Instructions for Reading EnergyPlus SQL files into CSV files

1. Download the sqlite command line shell from: <http://www.sqlite.org/download.html>

2. Extract the file and place it in the same directory as the .sql file

3. Open a command prompt (CMD) window. Navigate to the directory with the .sql file. Type **HELP** for a list of available commands in the command prompt window. Some useful ones are:

**CD** or **CHDIR** to change the directory (CD in linux terminal). **CD ..** goes up, **CD FOLDERNAME** goes down in tree.

**DIR** displays a list of files and folders in the current directory (LS in Linux terminal or Windows PowerShell)

4. Type **sqlite3 mydatabase.sql** to open the .sql file with sqlite.

5. Type **.help** for some useful commands in sqlite.

**.mode** will change how the output is visualized. **.mode csv** will allow you to save to .csv.

**.output mycsv.csv** will save the output from the sql selections to a file; if **.mode csv** was selected, it will give out a .csv file of the selection. Subsequent selections will append to the bottom of the sheet, so consider outputting to another filename if you want different tables.

**.output stdout** will send the output back to the terminal window. \

**.tables** lists the tables that are in the database

**.schema TABLENAME** gives the SQL scheme for a table, giving its columnames and other descriptors

**.quit** and **.exit** will close the program.

6. Here is a list of the tables available in an EnergyPlus .sql file. ReportMeterDataDictionary, ReportVariableDataDictionary, and TabularDataWithStrings are where most of the variables of interest are stored.

ComponentSizes

ConstructionLayers

Constructions

DaylightMapHourlyData

DaylightMapHourlyReports

DaylightMaps

EnvironmentPeriods

Errors

Materials

NominalBaseboardHeaters

NominalElectricEquipment

NominalGasEquipment

NominalHotWaterEquipment

NominalInfiltration

NominalLighting

NominalOtherEquipment

NominalPeople

NominalSteamEquipment

NominalVentilation

ReportMeterData

ReportMeterDataDictionary

ReportMeterExtendedData

ReportVariableData

ReportVariableDataDictionary

ReportVariableExtendedData

ReportVariableWithTime

RoomAirModels

Schedules

Simulations

StringTypes

Strings

Surfaces

SystemSizes

TabularData

TabularDataWithStrings

Time

ZoneGroups

ZoneLists

ZoneSizes

Zones

7. Use SQL commands to navigate the database. If you are unfamiliar with SQL, see: <http://www.w3schools.com/sql/default.asp> EXAMPLE: **sqlite> select distinct reportname from tabulardatawithstrings;**

OUTPUT:

AnnualBuildingUtilityPerformanceSummary

InputVerificationandResultsSummary

DemandEndUseComponentsSummary

SourceEnergyEndUseComponentsSummary

ClimaticDataSummary

EnvelopeSummary

ShadingSummary

LightingSummary

EquipmentSummary

HVACSizingSummary

SystemSummary

OutdoorAirSummary

ObjectCountSummary

EnergyMeters

SensibleHeatGainSummary

Standard62.1Summary

ComponentSizingSummary

SurfaceShadowingSummary

Economics Results Summary Report

Tariff Report

8. Construct batch files to create desired .csv files from the SQL file

EXAMPLE: report out all values displayed in HTML to a CSV file.

TabularDataWithStringsOut.bat:

sqlite3.exe -csv mydatabase.sql "SELECT \* FROM TabularDataWithStrings" > TabularDataWithStrings.csv

Output, a CSV file like this:

2735.74 AnnualBuildingUtilityPerformanceSummary Entire Facility Site and Source Energy Total Site Energy Total Energy GJ 1

872.76 AnnualBuildingUtilityPerformanceSummary Entire Facility Site and Source Energy Total Site Energy Energy Per Total Building Area MJ/m2 1

872.76 AnnualBuildingUtilityPerformanceSummary Entire Facility Site and Source Energy Total Site Energy Energy Per Conditioned Building Area MJ/m2 1

2735.74 AnnualBuildingUtilityPerformanceSummary Entire Facility Site and Source Energy Net Site Energy Total Energy GJ 2

…

The schema for this table by the .schema command in sqlite:

CREATE VIEW TabularDataWithStrings AS SELECT

td.Value Value,

reportn.Value ReportName,

fs.Value ReportForString,

tn.Value TableName,

rn.Value RowName,

cn.Value ColumnName,

u.Value Units,

RowId FROM TabularData td

INNER JOIN Strings reportn ON reportn.StringIndex=td.ReportNameIndex

INNER JOIN Strings fs ON fs.StringInde

x=td.ReportForStringIndex

INNER JOIN Strings tn ON tn.StringIndex=td.TableNameIndex

INNER JOIN Strings rn ON rn.StringIndex=td.RowNameIndex

INNER JOIN Strings cn ON cn.StringIndex=td.ColumnNameIndex

INNER JOIN Strings u ON u.StringIndex=td.UnitsIndex

WHERE reportn.StringTypeIndex=1 AND fs.StringTypeIndex=2

AND tn.StringTypeIndex=3 AND rn.StringTypeIndex=4

AND cn.StringTypeIndex=5 AND u.StringTypeIndex=6;

If we wanted to get the values and units for Site Energy Use, we can call it like so:

SiteEnergyOut.bat:

sqlite3.exe -csv mydatabase.sql "SELECT Value, Units FROM TabularDataWithStrings WHERE ReportName = 'AnnualBuildingUtilityPerformanceSummary' AND ReportForString='Entire Facility' AND TableName = 'Site and Source Energy' AND RowName = 'Total Site Energy' And ColumnName = 'Total Energy'" > SiteEnergy.csv

Include here an example of how to get several different key values into a .csv file. Some useful values are:

Site Energy Use

Source Energy Use

Building Area

Site Energy Use Intensity

Source Energy Use Intensity

Peak Electric Demand

GHG Emissions

Annual Electric Cost

Annual Gas Cost