WECC Data Conversion Manual
PSS®E 34.8.2

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WECC to PSS®E Power Flow Raw Data: WECCLF

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1.1. Operating Instructions

The WECCLF program will read a Western Electricity Coordinating Council (WECC) data file in GE format as defined in the PSLF Data Exchange Manual Version 17.0, and translate the data into a raw data file in the PSS®E format. The program is initiated by either entering the command WECCLF or clicking on the appropriate ICON at which time the following dialog ensues:
<indent>PLEASE ENTER THE WECC FORMAT INPUT FILE NAME:</indent>

The user enters the name of the desired WECC power flow raw data file. This file is expected to be an ASCII card image source file. The WECC input file is not modified in any way by the WECCLF program. The full file name with extension must be specified. The extension is typically .EPC. The user is then instructed to:
<indent>PLEASE ENTER THE PSSE DATA OUTPUT FILE NAME:</indent>

The user enters the name of the PSS®E raw data file to be created by the WECCLF program. This file will be a complete, standard power flow raw data file for use by the PSS®E activity READ. The file will be created with the extension .RAW. The user is then instructed to:
<indent>PLEASE ENTER THE DESIRE MESSAGE OUTPUT DEVICE</indent>
<indent>1 = TERMINAL 2 = FILE:</indent>

A response of 2 results in the user being instructed to:
<indent>PLEASE ENTER MESSAGE FILE NAME:</indent>

The user should enter the name of a file to be created by the WECCLF program. All conversion messages other than the progress report will be written to this file. A .DAT extension will be added to the filename.

The user is then instructed to:
<indent>ENTER DESIRED THREE RATINGS (DEFAULT = 1, 2, 3):</indent>

The user specifies which of the eight ratings for branches, transformers, etc. to be written in the PSS®E raw data file. If when reading the WECC data file, the program encounters a bus, load, machine, or branch with either an area zone or owner number of 0, the user will get the following:
<indent>AREA</indent>

ENCOUNTERED ZONE NUMBER OF ZERO OR DEFAULT, ENTER
<indent>OWNER</indent>
<indent>AREA</indent>

DESIRED ZONE (CR = 1):
<indent>OWNER</indent>

The user specifies a number to which to assign these. If left to 0, PSS®E will make them 1 when reading the data. There is no further interactive dialogue for WECCLF. The program will run to completion with appropriate conversion messages directed to the previously chosen message output device. These messages will make note of ignored data records, unusual conversions, format errors and data errors. The progress report will be printed at the terminal regardless of the choice made for the error message output device.

An output file (basegen.dat) is created. It contains a list of generators which the turbine governor upper control valve limit is set at the initial condition valve position in the WECC input file.

The PSS®E raw data file is complete and ready for use with PSS®E activity READ. The user should note the conversion messages for any required manual data changes resulting from data errors before reading the PSS®E raw data file.

1.2. Description of Data Conversion

Only the first two lines of the title are read and placed in the PSS®E raw data file. All solution parameter records are ignored. Since there is no end of data category records, the conversion program will list in the progress area and in the messages output device as an error data type when reading a particular data group. These errors can be ignored since there are only signifying the end of a data group. For HVDC transformers with a step of zero, the program will make the step 0.0005.

There is no logic in the conversion program to identify swing buses. After reading the data, the user should select a swing bus (set it to Type 3) and disconnect all islands before trying to solve.

Chapter 2
WECC to PSS®E Power Flow Raw Data: WECCLF

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2.1. Operating Instructions

The WECCDS program will read a Western Electricity Coordinating Council (WECC) data file in GE format as defined in the Positive Sequence Load Flow Software (PSLF) Data Exchange Manual, Version 17.0, and will translate the data into a PSS®E dynamics raw data file. It will also create an input file to add machine MVA bases and source impedances to a PSS®E saved case. Program WECCDS also builds a response file to net out generators. The program is initiated either by entering the command WECCDS or clicking on the appropriate ICON at which time the following dialog ensues:
<indent>PLEASE ENTER THE WECC FORMAT INPUT FILE NAME:</indent>

The user must enter the name of the file containing the WECC dynamics data records. The full name including its extension which is normally .DYD must be entered. The user is then instructed to:
<indent>PLEASE ENTER THE PSSE DATA OUTPUT FILE NAME:</indent>

The user specifies the file to be created. If not specified, .DYR extension will be added to the filename. The program will translate the data into data records readable by PSS®E Activity DYRE. The user is then instructed to:
<indent>PLEASE ENTER THE PSSE MCRE OUTPUT FILE NAME:</indent>

The WECCDS program will create a file to be used by power flow activity MCRE. If not specified, an extension of .RWM will be appended to the filename. This file will contain a record for every cross-compound generator model successfully converted that is to be linked to the dynamics data. The file contains the fraction of real and reactive power to be split among the multiple units on a bus. Executing activity MCRE with this file will split the generation and enter the appropriate MBASE and ZSORCE for each generator.

The user is then instructed to:
<indent>PLEASE ENTER THE PSSE RDCH OUTPUT FILE:</indent>

This file contains the machine MVA buses and source impedances for all non-cross compound units.

The user is than instructed to:
<indent>PLEASE ENTER THE NAME OF THE MOTOR SPLIT FILE NAME:</indent>

This file will contain a listing of buses, their original load ID, the modified ID and fraction of power for the motor load.

The user is then instructed to:
<indent>PLEASE ENTER THE DESIRED MESSAGE OUTPUT DEVICE:</indent>
<indent>1 = TERMINAL 2= FILE</indent>

A response of 2 results in the user being instructed to:
<indent>PLEASE ENTER MESSAGE FILE NAME:</indent>

The user should enter the name of the file to be created by WECCDS. All conversion messages will be written to this file. A .DAT extension will be added to this filename. The user is then instructed to:
<indent>PLEASE ENTER THE GNET RESPONSE FILE NAME:</indent>

The WECCDS program will create a response file with this name for subsequent execution in PSS®E to net the appropriate generation with load in the power flow case that is to be linked with the dynamics data. If no extension is supplied, an .IDV will be appended to the filename. There is no further interactive dialog. The WECCDS program will run to completion with appropriate conversion messages written to the user. These messages will note model types not converted, data errors, data items changed by the program, and

general conversion messages which are self-explanatory. All of the messages should be carefully noted and any desired changes be made in the response files, power flow save case, or the DYRE file before proceeding.

2.2. Data Conversion Comments

When converting to Model EXST1, if KF and TF were both zero, TF was set equal to 1.0. This feedback loop is still ignored. A message was not reported for these exciters.

When converting subtransient level generator models, if XL was 0., the value was changed to 0.75#X"d.

Models converted to CDC6 will have their records begin with DC####. The user must replace the DC#### with the appropriate dc line number. The PSS®E CDC6 model does not have hysteresis on the voltage-dependent current limits so values V1R and V3R, as well as V2R and V4R have been averaged in the conversion. The inverter voltage-dependent current limits have been ignored in the conversion.

2.3. Setup Process

After completion of WECCDS, it is anticipated that the user would follow the steps below before running simulations.

1. Manually edit any files created by WECCDS as desired. The user will have to edit any CDC6 records in the DYRE file.

2. Ensure the power flow case is solved.

3. Execute the GNET response file.

4. Execute the RDCH file.

5. Execute MCRE with file created.

6. Split loads using the information in the motor split file.

7. Resolve power flow.

8. Convert generators, factorize network and save converted power flow case.

9. Execute DYRE, compile, and link.