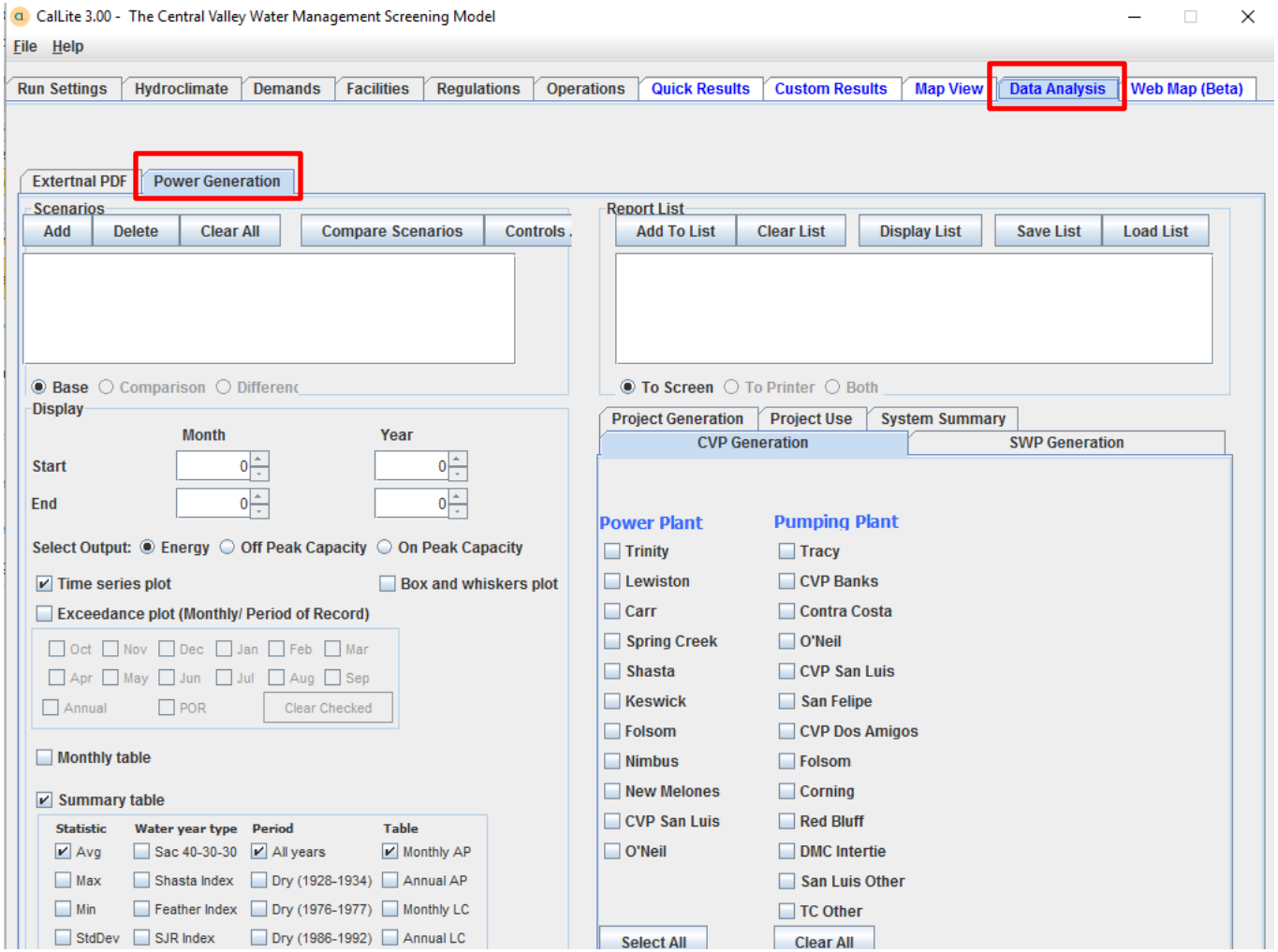
CalLite Power Module

California Water and Environmental Modeling Forum, April 11th, 2016




CalLite Power Generation

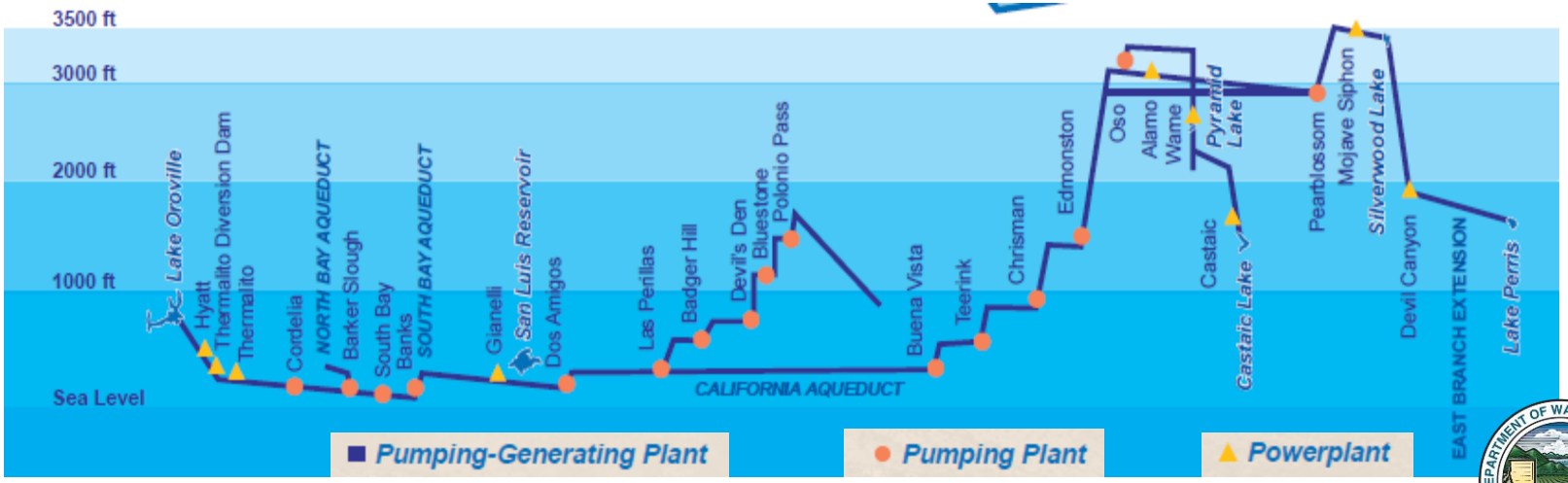


SWP Power Facts

- Power Facilities
  - Hydroelectric Power Plant…. 5
  - Pumping Generation Plant… 4
  - Pumping plants…….. 20

More Facts

- Water is elevated 3,400 ft from Delta to Tehachapi Mount.
  - Edmonston lifts 1926 vertical feet (Highest single lift in the world)
- Power Generation
  - Highest (Single Year)……. 8.6×10^9 kWh
  - Average (1988-2007)
    - Generation…….. 6.67×10^9 kWh
    - Purchase……. 2.66×10^9 kWh
    - Pumping Load… 6.51×10^9 kWh
- CVP operation is also power dependent



LTGen & SWPGen

- LTGen
  - Long Term Generation
  - Uses operation data of Calsim Simulation to estimate CVP power availability
- SWPGen
  - State Water Project Generation
  - Estimates SWP power availability

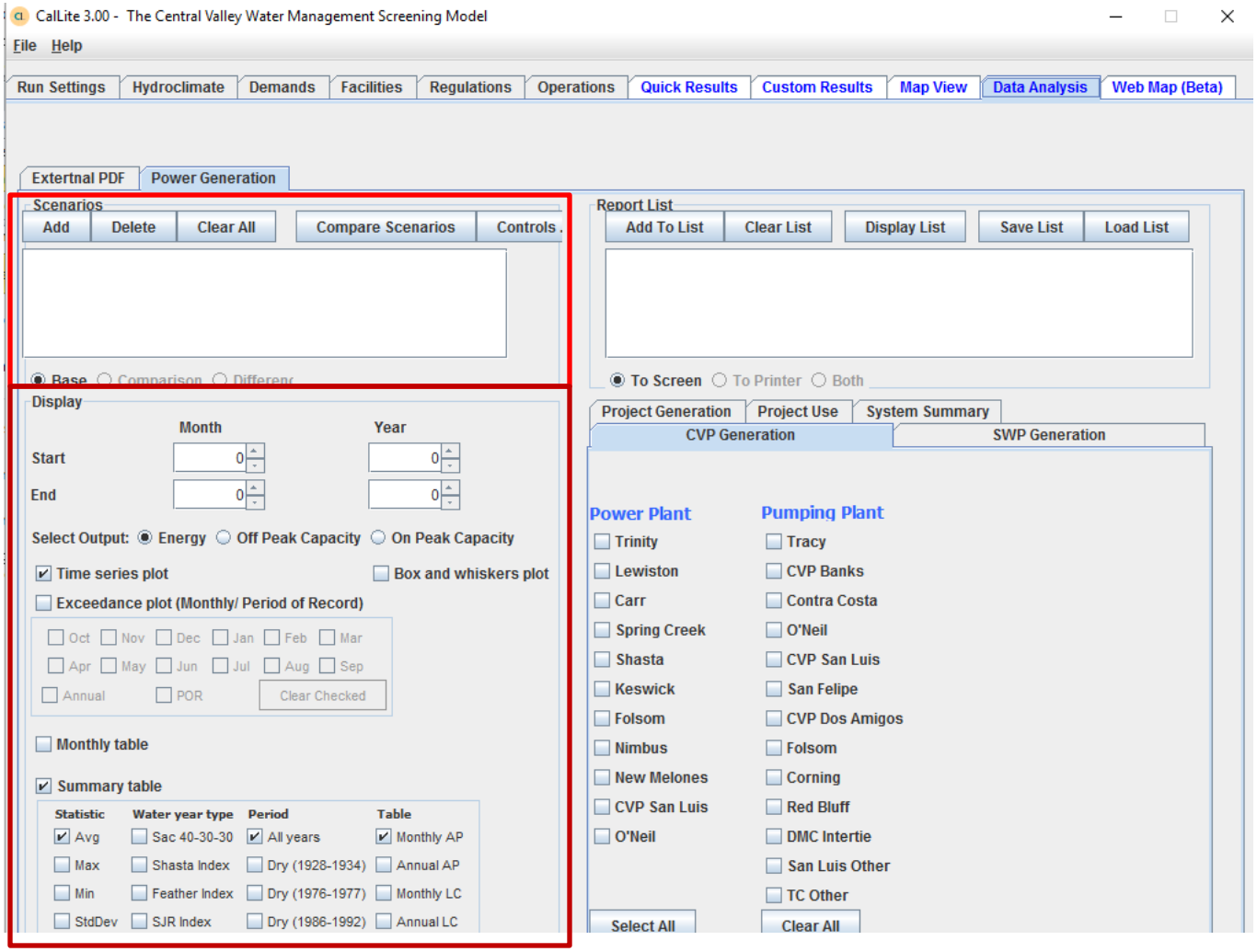
LTGen & SWPGen

- Visual Basic Macro based Excel spread sheet

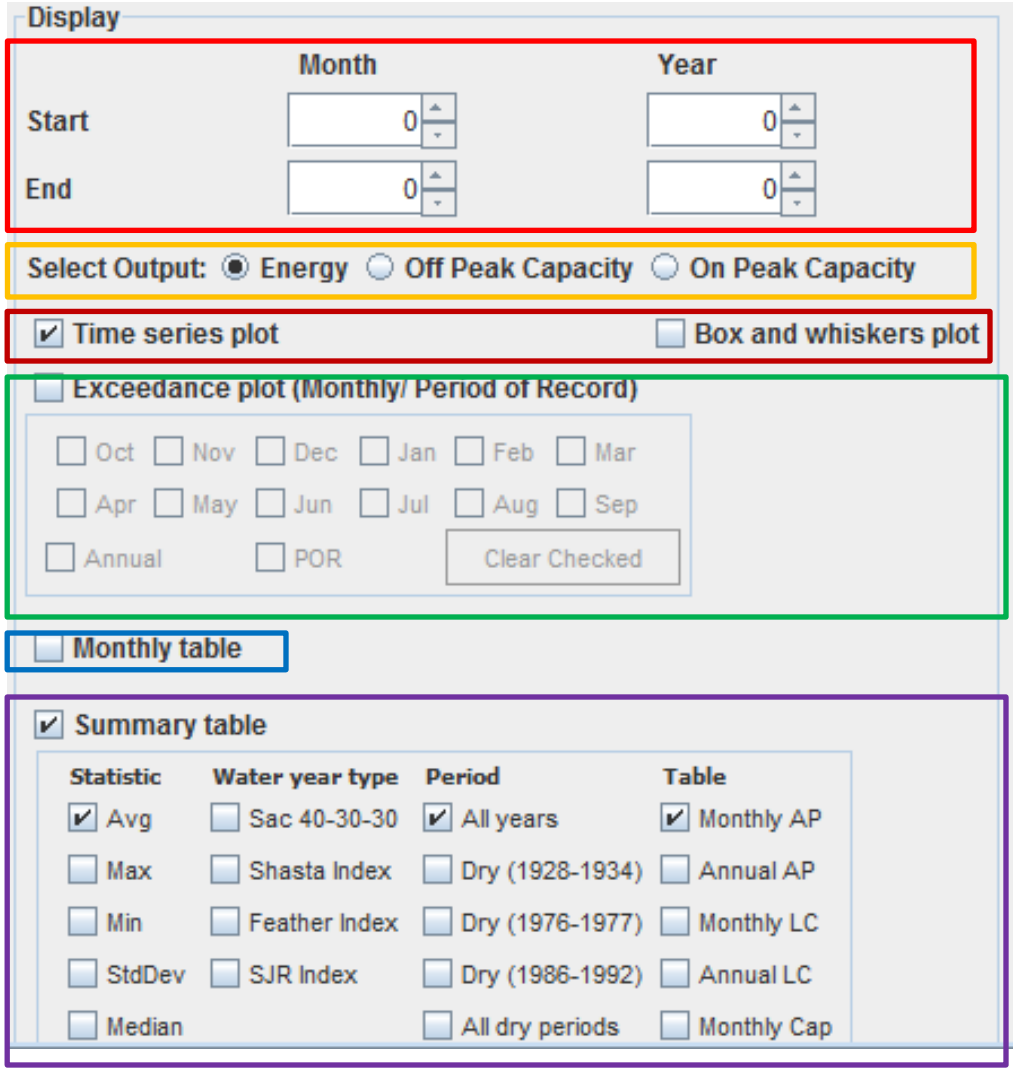
LTGen & SWPGen to CalLite

- Recreate LTGen & SWPGen VBA logic to Jython script
- Include Jython script into CalLite run
- Allow Power Generation DashBoard in CalLite GUI to access Jython script generated data
- Displays graphs and tables of user selected facilities using CalLite GUI

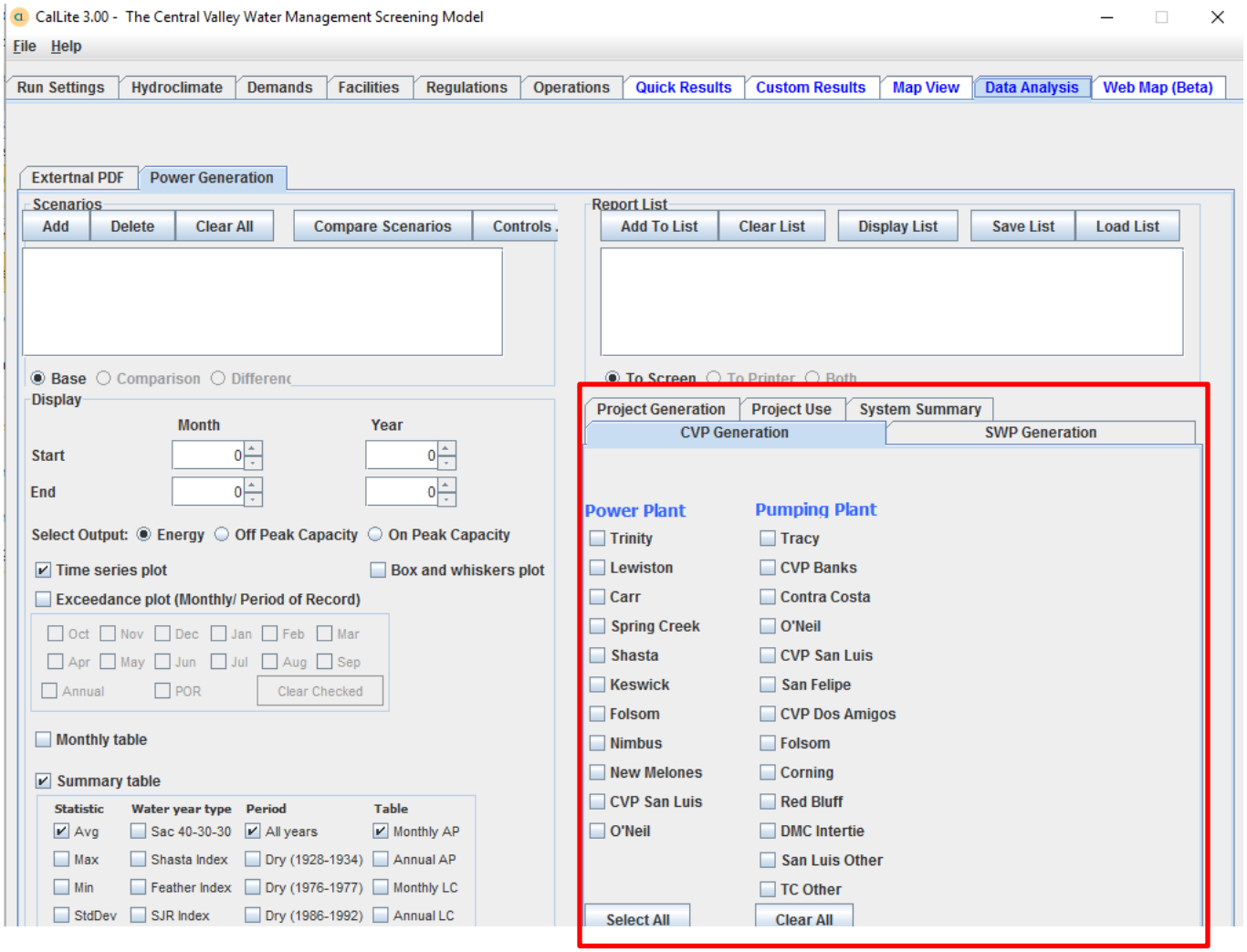
Power Generation Dashboard



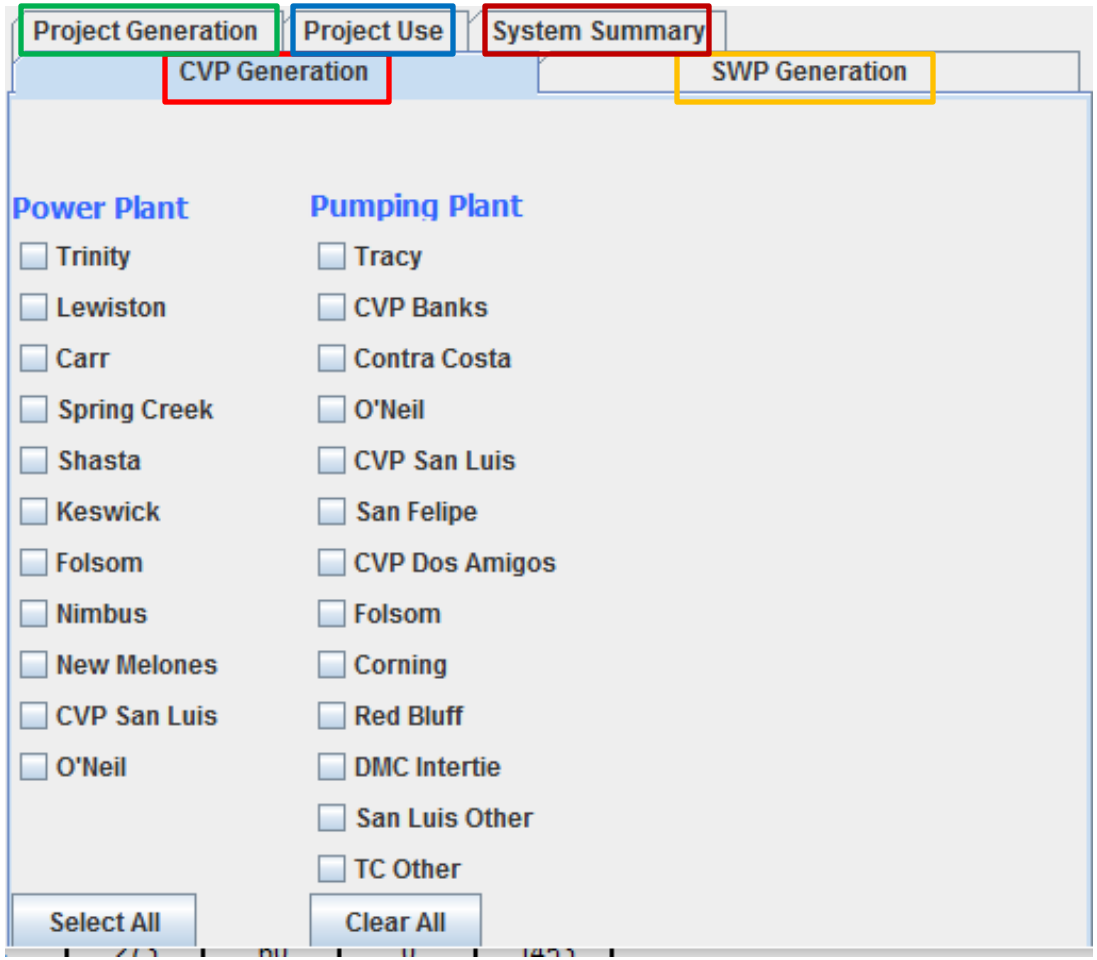
Display Control



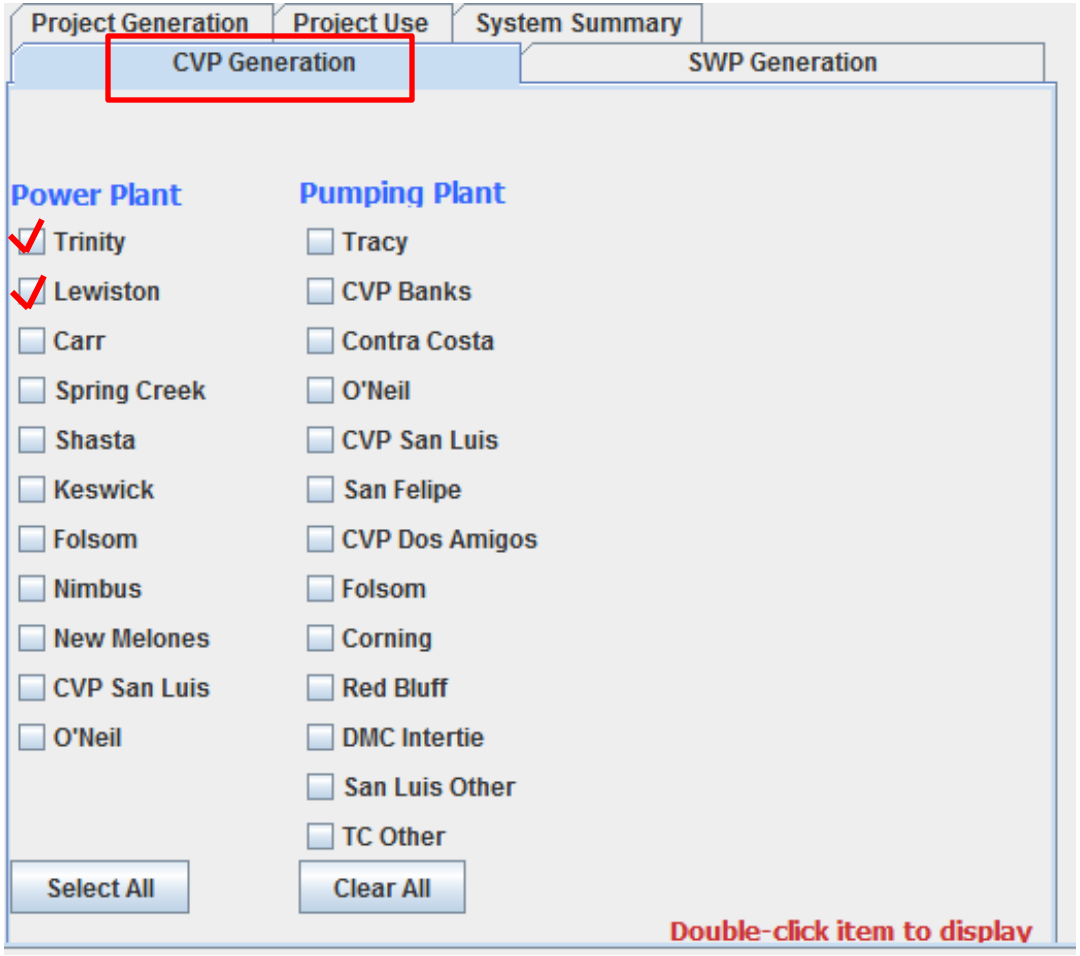
Power Generation Dashboard



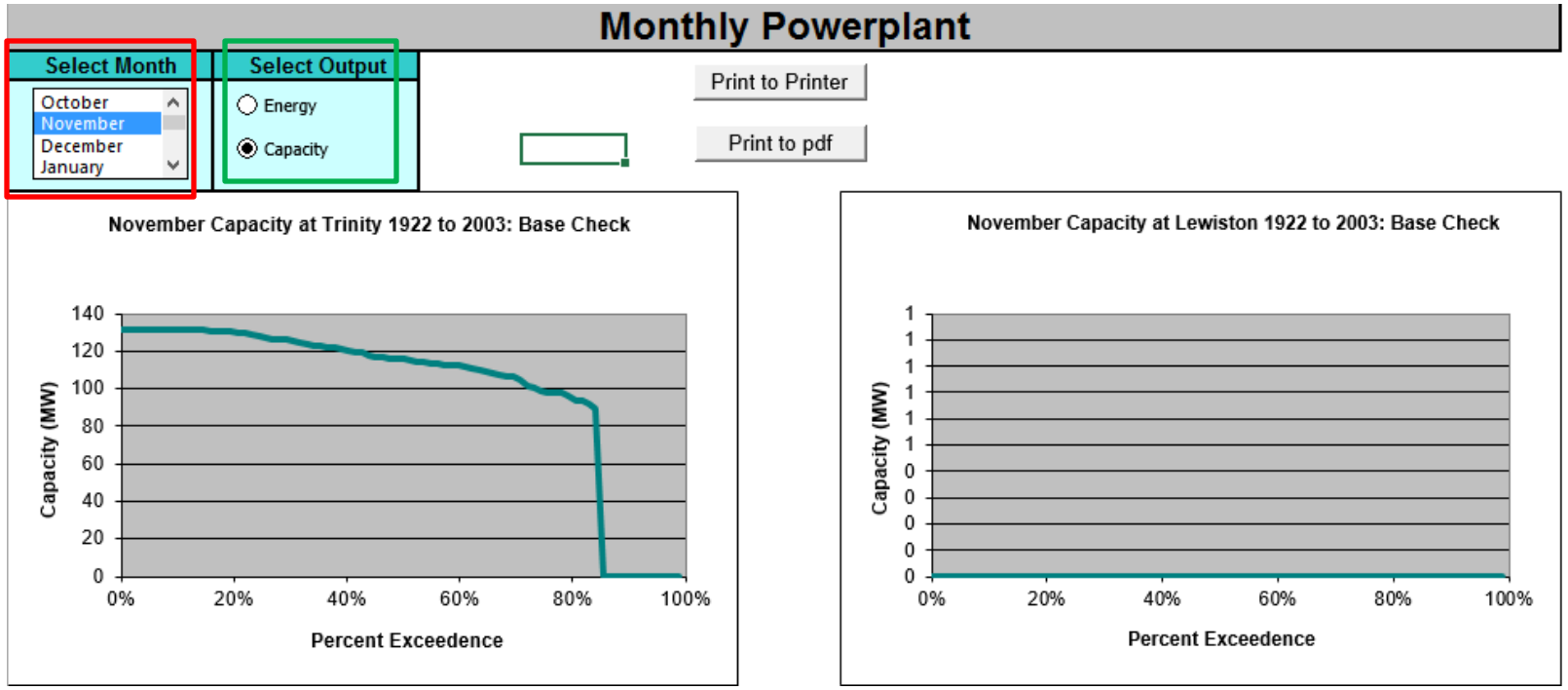
Power Generation/Use Panels



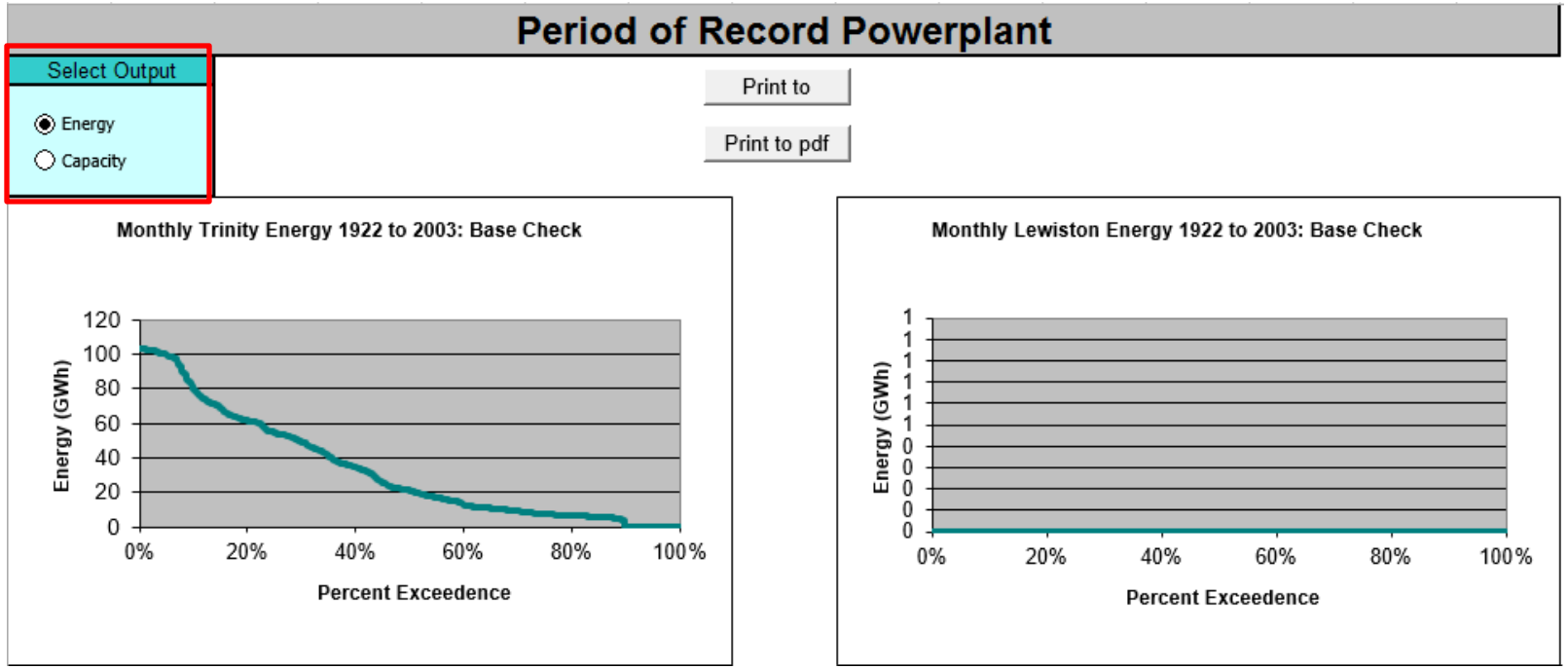
CVP Generation



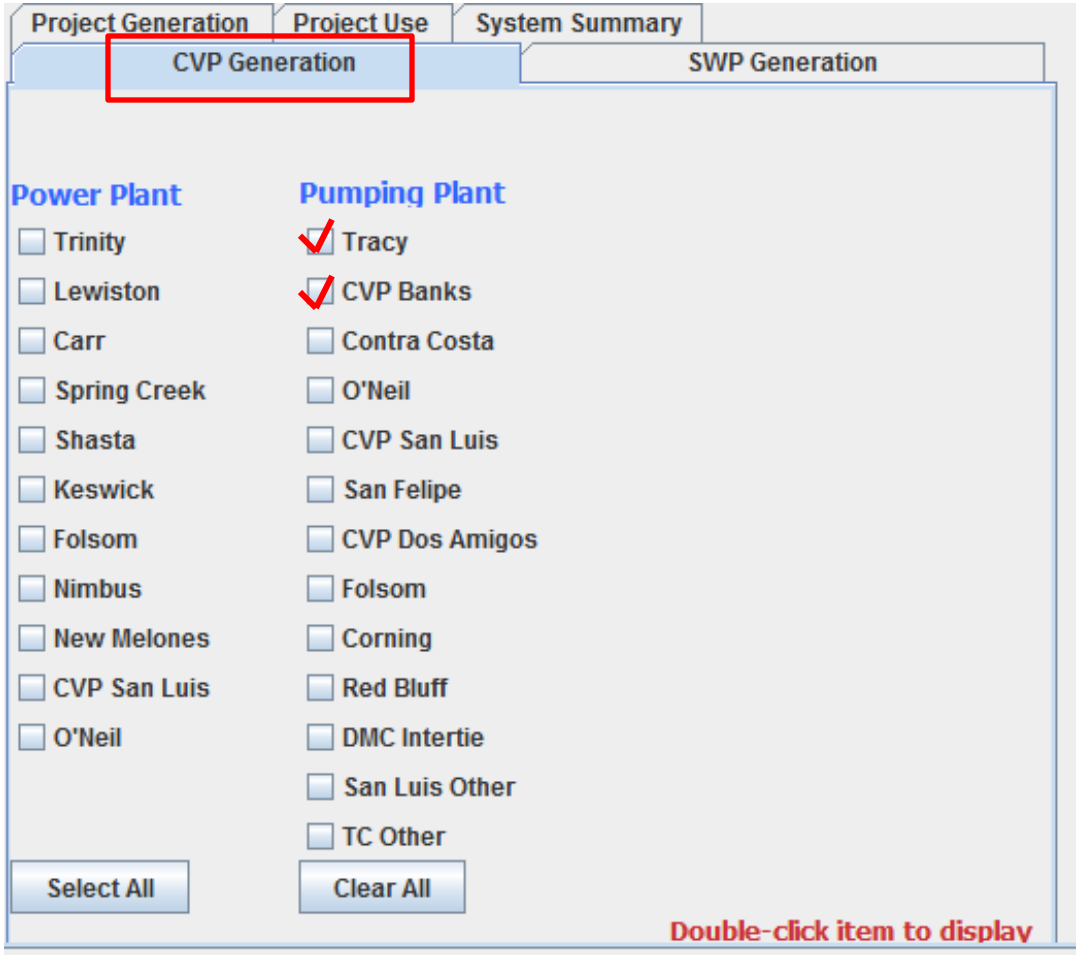
CVP Generation Monthly



CVP Generation POR



CVP Generation



CVP Use Monthly

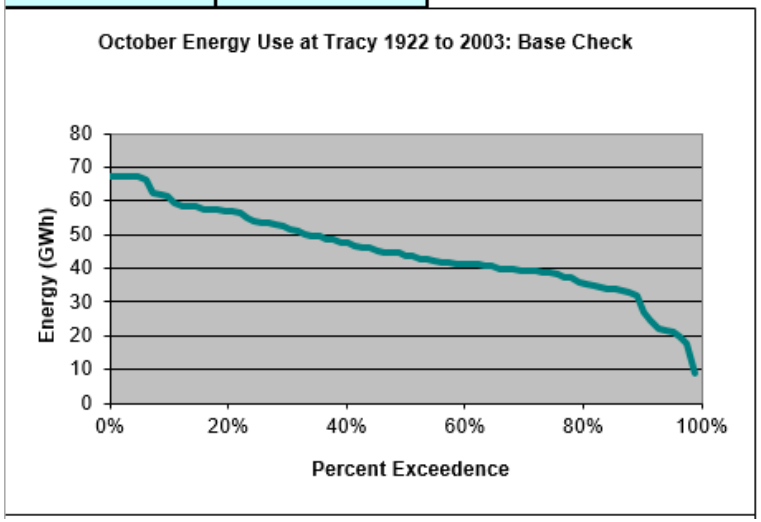
Monthly Project Use

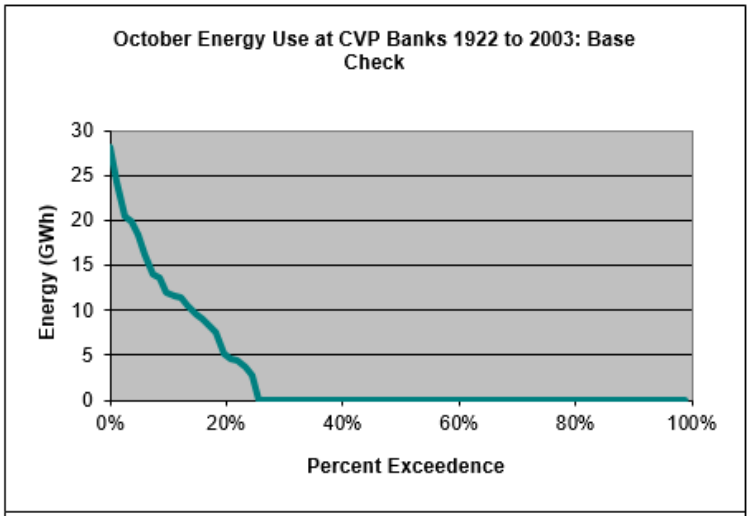
Select Month: October, November, December, January

Select Output: (•) Energy; ( ) Off Peak Capacity; ( ) On Peak Capacity

Print Graphs

Print to pdf





CVP Use POR

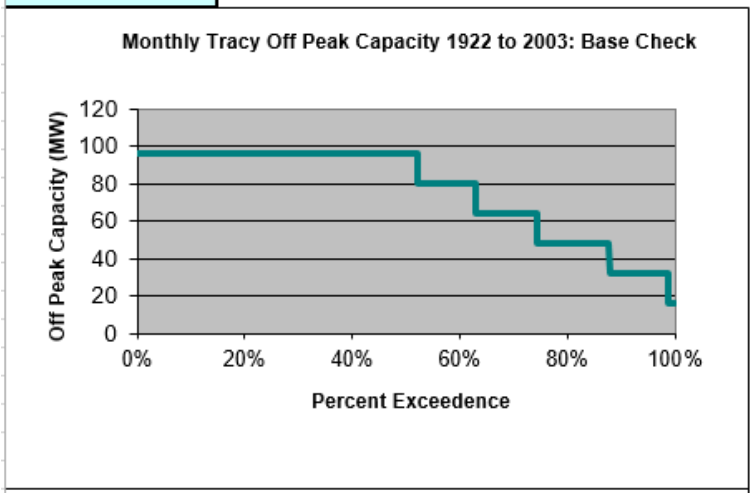
Period of Record Project Use

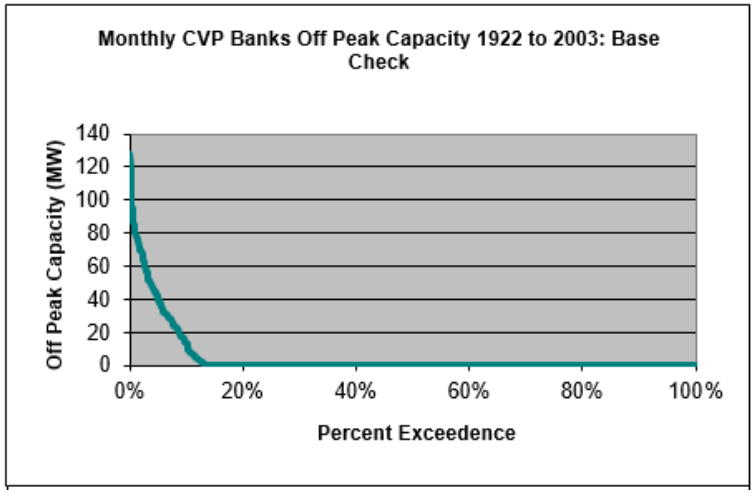
Select Output

- ○ Energy
- ◉ Off Peak Capacity
- ○ On Peak Capacity

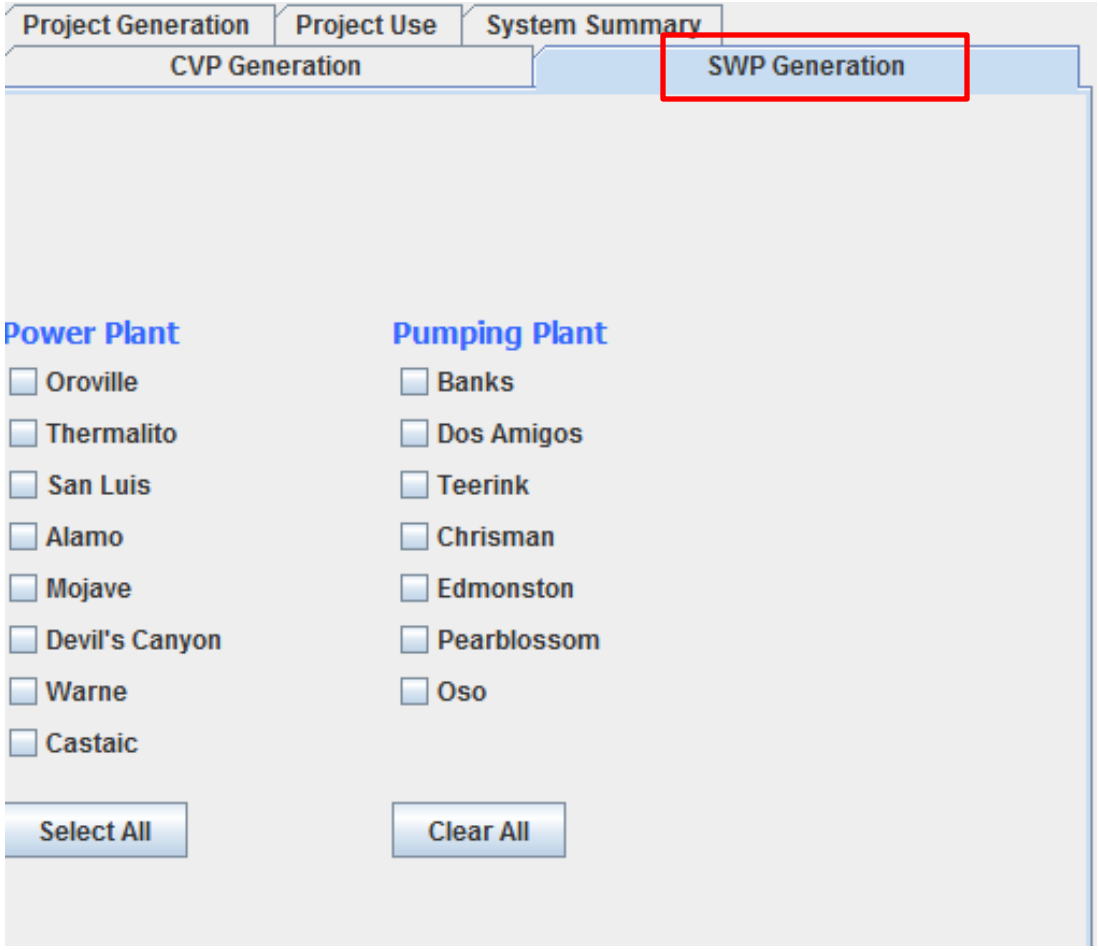
Print to Printer

Print to pdf

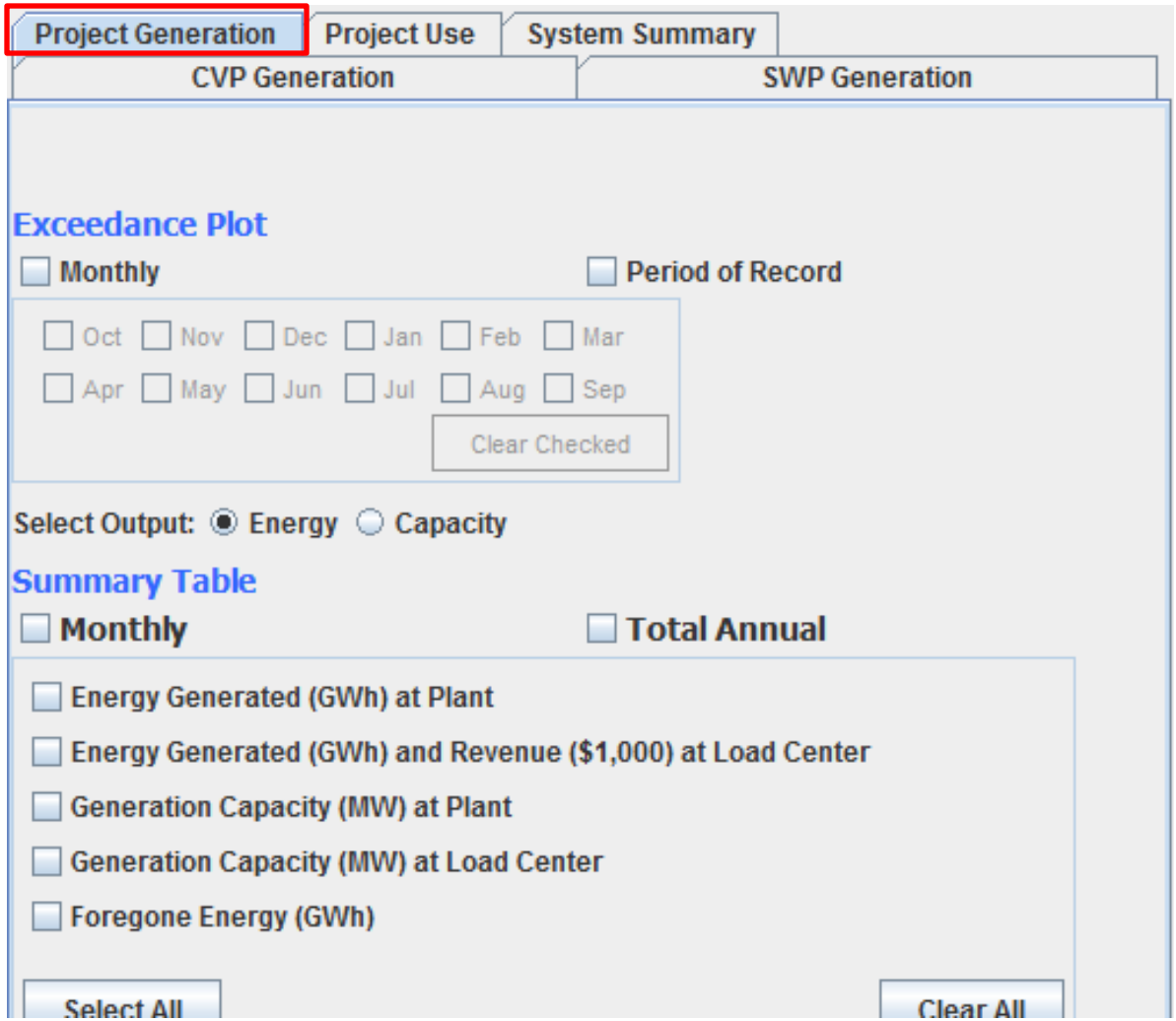




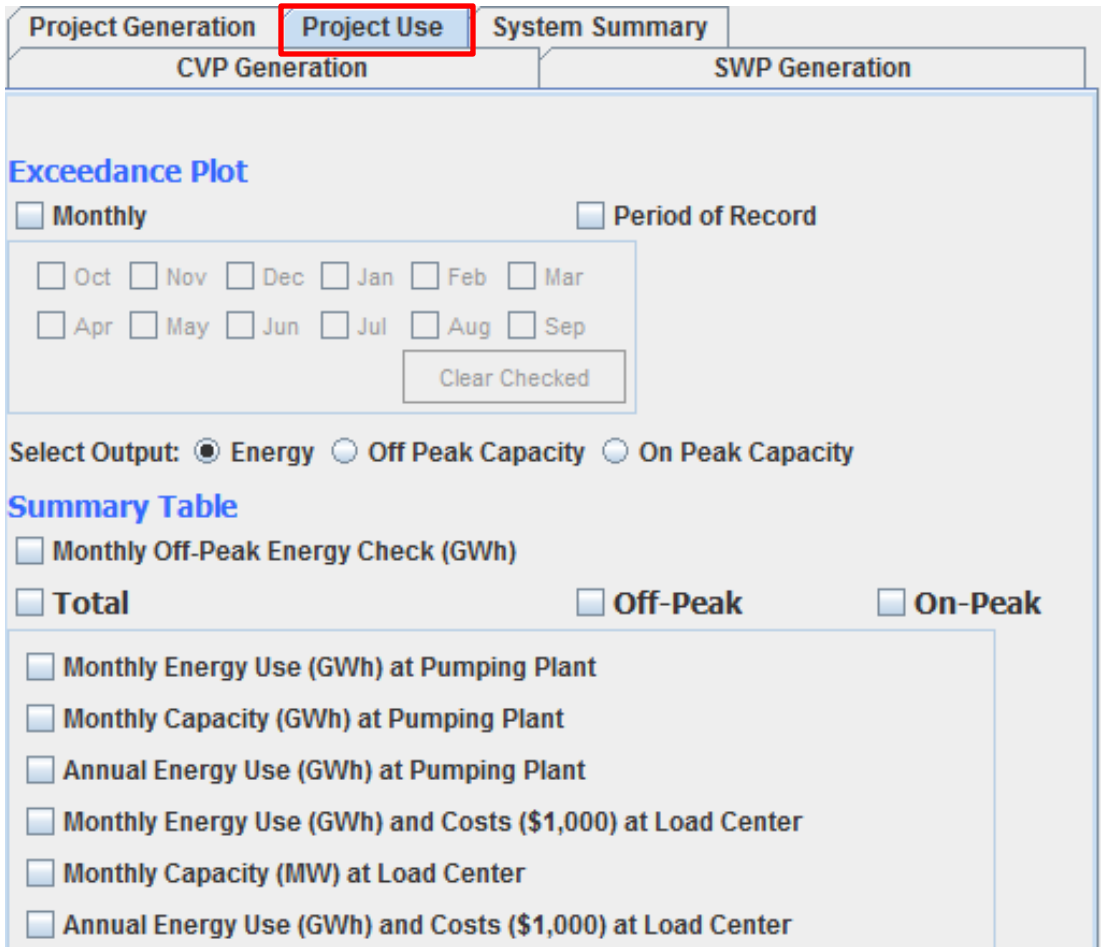
SWP Generation



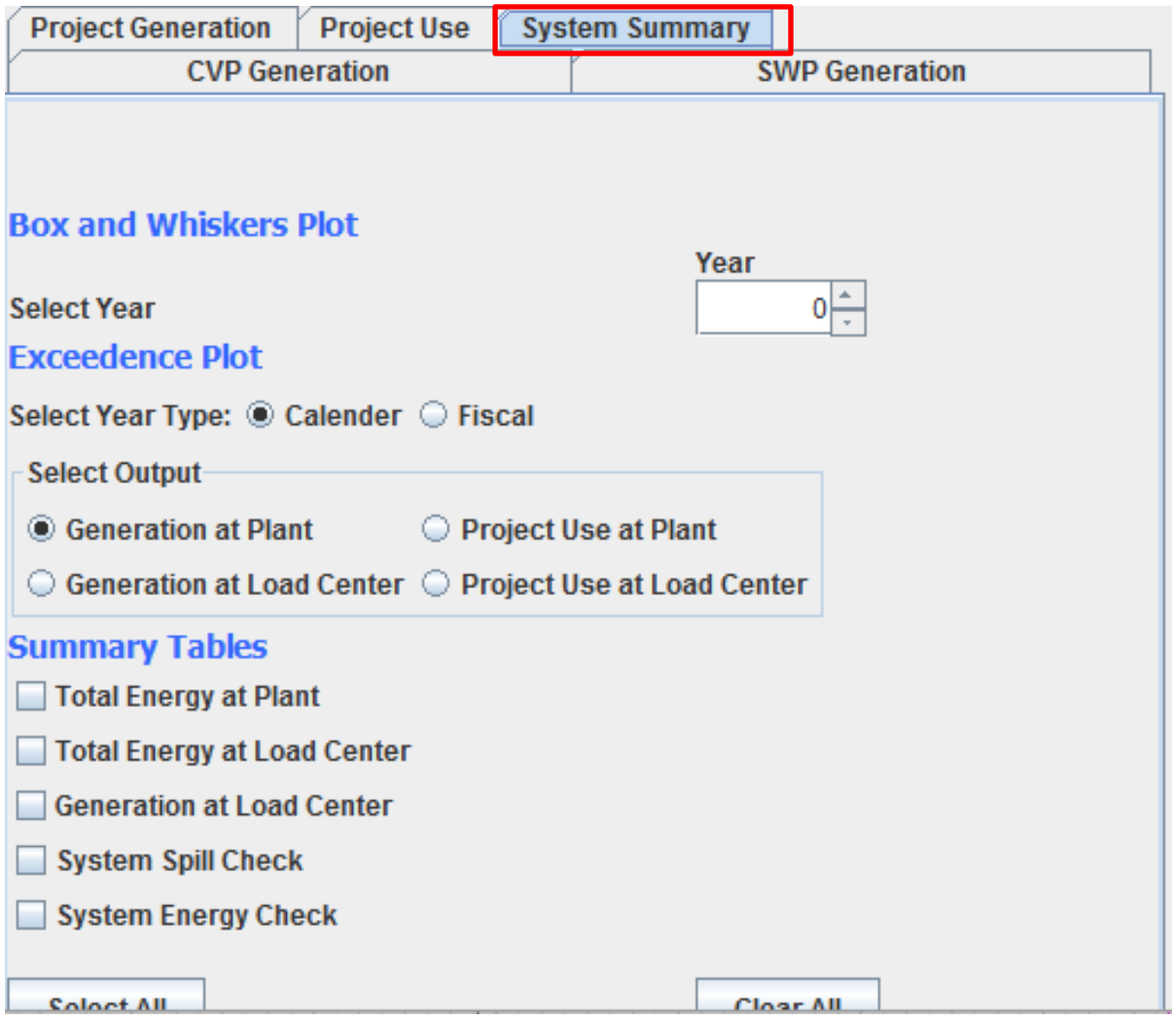
Project Generation



Project Use


Project Generation
Project Use
System Summary
CVP Generation
SWP Generation
Exceedance Plot
Monthly
Period of Record
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Clear Checked
Select Output:
Energy
Off Peak Capacity
On Peak Capacity
Summary Table
Monthly Off-Peak Energy Check (GWh)
Total
Off-Peak
On-Peak
Monthly Energy Use (GWh) at Pumping Plant
Monthly Capacity (GWh) at Pumping Plant
Annual Energy Use (GWh) at Pumping Plant
Monthly Energy Use (GWh) and Costs ($1,000) at Load Center
Monthly Capacity (MW) at Load Center
Annual Energy Use (GWh) and Costs ($1,000) at Load Center

System Summary



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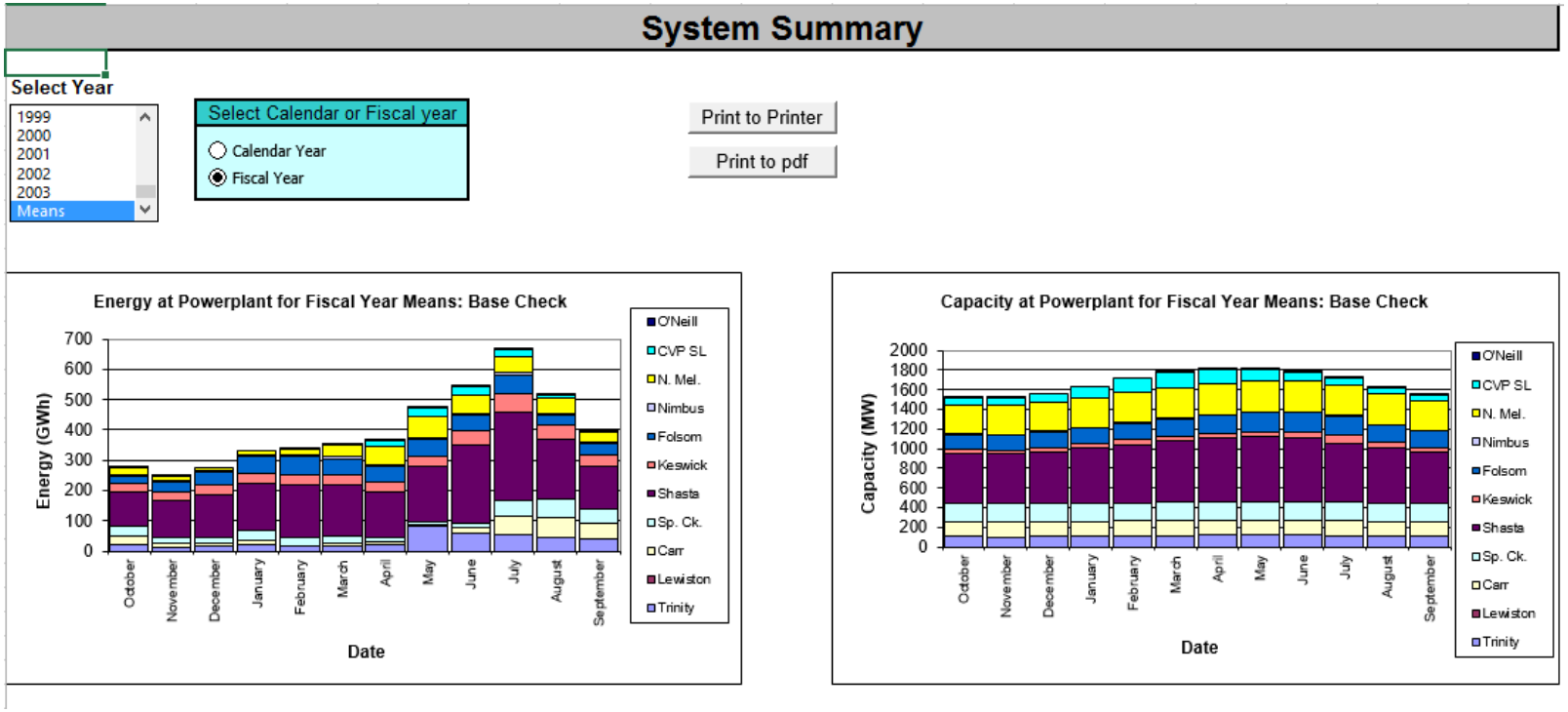

Questions & Comments

- Acknowledge MBK Engineers contribution for transferring LTGen & SWPGen logic in Jytho Script