	(Pu)
	Constant admittance reactive power	(Pu)
<bmin>	Minimum susceptance of continuous element	(Pu)
<bmax>	Maximum susceptance of continuous element	(Pu)
<vband>	Width of voltage control band	
<befmin>	Minimum total susceptance	(Pu)
<befmax>	Maximum total susceptance	(Pu)
<d_in>	In service date	(yyymmdd)
<d_out>	Retirement date	(yyymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal SVD status	
	1 = in service	
	0 = out of service	
<o1>	SVD owner 1	
<p1>	SVD owner 1 participation factor (0.0 - 1.0)	
<o2>	SVD owner 2	
<p2>	SVD owner 2 participation factor (0.0 - 1.0)	
<o3>	SVD owner 3	
<p3>	SVD owner 3 participation factor (0.0 - 1.0)	
<o4>	SVD owner 4	
<p4>	SVD owner 4 participation factor (0.0 - 1.0)	
<n1>	Number of equal admittance steps in first stage	
<b1>	Susceptance of each switched element in first stage	
<ni>	Number of equal admittance steps in i-th stage, (i <=10)	
<bi>	Susceptance of each switched element in i-th stage	

13. AREA DATA

A record for each area in the load flow, containing:

<arum> <"arnam"> <swing> <pnetdes> <pnettol> <pnet> <qnet>

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<arnum>	Area number (0 - 999)	
<"arnam">	Area name up to 32 characters enclosed in quotation marks	
<swing>	Bus number at which area swing generator is located	
<pnetdes>	Scheduled real power net interchange	(MW)
<pnettol>	Real power net interchange tolerance	(MW)
<pnet>	Actual real power net interchange	(MW)
<qnet>	Actual reactive power net interchange	(MVAR)

14. ZONE DATA

A record for each zone in the load flow, containing:

<zonum><"zonam"> <pznet> <qznet>

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<zonum>	Zone number (0 - 999)	
<"zonam">	Zone name up to 32 characters enclosed in quotation marks	
<pznet>	Actual real power interchange	(MW)
<qznet>	Actual reactive power interchange	(MVAR)

15. INTERFACE DATA

A record for each interface in the load flow, containing:

<ifno> <"name"> <pnet> <qnet> <r1> <r2> <r3> <r4> <r5> <r6> <r7> <r8>

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<ifno>	Interface number	
<"name">	Interface name up to 32 characters enclosed in quotation marks	
<pnet>	Actual real power flow across interface	(MW)
<qnet>	Actual reactive power flow across interface	(MVAR)
<r1>	First Interface Rating	(MVA)
<r2>	Second Interface Rating	(MVA)
<r3>	Third Interface Rating	(MVA)

<r4>	Fourth Interface Rating	(MVA)
<r5>	Fifth Interface Rating	(MVA)
<r6>	Sixth Interface Rating	(MVA)
<r7>	Seventh Interface Rating	(MVA)
<r8>	Eighth Interface Rating	(MVA)

16. INTERFACE BRANCH DATA

A record for each membership of a branch in an interface, containing:

```
<f bus> <"f name"> <f bkV> <t bus> <"t name"> <t bkV> <"ck"> : <ifn> <pf>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<f bus>	From bus number	
<"f name">	From bus name enclosed in quotation marks	
<f bkV>	From bus base voltage	(kV)
<t bus>	To bus number	
<"t name">	To bus name enclosed in quotation marks	
<t bkV>	To bus base voltage	(kV)
<"ck">	Two character circuit identifier enclosed in quotation marks	
<ifn>	Number of interface of which this branch is a member	
<pf>	Fraction of the flow on this branch that is to be counted as part of the interface flow	

17. DC BUS DATA

A record for each DC bus in the load flow, containing:

```
<dc bus> <"busnam"> <basekv> : <ty> <ar> <z> <vsch> <vdc> <d_in> <d_out> /  
<proj id> <owner>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<dc bus>	DC bus number	
<"busnam">	DC bus name enclosed in quotation marks	
<basekv>	DC bus base voltage	(kV)
<ty>	DC bus type 1 = rectifier 2 = inverter	
<ar>	Area assignment	
<z>	Owner Zone	
<vsch>	Scheduled DC voltage	(kV)
<vdc>	Actual DC voltage	(kV)

<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<proj id>	Project Identifier (information only)	
<owner>	DC bus owner	

18. DC LINE DATA

A record for each DC line in the load flow, containing:

```
<f bus> <"f name"> <f bkv> <t bus> <"t name"> <t bkv> <"ck"> <"long id"> : /
<st> <ar> <z> <r> <l> <c> <r1> <r2> <r3> <r4> <len> <aloss> <d_in> <d_out> /
<proj id> <nst> <r5> <r6> <r7> <r8> <o1> <p1> <o2> <p2> /
<o3> <p3> <o4> <p4> <o5> <p5> <o6> <p6> <o7> <p7> <o8> <p8>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<f bus>	"From" DC bus number	
<"f name">	"From" DC bus name enclosed in quotation marks	
<f bkv>	"From" DC bus base voltage	(kV)
<t bus>	"To" DC bus number	
<"t name">	"To" DC bus name enclosed in quotation marks	
<t bkv>	"To" DC bus base voltage	(kV)
<"ck">	Two character DC line identifier enclosed in quotation marks	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	DC line status 1 = in service 0 = out of service	
<ar>	Area assignment	
<z>	Zone assignment	
<r>	DC line resistance	(ohms)
<l>	DC line inductance	(henries)
<c>	DC line capacitance	(microF)
<r1>	First Branch Rating	(MVA)
<r2>	Second Branch Rating	(MVA)
<r3>	Third Branch Rating	(MVA)
<r4>	Fourth Branch Rating	(MVA)
<len>	Line length	(any units)
<aloss>	Loss factor (0.0 - 1.0) used to assign losses 1.0 = 100% loss assigned to "from" end of line 0.0 = 100% loss assigned to "to" end of line	
<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal DC line status 1=in service; 0=out of service	
<r5>	Fifth Branch Rating	(MVA)

<r6>	Sixth Branch Rating	(MVA)
<r7>	Seventh Branch Rating	(MVA)
<r8>	Eighth Branch Rating	(MVA)
<o1>	DC line owner 1	
<p1>	DC line owner 1 participation factor (0.0 - 1.0)	
<o2>	DC line owner 2	
<p2>	DC line owner 2 participation factor (0.0 - 1.0)	
<o3>	DC line owner 3	
<p3>	DC line owner 3 participation factor (0.0 - 1.0)	
<o4>	DC line owner 4	
<p4>	DC line owner 4 participation factor (0.0 - 1.0)	
<o5>	DC line owner 5	
<p5>	DC line owner 5 participation factor (0.0 - 1.0)	
<o6>	DC line owner 6	
<p6>	DC line owner 6 participation factor (0.0 - 1.0)	
<o7>	DC line owner 7	
<p7>	DC line owner 7 participation factor (0.0 - 1.0)	
<o8>	DC line owner 8	
<p8>	DC line owner 8 participation factor (0.0 - 1.0)	

19. DC CONVERTER DATA

A record for each DC converter in the load flow, containing:

```
<ac bus> <"ac name"> <ac bkv> <dc bus> <"dc name"> <dc bkv> <"id"> /
<"long id"> : <st> <ty> <md> <nbridge> <t_kreg> <r bus> <"r name"> <r bkv> /
<ar> <z> <d_in> <d_out> <idc> <vdc> <pac> <qac> <p_sched> <i_sched> /
<v_sched> <i_margin> <rcomp> <vmin_pctl> <vmin_comm> <vac_base> <vdc_base> /
<alpa> <alpa_min> <alpa_max> <gama> <gama_min> <gama_max> <vdiode> <xcomm>/
<rtran> <xtran> <tran_base> <tapf_ac> <tapf_dc> <tap_ac> <tap_dc> <tmin> /
<tmax> <tstep> <vtmax> <vtmin> <aloss> <i_rate> <xsmooth> <proj id> <nst> /
<o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4> <o5> <p5> <o6> <p6> <o7> <p7> <o8> <p8>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<ac bus>	AC bus number	
<"ac name">	AC bus name enclosed in quotation marks	
<ac bkv>	AC bus base voltage	(kV)
<dc bus>	DC bus number	
<"dc name">	DC bus name enclosed in quotation marks	
<dc bkv>	DC bus base voltage	(kV)
<"id">	DC converter identifier enclosed in quotation marks	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	Converter status	
	1 = in service	
	0 = out of service	
<ty>	Converter type {1 - 2}	

	1 = rectifier	
	2 = inverter	
<md>	Control mode {1 - 5}	
	1 = Current and voltage not specified - converter follows available dc voltage and current	
	2 = Converter controls its own dc current	
	3 = Converter controls its own dc Power	
	4 = Converter controls its own dc current and its own dc voltage	
	5 = Converter controls its own dc power and its own dc voltage	
<nbridge>	Number of bridges in series	
<t_kreg>	Converter transformer control flag {0,1}	
	0 = transformer taps locked	
	1 = transformer taps not locked	
<r_bus>	Number of DC bus whose voltage is controlled by this transformer	
<"r_name">	Regulated DC bus name enclosed in quotations marks	
<r_bkv>	Regulated DC bus base voltage	(kV)
<ar>	Area assignment	
<z>	Zone assignment	
<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<idc>	Converter DC current	(Amps)
<vdc>	Converter DC voltage	(kV)
<pac>	AC real power at ac bus side of converter transformer	(MW)
<qac>	AC reactive power at ac bus side of converter transformer	(MVAr)
<p_sched>	Scheduled converter ac power	(MW)
<i_sched>	Scheduled converter dc current	(Amps)
<v_sched>	Scheduled converter dc voltage	(kV)
<i_margin>	Current margin	(Amps)
<recomp>	Compounding resistance for voltage control	(ohms)
<vmin_pctl>	DC voltage at which this converter abandons power control	(pu)
<vmin_comm>	Minimum ac bus voltage at which this converter will operate	(pu)
<vac_base>	Base voltage of converter transformer ac side winding	(kV)
<vdc_base>	Base voltage of converter transformer dc side winding	(kV)
<alpa>	Rectifier firing delay angle	(degrees)
<alpa_min>	Minimum rectifier firing angle	(degrees)
<alpa_max>	Maximum rectifier firing angle	(degrees)
<gama>	Inverter firing delay angle	(degrees)
<gama_min>	Minimum inverter firing angle	(degrees)

<gama_max>	Maximum inverter firing angle	(degrees)
<vdiode>	Converter forward voltage drop	(kV)
<xcom>	Effective computing inductance seen by converter	(ohms)
<rtran>	Converter transformer resistance	(pu)
<xtran>	Converter transformer reactance	(pu)
<tran_base>	Converter transformer base	(MVA)
<tapf_ac>	Fixed tap position on converter transformer ac winding	(pu)
<tapf_dc>	Fixed tap position on converter transformer dc winding	(pu)
<tap_ac>	TCUL tap position on converter transformer ac winding	(pu)
<tap_dc>	TCUL tap position on converter transformer dc winding	(pu)
<tmin>	Minimum TCUL position	(pu)
<tmax>	Maximum TCUL position	(pu)
<tstep>	TCUL step size	(pu)
<vtmax>	Maximum voltage for converter transformer voltage control	(pu)
<vtmin>	Minimum voltage for converter transformer voltage control	(pu)
<aloss>	Loss factor (0.0 - 1.0) used to assign losses. 1.0 = 100% loss assigned to from bus 0.0 = 100% loss assigned to "to" bus	
<i_rate>	Converter DC current rating	(Amps)
<xsmooth>	Smoothing reactor inductance	(Henries)
<proj_id>	Project Identifier (information only)	
<nst>	Normal DC converter status 1 = in service 0 = out of service	
<o1>	DC converter owner 1	
<p1>	DC converter owner 1 participation factor (0.0 - 1.0)	
<o2>	DC converter owner 2	
<p2>	DC converter owner 2 participation factor (0.0 - 1.0)	
<o3>	DC converter owner 3	
<p3>	DC converter owner 3 participation factor (0.0 - 1.0)	
<o4>	DC converter owner 4	
<p4>	DC converter owner 4 participation factor (0.0 - 1.0)	
<o5>	DC converter owner 5	
<p5>	DC converter owner 5 participation factor (0.0 - 1.0)	
<o6>	DC converter owner 6	
<p6>	DC converter owner 6 participation factor (0.0 - 1.0)	
<o7>	DC converter owner 7	
<p7>	DC converter owner 7 participation factor (0.0 - 1.0)	
<o8>	DC converter owner 8	
<p8>	DC converter owner 8 participation factor (0.0 - 1.0)	

20. TRANSFORMER IMPEDANCE ADJUSTMENT DATA

A record for each transformer adjustment table in the load flow, containing:

```
<no> <ta> <t0> <f0> <t1> <f1> ... <t10> <f10>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<no>	Impedance adjustment table number	
<ta>	Independent variable flag 0 = TCUL ratio 1 = phase shift angle	
<ti>	i-th independent variable value (0-10)	
<fi>	i-th independent adjustment factor (0-10)	

21. GCD (Unified Power Flow Controller) Data

A record for each GCD (UPFC) in the load flow, containing:

```
<f bus> <"f name"> <f bkv> <t bus> <"t name"> <t bkv> <"ck"> <sec> <"long id"> :  
<st> <type> <pset> <ptol> <viset> <vjset> <vtol> <vsmax> <ismax> <ishmax> /  
<pdcmx> <yth> <r> <x> <b> <svbase> <svabase> <pvbase> <pvabase> <accel> / <aloss>  
<ar> <z> <pline> <qline> <vim> <vjm> <vsm> <vsa> <qs> /  
<pd> <qshunt> <ishunt> <vmr> <vmi> <vmm> <vma> <cmr> <cmi> <psang> <angmax>  
<vtap> <vtmax> <vtmin> <itran> <igen> <alim> <tlim> /  
<d_in> <d_out> <proj id> <nst> <o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<f bus>	GCD from bus number	
<"f name">	GCD from bus name enclosed in quotation marks	
<f bkv>	GCD from bus base voltage	(kV)
<t bus>	GCD to bus number	
<"t name">	GCD to bus name enclosed in quotation marks	
<t bkv>	GCD to bus base voltage	(kV)
<"ck">	GCD circuit identifier enclosed in quotation marks	
<sec>	Section number (1-9 in ascending order beginning at "from" end)	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	GCD status 1 = in service 0 = out of service	
<type>	type {no used}	
<pset>	series MW set point	(MW)
<ptol>	MW tolerance	
<viset>	from bus voltage set point	(pu)

<vjset>	if vtol>0, if>0.5, desired voltage at to-bus(pu) if<0.5, desired difference between from-bus and to-bus voltage if vtol<0, desired reactive power into line(MVar)	
<vtol>	if >0, solution tolerance for to-bus(line side) voltage (vj) if <0, solution tolerance for reactive power flow into line (MVar)	
<vsmax>	series injection voltage max,	(pu)
<ismax>	max series current,	(MVA)
<ishmax>	shunt current max (MVA at 1 pu V)	
<pdcmx>	max dc converter power	(MW)
<yth>	estimated driving point MVA at to bus	(pu)
<r>	Series resistance	(pu)
<x>	Series reactance	(pu)
	Static shunt susceptance	(pu)
<svbase>	series voltage base	(kV)
<svabase>	series MVA base	
<pvbase>	shunt voltage base	(kV)
<pvabase>	shunt MVA base	
<accel>	acceleration factor	
<aloss>	Loss factor (0.0 - 1.0) used to assign losses	
<ar>	Area assignment	
<z>	Zone assignment	
<pline>	MW solution	(MW)
<qline>	MVar solution	(MVar)
<vim>	from bus voltage solution	(pu)
<vjm>	to bus voltage solution,	(pu)
<vsm>	series voltage injection solution, mag.	(pu)
<vsa>	series voltage injection solution, angle	(deg)
<qs>	solution of MVar injection caused by series voltage injection,	(MVar)
<pd>	dc power solution	(MW)
<qshunt>	shunt MVar injection	(MVar)
<ishunt>	solution of shunt current	(MVA)
<vmr>	internal voltage solution, real part	(pu)
<vmi>	internal voltage solution, imaginary part	(pu)
<vmm>	internal voltage solution, mag.	(pu)
<vma>	internal voltage solution, angle	(deg)
<cmr>	series current solution, real part	
<cmi>	series current solution, imaginary	
<psang>	phase shifter angle solution	
<angmax>	phase shifter calculated angle max	
<vtap>	phase shifter tap solution	
<vtmax>	phase shifter calculated tap max	
<vtmin>	phase shifter calculated tap min	
<itran>	index of transformer used as GCD series component	
<igen>	index of generator used as GCD shunt component	
<alim>	flag for phase shift limits holding Pdc	
<tlim>	flag for tap limits holding Pdc	
<d_in>	In service date	(yyymmdd)

<d_out>	Retirement date	(yyymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal GCD status 1 = in service 0 = out of service	
<o1>	GCD owner 1	
<p1>	GCD owner 1 participation factor (0.0 - 1.0)	
<o2>	GCD owner 2	
<p2>	GCD owner 2 participation factor (0.0 - 1.0)	
<o3>	GCD owner 3	
<p3>	GCD owner 3 participation factor (0.0 - 1.0)	
<o4>	GCD owner 4	
<p4>	GCD owner 4 participation factor (0.0 - 1.0)	

22. TRANSACTION DATA

A record for each transaction schedule in the load flow, containing:

```
<fr no> <"fr id"> <to no> <"to id"> <"ftype"> <"ttype"> : <st> <sch_mw> /
<sch_mvar> <flag> <nst> <proj id> <"name">
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<fr no>	from transaction number	
<"fr id">	from transaction 2 character id enclosed in quotation marks	
<to tr>	to transaction number	
<"to id">	to transaction 2 character id enclosed in quotation marks	
<"ftype">	From transaction type a = area z = zone o = owner g = gen l = load up to 4 characters enclosed in quotation marks	
<"ttype">	To transaction type a = area z = zone o = owner g = gen l = load up to 4 characters enclosed in quotation marks	
<sch_mw>	Scheduled real power net interchange	(MW)
<sch_mvar>	Scheduled reactive power net interchange	(MVAR)
<"flag">	flag up to 4 characters enclosed in quotation marks	

<st>	Transaction status 1 = in service 0 = out of service
<nst>	Normal transaction status 1 = in service 0 = out of service
<proj id>	Project Identifier (information only)
<"name">	Transaction name up to 32 characters enclosed in quotation marks

23. OWNER DATA

A record for each owner in the load flow, containing:

```
<owner no> <"oname"> <"s name"> <net_mw> <net_mvar> <sch_mw> <sch_mvar> <ar>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<owner no>	Owner number	
<"oname">	Owner name up to 32 characters enclosed in quotation mark	
<"s name">	Owner short name up to 4 characters enclosed in quotation marks	
<net_mw>	Actual real power net interchange	(MW)
<net_mvar>	Actual reactive power net interchange	(MVA _r)
<sch_mw>	Schedule real power net interchange	(MW)
<sch_mvar>	Schedule reactive power net interchange	(MVA _r)
<ar>	Area number	

24. MOTOR DATA

A record for each motor in the load flow, containing:

```
<bus> <"name"> <bkv> <"id"> <"long id"> : <st> <ar> <z> <owner> <flag> <type> /  
<mbase> <p> <q> <pf> <ls> <tp0> <lp> <tp0> <lpp> <ra> <h> <rt> <lt> <bcap> /  
<zppr> <zppx> <alt0> <alt1> <blt1> <alt2> <blt2> <d_in> <d_out> <proj id> <nst>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<bus>	Motor terminal bus	
<"name">	Motor terminal bus name enclosed in quotation marks	
<bkv>	Motor terminal bus base voltage	(kV)
<"id">	2 character motor identifier enclosed in quotation marks	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation	

	marks	
<st>	Motor status	
	1 = in service	
	0 = out of service	
<ar>	Area assignment	
<z>	Zone assignment	
<owner>	Motor owner	
<flag>		
<"type">	Type of motor up to 8 characters enclosed in quotation marks	
<mbase>	Motor base	(MVA)
<p>	Scheduled or actual real power consumed at terminals	(MW)
<q>	Scheduled or actual reactive power consumed at terminals	(MVAr)
<pf>	Motor power factor	
<ls>	Synchronous reactance	(pu)
<tp0>	Transient open circuit time constant	(seconds)
<lp>	Transient reactance	(pu)
<tp0>	Subtransient open circuit time constant	(seconds)
<lpp>	Subtransient reactance	(pu)
<ra>		
<h>	Motor inertia,	
<rt>	Transformer resistance	(pu)
<lt>	Transformer reactance	(pu)
<bcap>	Shunt capacitor admittance	(pu)
<zppr>		
<zppx>		
<alt0>	Load parameter	
<alt1>	Load parameter	
<blt1>	Load parameter	
<alt2>	Load parameter	
<blt2>	Load parameter	
<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal motor status	
	1 = in service	
	0 = out of service	

25. LINE DATA

A record for each "line" in the load flow, containing:

```
<f bus> <"f name"> <f bkv> <t bus> <"t name"> <t bkv> <"ck"> <sec> <"long id">:
/
<st> <"p name"> <len> <ws1> <cond1> <ws2> <cond2> <ws3> <cond3> <ws4> /
<cond4> <ws5> <cond5> <ar> <z> <ncb> <rating> <d_in> <d_out> <projid> <nst> /
<o1> <p1> <o2> <p2> <o3> <p3> <o4> <p4> <o5> <p5> <o6> <p6> <o7> <p7> /
<o8> <p8> <r> <x> <b> <r0> <x0> <b0> <a0> <a1> <a2> <a3> <a4> <a1>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<f bus>	From bus number	
<"f name">	From bus name enclosed in quotation marks	
<f bkv>	From bus base voltage	(kV)
<t bus>	To bus number	
<"t name">	To bus name enclosed in quotation marks	
<t bkv>	To bus base voltage	(kV)
<"ck">	Two character circuit identifier enclosed in quotation marks	
<sec>	Section number (1-9 in ascending order beginning at "from" end)	
<"long id">	Long Identifier (up to 8 characters) enclosed in quotation marks	
<st>	Line status 1 = in service 0 = out of service	
<"p name">	Name of pole type on which this line section is mounted (up to 8 characters) enclosed in quotation marks	
<len>	Length of the line section in miles.	
<wsa>	Wire station at which a-phase wire is mounted on the pole. Zero if the wire is absent.	
<conda>	type-name of a-phase conductor. (Enter NONE if conductor is absent)	
<wsb>	Wire station for b-phase	
<condb>	Conductor type for b-phase	
<wsc>	Wire station for c-phase	
<condc>	Conductor type for c-phase	
<wsn>	Wire station for neutral	
<condn>	Conductor type for neutral	
<wsm>	Wire station for service wire	
<condm>	Conductor type for service wire	
<ar>	Area number	
<z>	Zone number	
<ncb>	Number of conductors per bundle	
<rating>	Line Rating	(Amps)
<d_in>	In service date	(yymmdd)
<d_out>	Retirement date	(yymmdd)
<proj id>	Project Identifier (information only)	
<nst>	Normal line status 1 = in service 0 = out of service	
<p1>	Line owner 1 participation factor (0.0 - 1.0)	
<o2>	Line owner 2	
<p2>	Line owner 2 participation factor (0.0 - 1.0)	

<o3>	Line owner 3	
<p3>	Line owner 3 participation factor (0.0 - 1.0)	
<o4>	Line owner 4	
<p4>	Line owner 4 participation factor (0.0 - 1.0)	
<o5>	Line owner 5	
<p5>	Line owner 5 participation factor (0.0 - 1.0)	
<o6>	Line owner 6	
<p6>	Line owner 6 participation factor (0.0 - 1.0)	
<o7>	Line owner 7	
<p7>	Line owner 7 participation factor (0.0 - 1.0)	
<o8>	Line owner 8	
<p8>	Line owner 8 participation factor (0.0 - 1.0)	
<r>	Line section resistance	(pu)
<x>	Line section reactance	(pu)
	Line section susceptance	(pu)
<r0>	Line section zero sequence resistance	(pu)
<x0>	Line section zero sequence reactance	(pu)
<b0>	Line section zero sequence susceptance	(pu)
<a0>	Ampacity for a-phase	
<a1>	Ampacity for b-phase	
<a2>	Ampacity for c-phase	
<a3>	Ampacity for n-phase	
<a4>	Ampacity for service wire	
<al>	Loss factor (0.0 - 1.0) used to assign losses.	
	1.0 = 100% loss assigned to "from" end of line	
	0.0 = 100% loss assigned to "to" end of line	

26. Q TABLE DATA

A record for each qtable in the load flow, containing:

```
<bus> <"name"> <bkv> <"id">: / <p0> <qmx0> <qmn0> <p0> <qmx0> <qmn0> /
<p1> <qmx1> <qmn1> <p2> <qmx2> <qmn2> <p3> <qmx3> <qmn3> <p4> <qmx4> <qmn4> /
<p5> <qmx5> <qmn5> <p6> <qmx6> <qmn6> <p7> <qmx7> <qmn7> <p8> <qmx8> <qmn8> /
<p9> <qmx9> <qmn9> <p10> <qmx10> <qmn10> <p11> <qmx11> <qmn11> /
<p12> <qmx12> <qmn12> <p13> <qmx13> <qmn13> <p14> <qmx14> <qmn14> /
<p15> <qmx15> <qmn15> <p16> <qmx16> <qmn16> <p17> <qmx17> <qmn17> /
<p18> <qmx18> <qmn18> <p19> <qmx19> <qmn19>
```

where

<i>Name</i>	<i>Description</i>	<i>Units</i>
<bus>	Generator bus number	
<"name">	Generator bus name enclosed in quotation marks	
<bkv>	Generator bus base voltage	(kV)
<"id">	Generator id enclosed in quotation marks	
<p0>	First Pgen value	(MW)
<qmx0>	First Qmax value	(MVA _r)
<qmn0>	First Pgen value	(MVA _r)
<p1>	Second Pgen value	(MW)

<qmx1>	Second Qmax value	(MVar)
<qmn1>	Second Pgen value	(MVar)
etc.		