Key	Type	Units	Example	Description
timeStep	float	Seconds	1	Simulated time between power-flow solutions
endTime	float	Seconds	1800	Number of seconds simulation is to run for.
slackTol	float	MW	0.5	MW Value that slack error must be below for returned solution to be accepted.
PY3msgGroup	integer	-	3	Number of messages to combine into one AMQP message for PY3 to IPY communication.
IPYmsgGroup	integer	-	60	Number of messages to combine into one AMQP message for IPY to PY3 communication.
Hinput	float	MW sec	0	Value to use for total system inertia. Units are MW*sec. If set to 0.0, system inertia will be calculated from the given .sav information.
Dsys	float	PU	0	Value of system damping used in swing equation and governor models. While this option is available, it is untested and typically set to 0.0.
fBase	float	Hz	60	Value of base system frequency.
freqEffects	boolean	-	True	If True, the ω used in the swing equation will be the current system frequency. If this is set to False then ω will be set equal to 1 for the swing equation calculation
integrationMethod	string	-	'rk45'	This option defines how the swing equation is integrated to find current frequency. Valid options are 'rk45', 'ab', and 'euler'. The default is the 'euler' method which is a simple forward Euler integration. The 'ab' option uses a two step Adams-Bashforth method and the 'rk45' options uses the scipy `solve_ivp` function that utilizes an explicit Runge-Kutta 4(5) method.
fileDirectory	string	-	"\\delme\\"	This is a relative path location from the folder where PSLTDSim is exectued in which the output files are saved to.
fileName	string	-	"SimTest"	This is that name used to save files.
exportFinalMirror	int	-	1	If this value is 1 a final system mirror will be exported. If this value is 0 no final mirror will be exported.
exportMat	int	-	1	If this value is 1 a MATLAB .mat file will be exported. If this value is 0 no MATLAB .mat file will be exported.

Table 1: Simulation parameters dictionary input information.

Parameter	Steam	Hydro	Gas
Ts	0.04	0.40	0.50
Tc	0.20	45.00	10.00
T3	0.00	5.00	4.00
T4	1.50	−1.00	0.00
T5	5.00	0.50	1.00

Table 2: Generic governor model parameters.

Key	Type	Units	Example	Description
B	String	MW/0.1Hz	”1.0 : permax”	Describes the frequency bias scaling factor B used in the ACE calculation. Various Options exist.
AGCActionTime	Float	Seconds	5	Time between AGC dispatch messages.
AGCType	String	-	”TLB : 2”	Dictates which AGC routine to use and type specific options.
UseAreaDroop	Boolean	-	False	If True, all governed generators under BA control will use the area droop.
AreaDroop	Float	Hz/MW	0.05	Droop value to use if ’UseAreaDroop’ is True.
IncludeIACE	Boolean	-	True	If True, include IACE in ACE calculation
IACEconditional	Boolean	-	False	Adds IACE to ACE if signs of deltaw, ACE and IACe all match.
IACEwindow	Integer	Seconds	60	Defines the length of moving integration window to use in IACE. If set to 0, integration takes place for all time.
IACEscale	Float	-	0.0167	Value used to scale IACE.
IACEweight	Float	-	0.5	Weighting of IACE to ACE used during summation.
IACEdeadband	Float	Hz	0.036	Absolute value of system frequency where IACE will not be calculated below.
ACEFiltering	String	-	’PI : 0.03 0.001’	String used to dictate which filter agent is created and specific parameters.
AGCDeadband	Float	MW	1.5	Value of ACE to ignore sending in AGC dispatch. Not implemented as of this writing.
GovDeadbandType	String	-	step’	Type of deadband to be applied to area governors.
GovDeadband	Float	Hz	0.036	Absolute value of system frequency that governors will not respond below.
GovAlpha	Float	Hz	0.016	Specific to ’NLDroop’ type of deadband. Specifies lower bound of non-linear droop.
GovBeta	Float	Hz	0.036	Specific to ’NLDroop’ type of deadband. Specifies upper bound of non-linear droop and return to specified machine droop.
CtrlGens	List of Strings	-	-	List of generators, participation factor, and dispatch signal type.

Table 3: Balancing Authority dictionary input information.

TLB Type	ACE Calculation
0	$ACE_{FB} + ACE_{TL}$
1	$ACE_{FB} + (sgn(\Delta\omega) == sgn(ACE_{TL})) * ACE_{TL}$
2	$(ACE_{FB} + ACE_{TL}) * (sgn(\Delta\omega) == sgn(ACE_{FB} + ACE_{TL}))$
3	$ACE_{FB} * (sgn(\Delta\omega) == sgn(ACE_{FB})) + ACE_{TL} * (sgn(\Delta\omega) == sgn(ACE_{TL}))$

Table 4: Tie-Line Bias AGC type ACE calculations.