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APPENDIX 5A

Cosumnes Power Plant Transmission System Impact Study

Cosumnes Power Plant

Transmission System Impact Study

Sacramento Municipal Utility District
Revised October 16, 2001

Contents

Cosumnes Power Plant Transmission System Impact Study

1. Study Objective

Determine the impacts on the surrounding electrical system of a new 1000 MW Cosumnes Power Plant project located at Rancho Seco.

2. Project Description

The Cosumnes Power Plant project is proposed to be combined cycle gas and steam turbine generation with heat recovery steam generator located approximately ¼ mile from the existing 230 kV switchyard at Rancho Seco. Rancho Seco, in the south-east portion of the Sacramento Municipal Utility District (SMUD) service area, is the site of the 1000 MW Rancho Seco Nuclear Generation Plant permanently removed from service in 1989.

Specific generation equipment has not been selected at this time, but the intent is to construct a 500 MW plant that will be on-line by the first quarter of 2005 and a second 500 MW plant that will be on-line within another two years.

3. Summary of Study Results

Results of both TransferLimit studies and PV analysis indicate that additional generation at the Cosumnes Power Plant will significantly improve the SMUD/Roseville area load handling capability from both the thermal perspective and voltage support perspective.

For the heavy summer conditions studied, no significant negative impacts were determined within the PG&E control area (northern California) as a result of a new 1000 MW Cosumnes Power Plant during normal, single contingency or double line outages, either for cases with a 560 MW generation plant at Elverta or for cases without generation at Elverta.

For the extreme spring conditions studied, the potential adverse impacts observed are much more the result of very high generation levels within the Sacramento area compared to the remainder of the PG&E area and the heavy schedule through the PG&E area from the Pacific Northwest to Southern California than were those impacts the result of the generation at the Cosumnes Power Plant. All impacts are mitigated by load growth in the Sacramento area or generation reductions in the Sacramento Area.

During these spring single contingency conditions, the most significant impact of 1,000 MW new generation at Cosumnes Power Plant was an aggravation of the already overloaded Westley to Tracy line during an outage of the Westley to Tesla line. The impact of the Cosumnes generation is significantly less than the existing overload, and is mitigated by either Sacramento area load growth or Sacramento area generation reduction.

During these spring conditions, the first 500 MW stage of Cosumnes generation introduces no significant negative impacts during either normal system conditions or any of the double contingency conditions studied. The second 500 MW stage of Cosumnes generation results in a slight overload on the Riverbank Junction to Manteca 115 kV line and several overloaded lines during an outage of both Rancho Seco to Bellota 230 kV lines. These overloads are all mitigated by load growth in the Sacramento area or Sacramento area generation reductions.

4. Study Description

4.1 General Case Descriptions

Power flow analysis was performed using data initially developed by the Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) provided to the California Independent System Operator (CAISO) for transmission assessment studies. The data was further reviewed and refined by members of the Sacramento Area Transmission Planning Group (SATPG) while being prepared by Western Area Power Administration (Western) for a recently completed interconnection study. That interconnection study was for the proposed Florida Power and Light Energy (FPLE) 560 MW generation plant near the Western/SMUD Elverta Substation in the north-west portion of the SMUD service area.

The cases selected for this Cosumnes Power Plant generation impact study are the 2005 Heavy Summer and 2004 Spring cases, the most current cases reflecting CAISO planning assumptions available at the time these studies were initiated. These cases were developed to investigate future system needs and include foreseeable generation projects but do not include all associated transmission upgrades. Since the base cases do include some element thermal overloads and mitigation of those overloads is outside the scope of this study, only relative, or incremental impacts are addressed here.

To assess the impacts of the Cosumnes Power Plant, both with and without the proposed FPLE generation project at Elverta, four summer cases and four spring cases were developed and subjected to all outage conditions. One pair of summer cases includes no FPLE generation project at Elverta, with one case having no Cosumnes Power Plant and the other including the Cosumnes project. The other pair of summer cases includes the FPLE generation project at Elverta, with one case having no Cosumnes Power Plant and the other including the Cosumnes project. These four cases allow evaluation of the impacts of the Cosumnes Power Plant during the summer conditions both with and without the FPLE generation at Elverta. The four spring cases are developed in precisely the same manner for the same purpose.

These cases do include the Sutter Power Plant (525 MW) constructed just north of Sacramento that is connected to the SMUD system by the Western lines from O'Banion to Elverta. The potential impacts of the proposed FPLE generation project at Elverta are considered by including the combinations of cases listed above. The proposed Roseville and Colusa generation projects were not included. Because of their locations, the impacts on the Sacramento area will be similar to the impacts of the proposed FPLE generation at Elverta, and these studies show that the Cosumnes Power Plant definitely mitigates such impacts and does not aggravate those impacts.

SMUD is planning to construct a new Natomas 230 kV substation between Elverta and Hurley which will be connected by looping its existing Elverta/Hurley line through the new station. This will result in replacing the existing Elverta/Hurley line with the Elverta/Natomas and Natomas/Hurley lines on the same towers. The planned Natomas substation is not included in the primary base cases for the Cosumnes Power Plant impact study, but is included as sensitivity studies, for the following reasons.

Proposed projects such as the FPLE generation at Elverta, the Roseville generation project and the Colusa project, because of their proximity to the north of SMUD, will have some negative impacts on this new SMUD configuration in addition to any negative impacts on the existing configuration. Since (1) the Cosumnes Power Plant definitely helps to mitigate these impacts, (2) the resolution of further mitigation of those impacts are issues that will be negotiated in another forum, and (3) the final design will be influenced by negotiations and by whether those projects materialize, the primary cases for this Cosumnes Power Plant impact study did not add the anticipated Natomas substation.

This issue is addressed through sensitivity studies, however. Appendix E includes flow diagrams for the four summer base cases that do include the Natomas substation. Comparing these to the corresponding base case flow diagrams in Appendix D that do not include the Natomas substation shows that (1) flow changes are essentially limited to within the SMUD system and (2) the Cosumnes Power Plant definitely acts to reduce the heavy flows of concern on the Elverta/Natomas line. The small differences in flows on lines connecting the SMUD system to other systems can be attributed more to the associated redistribution of load within SMUD (with the new substation) than to the reconfiguration itself.

4.2 Summer Case Descriptions

The summer case, without the Cosumnes Power Plant and without the FPLE generation at Elverta, reflects PG&E area peak load of 25,999 MW with PG&E area generation at 22,848 MW. Import into California from the Pacific Northwest is at the maximum of 4,800 MW and the transfer from the PG&E area to Southern California is 650 MW. SMUD load is 3,138 MW and SMUD generation is 1,000 MW.

When the FPLE generation at Elverta is added (560 MW), the transfer from the PG&E area to Southern California is increased to 1,200 MW.

When the Cosumnes Power Plant is added (1000 MW), generation is reduced at PG&E's Diablo Canyon, Helms, Moss Landing, Pittsburg, Contra Costa and Morro Bay plants.

> For comparisons, power transfers from PG&E to Southern California were adjusted in place of reducing PG&E generation, and the results showed no significant differences for the purposes of this study.

4.3 Spring Case Descriptions

The spring case is an extreme test of worst case impacts of additional generation in the Sacramento area. The Sacramento area load is at an extreme low, Sutter Generation remains high, Cosumnes Power Plant and FPLE generation at Elverta are maximum when included, and imports from the Northwest are high and exports to Southern California are maximum to stress the north to south flows.

The spring case, without the Cosumnes Power Plant and without the FPLE generation at Elverta, reflects PG&E area load of 15,622 MW with PG&E area generation at 15,622 MW. Import into California from the Pacific Northwest is quite high at 4,500 MW and the transfer from the PG&E area to Southern California is at the 3,600 MW maximum. SMUD load is only 1,226 MW and SMUD generation is at a heavy summer level of 1,000 MW.

When the FPLE generation at Elverta is added (560 MW), PG&E generation outside the Sacramento area is reduced proportional to output (about 3.7% at each generator).

When the Cosumnes Power Plant is added (1000 MW), PG&E generation outside the Sacramento area is reduced proportional to output (about 6.7% at each generator).

With the Sutter Power Plant, FPLE generation at Elverta, Cosumnes Power Plant and the remaining generation within SMUD, 20% of the generation on line in the PG&E area is concentrated in the Sacramento area.

4.4 Study Method

This study is focused on power flow analysis of system normal conditions, single contingency outage conditions, and selected double contingency conditions (double line outages). Power flow investigations included those for thermal constraints and for local area reactive support.

Appendix A includes PV curves for all four summer base cases. The results show the effects of the most severe single and double line outages to demonstrate that the addition of the Cosumnes Power Plant clearly provides increased area load handling capability from a voltage support perspective.

Appendix B includes a series of tables describing effects of the addition of the Cosumnes Power Plant during system normal and selected most severe double line outages for systems with and without the FPLE generation at Elverta to demonstrate that the Cosumnes Power Plant either has no significant negative impacts on other system components or helps to mitigate existing stress conditions.

Appendix C includes a series of TransferLimit program outputs that allow comparisons to demonstrate that the Cosumnes Power Plant has no significant negative impacts on other system components during single line outage conditions and generally increases the area load handling capability.

Appendix D includes a series of powerflow diagrams to help describe the flow patterns for the various cases. Each set includes, in order, the base case flow diagram, a single line outage flow diagram for each of two outages of major lines near the Cosumnes Power Plant, and two double line outage flow diagrams for the major parallel double line outages near the Cosumnes Power Plant. This appendix includes eight such sets of diagrams in the following order: heavy summer without Cosumnes and without FPLE, heavy summer with Cosumnes and without FPLE, heavy summer without Cosumnes and with FPLE, heavy summer with Cosumnes and with FPLE, and sets for the four spring cases in the same order. The sets with and without Cosumnes are arranged adjacent to each other for ease of comparisons.

Appendix E includes a series of powerflow diagrams for the sensitivity cases to show the effects of including a Natomas 230 kV substation result in no significant flow changes outside the SMUD system and to show that Cosumnes helps mitigate potential impacts on an Elverta/Natomas line of generation additons to the north and in proximity of SMUD. These diagrams are for system normal conditions and correspond in order to the sets in Appendix D.

4.5 Study Criteria

This study complies with the National Electric Reliability Council (NERC) and Western Systems Coordinating Council (WSCC) planning criteria. The specific criteria that apply to this steady state study relate to thermal ratings for system elements and system voltages.

Each system element is given a normal rating and an emergency rating, in MVA or amperes, based on its ability to safely handle the temperature resulting from the power or current flow through it. The normal rating is applied during system normal conditions (no outages) and the emergency rating is applied during contingency conditions (single and double element outages). The emergency rating is often higher than the normal rating because it is applied less frequently and for shorter durations.

Thermal Rating Criteria	
System Condition	**Applicable Criteria**
System Normal Conditions (No Outages)	Element Flows <= Normal Ratings
Outage Conditions (Single and Double)	Element Flows <= Emergency Ratings

Bus Voltage Criteria	
System Condition	**Applicable Criteria**
System Normal Conditions (No Outages)	System Bus Voltages >= 0.95 per unit (e.g., 218 kV for 230 kV bus)
Outage Conditions (Single and Double)	

There are some apparent exceptions to the strict application of the Thermal Rating Criteria for consistently overstressed elements remote from the Cosumnes Power Plant. The justification, as stated before, is as follows.

The cases selected for this Cosumnes Power Plant generation impact study were the most current cases reflecting CAISO planning assumptions available at the time these studies were initiated. These cases were developed to investigate future system needs and include foreseeable generation projects but do not include all associated transmission upgrades. Since the original base cases do include some unresolved element thermal overloads and the mitigation of those overloads is outside the scope of this study, only relative, or incremental impacts are addressed for those elements.

4.6 Future Studies

Stability studies will be deferred until generator specifics are available, but are not anticipated to reveal any system problems. A large generation plant was previously located at the Rancho Seco site, the system is still well coupled, and stability studies will only be needed to verify proper generator settings.

For similar reasons, fault impact studies will be deferred until all generation and transformation equipment specifics are available. Stations reasonably close to the proposed Cosumnes Power Plant were already designed to handle fault duties imposed by the Rancho Seco Nuclear Generation Plant. The Rancho Seco plant was the same size as the proposed Cosumnes plant, and was connected to the transmission system in the very same way at the same location.

5. Sacramento Area Voltage Support Studies

5.1 The criteria for evaluating voltage support capability for area loads is based on PV analysis, which is the relationship of area voltage as a function of area load. PV curves, such as those included in Appendix A, describe those relationships graphically. Two types of criteria apply for this area and fully meet the WSCC requirements. The first criterion, a locally imposed requirement, is that system voltage not sag below 218 kV. The remaining criteria, specified by WSCC, are that loads may not exceed 95% of the nose point of the worst case single contingency curve and may not exceed 97.5% of the nose point of the worst case double line outage curve.

With the addition of the Sutter Power Plant just north of the Sacramento area, near term voltage support needs are satisfied, but longer term needs remain a concern. Current projections of the Sacramento area load for the year 2011, including Roseville, are for a 3,648 MW anticipated peak load that could reach an extreme 3,880 MW with a 1-in-10 year probability.

Figures 1 and 2 of Appendix A show that without either the new generation at Elverta or the Cosumnes Power Plant the system would support the load up to 3677 MW during single contingency outages and 3447 MW during double line outages. Some mitigation would be required for the double line outages and for loads approaching the 1-in-10 year extreme loads for the year 2011.

With the addition of the Cosumnes Power Plant, as shown in Figures 3 and 4 of Appendix A, the single and double contingency load handling capabilities increase to 4,185 MW and 3,999 MW respectively, more than accommodating even the extreme 1-in-10 year forecast for the year 2011.

Comparisons of Figures 5 and 6 and Figures 7 and 8 show a comparable increase in area load handling capability attributable to the Cosumnes Power Plant when assuming the presence of 560 MW of new generation at Elverta.

6. Summer System Normal Condition Thermal Studies

6.1 Analysis Method

To describe the impacts of a 1000 MW Cosumnes Power Plant during system normal conditions, two tables comparing the line and transformer power flows of greatest concern have been developed and are included in Appendix B as Table 1 and Table 2. One table compares power flows before and after the addition of the Cosumnes Power Plant project to a system that includes a new 560 MW generation plant near the Elverta Substation. The other table compares power flows with and without the Cosumnes Power Plant for a system without the proposed generation near Elverta. Flows listed in each table are those flows within the PG&E control area that are greater than 98% of the system normal rating of a line or transformer either with or without the Cosumnes generation. Flows are listed within each table in the order of increases in flows with the addition of Cosumnes generation, with greatest increases listed first. Flows are shown in units of MVA and percentages of system normal (no outages) thermal ratings.

6.2 Analysis Discussion

6.2.1 No New Generation at Elverta (Appendix B, Table 1)

For elements with flows near or above normal ratings, only two lines and three transformers show increases greater than 0.1 MVA for the addition of 1000 MW generation at The Cosumnes Power Plant. All increases shown are small, with the largest being less than 1% of the generation added at Cosumnes. Flows on the two Round Mountain to Table Mountain 500 kV lines increased only 8.7 MVA and 8.6 MVA, and flows on both lines remained below normal system ratings. Likewise, flow on the Los Banos 230/70 kV transformer remained below normal system rating after a 2.2 MVA increase.

The addition of generation at The Cosumnes Power Plant also increased flows on two PG&E transformers that were already loaded to 114% and 115% of their normal ratings prior to adding the Cosumnes generation. Flow on the Lockford 230/60 kV transformer was increased by 2.2 MVA and flow on the Brighton transformer was increased by 6.9 MVA.

6.2.2 560 MW New Generation at Elverta (Appendix B, Table 2)

For elements with flows near or above normal ratings, only one line and seven transformers showed increases for the addition of 1000 MW generation at The Cosumnes Power Plant. A Round Mountain to Table Mountain 500 kV line flow increased 5.1 MVA and remained below its normal system rating. Flows on the three Warnerville 230/115 kV transformers were 9.2 MVA on two transformers and 18.4 MVA on the other, with all flows remaining within the normal system ratings.

With the addition of the new generation at Elverta, a SMUD 230/69 kV transformer at Elverta and a PG&E 230/70 kV transformer at Los Banos became loaded above their normal system ratings. The increase in flows on these transformers with the addition of the Cosumnes generation was 0.6 MVA and 0.8 MVA, respectively. Flows on the SMUD Elverta transformer were between the 230 kV bus connection and a fictitious internal modeling midpoint, and would be addressed with the addition of generation at Elverta. Flows on the PG&E transformer at Los Banos were only marginally above normal system rating and are rather remote from the Cosumnes generation.

The addition of generation at Cosumnes also increased flows on two PG&E transformers that were already loaded to 114% of their normal ratings prior to adding the Cosumnes generation. Flow on the Lockford 230/60 kV transformer was increased by 1.0 MVA and flow on the Brighton transformer was increased by 7.3 MVA.

6.3 Analysis Summary

No significant adverse impacts as a result of adding 1000 MW generation at Cosumnes were identified, either with or without the proposed 560 MW generation near the Elverta Substation.

The most significant impacts to overloaded elements from Cosumnes generation were those to the Lockford and Brighton transformers, both of which were already loaded 14% to 15% above normal system ratings prior to the addition of the Cosumnes generation. The additional flow on the Lockford 230/60 kV transformer as a result of adding 1000 MW generation at Cosumnes varied between 1.0 MVA and 2.2 MVA. The additional flow on the Brighton transformer varied between 6.9 MVA and 7.3 MVA, was well less than 1% of the generation addition at Cosumnes, and was between the 230 kV bus connection and a fictitious internal modeling midpoint.

7. Summer Single Contingency Thermal Studies

7.1 Analysis Method

Each of the four base cases (with and without the Cosumnes generation, and with and without the Elverta generation) was studied for over 90 different line and transformer outages. Because of the large number of power flow solutions required, outages were limited to those elements most likely to result in overloads impacted by additional generation at Cosumnes. Results of those studies were used as input to SMUD's TransferLimit program. TransferLimit analysis results are included in Appendix C as four two-page reports.

Input to the TransferLimit program includes information from:

- a base case,
- each of the outage cases,
- a case with some schedule change, and
- normal and emergency ratings of each line and transformer being monitored.

Output from the TransferLimit program includes information describing:

- overloaded elements in the base case without outages and without schedule changes,
- for each element being monitored, how much the schedule change should be adjusted to cause the element to be loaded to its normal system rating without outages,
- for each element being monitored, how much the schedule change should be adjusted to cause the element to be loaded to its contingency (emergency) system rating for outages of each of the other monitored elements.

The transfer schedule being tested in each of the TransferLimit reports is a power transfer into the SMUD/Roseville load area (an increase in SMUD/Roseville system load). The Schedule MW Limit values shown in the reports are the increases in loads (additional incremental schedules into the load area) that cause individual elements to be loaded to their ratings. In the first report listing of Appendix B (no Cosumnes generation, no FPLE generation) under "forward schedule normal limits were detected," a Schedule MW Limit of 523 is shown for the HURLEY W to TRCY PMP 230 kV line #2. This means that with an increase of 523 MW to the SMUD/Roseville load above the base case load the HURLEY W to TRCY PMP 230 kV line #2 will become loaded to its system normal thermal limit. Similar information is provided in the "forward schedule outage limits were detected" section, but the outage condition during which the limit was found is identified and the rating applied is the system contingency (emergency) thermal limit.

Only a portion of the most constraining limits are reported by TransferLimit (in these reports, only a handful of over 32,000 calculated limits). Advantages to this approach are the perspective available through the filtered output of so many potential conditions and the ability to quickly compare various scenarios on the relative basis of their most constraining contingencies.

Overloads appear to be slightly less severe in these TransferLimit reports because they are based on MW values rather than MVA as shown in the Appendix B tables. The relative impacts are unchanged, however.

7.2 Analysis Discussion

7.2.1 No New Generation at Elverta (Appendix C, Pages 1&2 and 3&4)

Without generation at Cosumnes (and without generation at Elverta), overloads are found on each of the two O'Banion to Elverta 230 kV transmission lines when the other is out of service under base case conditions (no additional SMUD/Roseville load). The Rio Oso to Atlantic 230 kV line overloads under the same conditions for an outage of the Gold Hill to Rio Oso 230 kV line. Some of the other most limiting constraints are the 110 MW load increase limit imposed by the Hurley 230/115 kV transformer with the Hedge to Procter 230 kV line out and the 129 MW load increase limit imposed by a Hurley to Tracy 230 kV line with the other Hurley to Tracy 230 kV line out.

With 1000 MW of generation added at Cosumnes, overloads on the O'Banion to Elverta 230 kV transmission lines during outages are eliminated and will not occur until the load increase being tested reaches an additional 400 MW. The Rio Oso to Atlantic 230 kV line overload during an outage of the Gold Hill to Rio Oso 230 kV line is reduced in magnitude. The load increase limit imposed by the Rio Oso to Atlantic 230 kV line during an outage of the Atlantic to Rio Oso 230 kV line improved to an additional 443 MW from the 202 MW limit without Cosumnes generation.

7.2.2 560 MW New Generation at Elverta (Appendix C, Pages 5&6 and 7&8)

Without generation at Cosumnes (and with 560 MW generation at Elverta), overloads are found under base case conditions (no additional SMUD/Roseville load) on the Hurley 230/115 kV transformer during an outage of the Hedge to Procter 230 kV line and on each of the Elverta to Hurley 230 kV lines during outages of the other Elverta to Hurley line. The next most constraining limit is the 134 MW SMUD/Roseville load increase limit imposed by the Hurley to Carmichael 230 kV line during an outage of the Hedge to Procter 230 kV line.

With the addition of 1000 MW generation at Cosumnes, the overloads on the Hurley 230/115 kV transformer and the two Elverta to Hurley 230 kV lines are eliminated for single contingency conditions. The most constraining limit to the SMUD/Roseville load increase becomes 606 MW during an outage of the Elverta to Foothill 230 kV line.

7.3 Analysis Summary

The addition of 1000 MW generation at Cosumnes improves the area thermal load handling capability during single contingency conditions. The improvement attributed to the Cosumnes Power Plant is significant without the new generation at Elverta and even more substantial when assuming the new generation at Elverta has been available.

8. Summer Double Contingency (Double Line Outage) Thermal Studies

8.1 Analysis Method

To describe the impacts of a 1000 MW generation plant at Cosumnes during double line outage conditions, two tables comparing the line and transformer power flows of greatest concern for each of six sets of double line outages near Rancho have been developed and are included in Appendix B as Table 3 through Table 14. Each pair of tables (for each double line outage) displays the same types of information as do the system normal tables discussed above and are organized in the same manner. For each double line outage, flows for heavily loaded lines and transformers are shown with and without Cosumnes generation and assuming no new generation project near Elverta, and then shown again with and without Cosumnes generation while assuming a new 560 MW generation plant near the Elverta substation. Flows are shown in units of MVA and percentages of emergency (contingency conditions) thermal ratings.

The double line outages considered are those closest to and anticipated to be the most heavily impacted by a 1000 MW generation project at Cosumnes. Those double line outages are:

- Rancho Seco to Bellota 230 kV Lines 1 and 2 Out
- Rancho Seco to Pocket 230 kV Lines 1 and 2 Out
- Rancho Seco to Hedge and Rancho Seco to Elk Grove 230 kV Lines Out
- Hurley to Tracy 230 kV Lines 1 and 2 Out
- Elverta to Hurley 230 kV Lines 1 and 2 Out
- O'Banion to Elverta 230 kV Lines 1 and 2 Out

8.2 Analysis Discussion

Results of the double line outages are quite consistent with those for system normal conditions. With emergency ratings applied, however, fewer flows through lines and transformers generally exceed ratings.

The only element that became loaded above its emergency rating that was not discussed in the previous section regarding system normal conditions is a transformer at Panoche. It became most heavily loaded during simultaneous outages of both Rancho Seco to Bellota 230 kV lines. Without a generation project at Elverta, 1000 MW generation at Cosumnes increased flow on the Panoche transformer by 5.4 MVA and resulted in total flow of 100.6% of the contingency rating. With a 560 MW generation project at Elverta, the increase in flow through the Panoche transformer with the Cosumnes generation was 2.5 MVA and the resulting total flow was 101.9% of the contingency rating. This transformer is rather remote from Cosumnes, being located south of Los Banos, and the impact imposed on this transformer by generation at Cosumnes should not be considered significant.

Maximum impacts on the Warnerville transformers were 9.9 MVA and 19.9 MVA during the Rancho Seco to Hedge and Rancho Seco to Elk Grove double line outage versus the 9.2 MVA and 18.4 MVA increases for the system normal conditions. These transformers are also rather remote from Cosumnes and impacted more by the larger shift in generation away from the southern portion of the PG&E system than directly by the Cosumnes generation. The impacts on these transformers should not be considered significant.

The impacts on the SMUD Elverta transformers occur under similar conditions as for the system normal cases, and will be addressed upon addition of substantial generation near Elverta.

The maximum impact on the Brighton transformer from 1000 MW generation at Cosumnes was 9.0 MVA during the double line outage of both Hurley to Tracy 230 kV lines. Because the contingency rating was applied during the outage, however, the total flow was only 100.1% of its rating.

8.3 Analysis Summary

No significant adverse impacts as a result of adding 1000 MW generation at Cosumnes were identified, either with or without the proposed 560 MW generation near the Elverta Substation.

9. Summer Thermal Study Conclusion

No significant adverse impacts as a result of adding 1000 MW generation at Cosumnes were identified, either with or without the proposed 560 MW generation near the Elverta Substation.

10. Spring System Normal Condition Thermal Studies

10.1 Analysis Method

To describe the impacts of a 1000 MW Cosumnes Power Plant during system normal conditions, as for the summer cases, two tables comparing the line and transformer power flows of greatest concern have been developed and are included in Appendix B as Table 15 and Table 16. One table compares power flows before and after the addition of the Cosumnes Power Plant project to a system that includes a new 560 MW generation plant near the Elverta Substation. The other table compares power flows with and without the Cosumnes Power Plant for a system without the proposed generation near Elverta. Flows listed in each table are those flows within the PG&E control area that are greater than 98% of the system normal rating of a line or transformer either with or without the Cosumnes generation. Flows are listed within each table in the order of increases in flows with the addition of Cosumnes generation, with greatest increases listed first. Flows are shown in units of MVA and percentages of system normal (no outages) thermal ratings.

10.2 Analysis Discussion

10.2.1 No New Generation at Elverta (Appendix B, Table 15)

For elements with flows near or above normal ratings, only one line shows an increase greater than 1 MVA for the addition of 1000 MW generation at The Cosumnes Power Plant. Flow on the Riverbank Junction to Manteca 115 kV line increases to its normal rating with the increase of 16.8 MVA, less than 2% of the Cosumnes generation added.

10.2.2 560 MW New Generation at Elverta (Appendix B, Table 2)

For elements with flows near or above normal ratings, only two lines show increases greater than 1 MVA for the combined generation addition of 1000 MW at the Cosumnes Power Plant and 560 MW at Elverta. Flow on the Riverbank Junction to Manteca 115 kV line increases to 106.9% of its normal rating, but a generation reduction of 500 MW between Cosumnes and Elverta in any combination would alleviate the overload. The slight 101.9% overload on the Westley to Tracy 230 kV line would also be relieved by the same generation reduction, and is less significant. Again, the maximum impact of 16.9 MVA is less than 2% of the Cosumnes generation added.

10.3 Analysis Summary

No significant adverse impacts as a result of adding 1000 MW generation at Cosumnes were identified without the proposed 560 MW generation near the Elverta Substation. For cases with the 560 MW generation addition near Elverta and under the extreme conditions represented in these spring cases, a 500 MW reduction in Sacramento area generation would alleviate even the 17 MVA (or less) impacts identified, which would also be reduced and ultimately eliminated by load growth in the Sacramento area.

11. Spring Single Contingency Thermal Studies

11.1 Analysis Method

As with the summer cases, each of the four spring base cases (with and without the Cosumnes generation, and with and without the Elverta generation) was studied for over 90 different line and transformer outages. Because of the large number of power flow solutions required, outages were limited to those elements most likely to result in overloads impacted by additional generation at Cosumnes. Results of those studies were used as input to SMUD's TransferLimit program (described above in section 7, Summer Single Contingency Thermal Studies).

Particular attention was paid to the PG&E lines in and out of Cottle A and Cottle B and the 230 kV lines into, out of and within MID to address their expressed concerns relating specifically to spring conditions.

11.2 Analysis Discussion

The heavy generation levels within the Sacramento area for these spring cases, as with the heavy summer cases, created no local single contingency overloads. As with the spring normal condition cases, the primary challenge is moving the disproportionately high levels of generation within the Sacramento area away from the local area. The TransferLimit program identified only one single contingency overload when spring ratings were applied, and verified that Sacramento area load increases reduced that overload and did not create additional single contingency overloads for area load increases in excess of an additional 1,000 MW.

The single contingency overload identified was the Westley to Tracy 230 kV line overload during an outage of the Westley to Tesla 230 kV line. For the extreme spring conditions studied, the Westley to Tracy line became loaded to 126.7% during the outage of the Westley to Tesla line even with no generation at Elverta or Cosumnes. The following table shows the relative impacts of new generation at Elverta and Cosumnes on that specific overload.

Westley/Tracy Line Flow with Westley/Tesla Out

	Rancho Seco Generation					
Gen. At	0 MW		1000 MW		Increase	
Elverta	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
0 MW	454.5	126.7	482.8	135.4	**28.3**	8.7
560 MW	482.5	135.0	508.2	143.1	**25.7**	8.1

11.3 Analysis Summary

The addition of 1000 MW generation at Cosumnes aggravates the existing overload on the Westley to Tracy line during an outage of the Westley to Tesla line for the extreme conditions studied. The impact is significantly less than the existing overload, and is further reduced by load growth within the Sacramento area. The impacts of generation at Cosumnes and Elverta should be re-evaluated by SMUD, the CAISO and PG&E while addressing the existing potential problem.

12. Spring Double Contingency (Double Line Outage) Thermal Studies

12.1 Analysis Method

To describe the impacts of a 1000 MW generation plant at Cosumnes during double line outage conditions, two tables comparing the line and transformer power flows of greatest concern for the most significant of six sets of double line outages near Rancho have been developed and are included in Appendix B as Table 17 and Table 18. The pair of tables displays the same types of information as do previous tables discussed above and are organized in the same manner.

As for the summer cases, the double line outages considered for these extreme spring cases are those closest to and anticipated to be the most heavily impacted by a 1000 MW generation project at Cosumnes. Those double line outages are:

Rancho Seco to Bellota 230 kV Lines 1 and 2 Out
Rancho Seco to Pocket 230 kV Lines 1 and 2 Out
Rancho Seco to Hedge and Rancho Seco to Elk Grove 230 kV Lines Out
Hurley to Tracy 230 kV Lines 1 and 2 Out
Elverta to Hurley 230 kV Lines 1 and 2 Out
O'Banion to Elverta 230 kV Lines 1 and 2 Out

12.2 Analysis Discussion

The double contingency outage of both Rancho Seco to Bellota 230 kV lines during these extreme spring conditions resulted in overloads on the Hurley/Procter, Hedge/Procter, Westley/Tracy, and both Hurley/Tracy 230 kV lines. These overloads are not a concern for the first 500 MW of Cosumnes generation and will all be reduced with load growth in the Sacramento area.

The remaining double line outages considered produced no new or increased overloads.

12.3 Analysis Summary

No significant adverse impacts as a result of adding the first stage 500 MW generation at Cosumnes were identified, either with or without the proposed 560 MW generation near the Elverta Substation. Impacts of the second 500 MW stage at Cosumnes are observed under extreme conditions, will be relieved by normal load growth, may be relieved by other normal system development, and at worst could be controlled with design mitigation incorporated into the second 500 MW stage of Cosumnes generation.

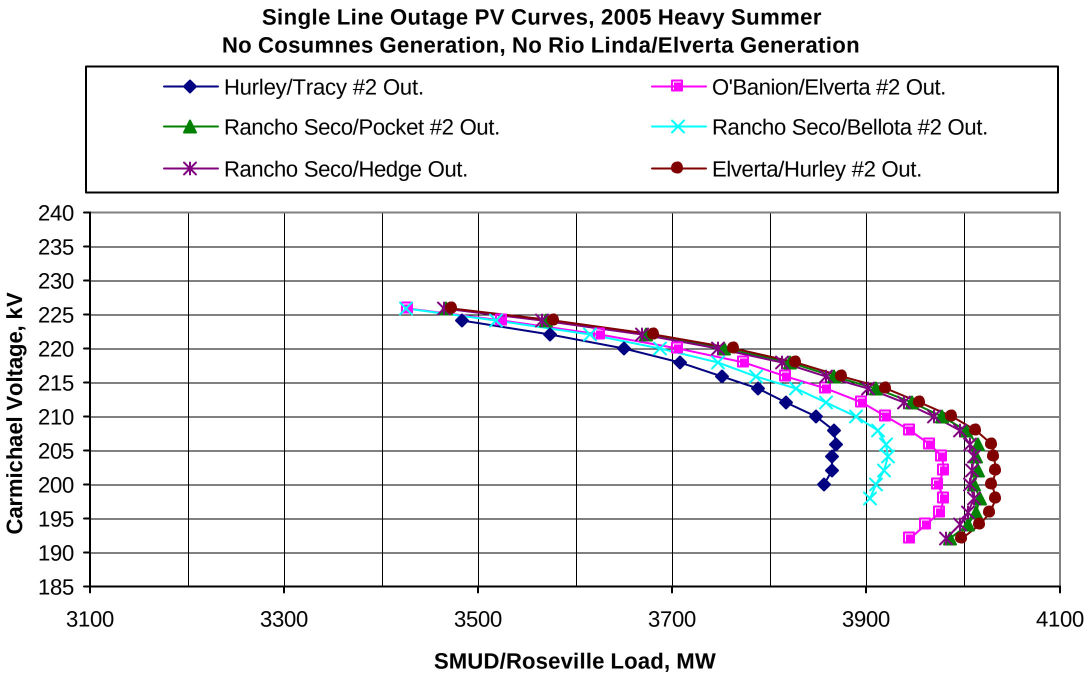


Figure 1

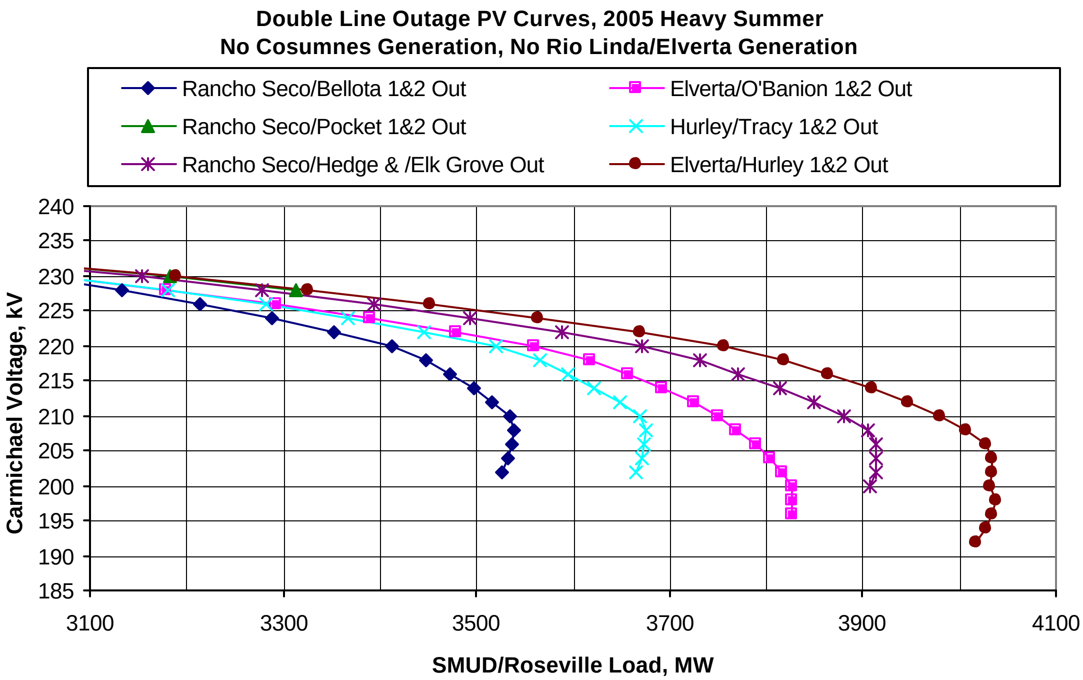


Figure 2

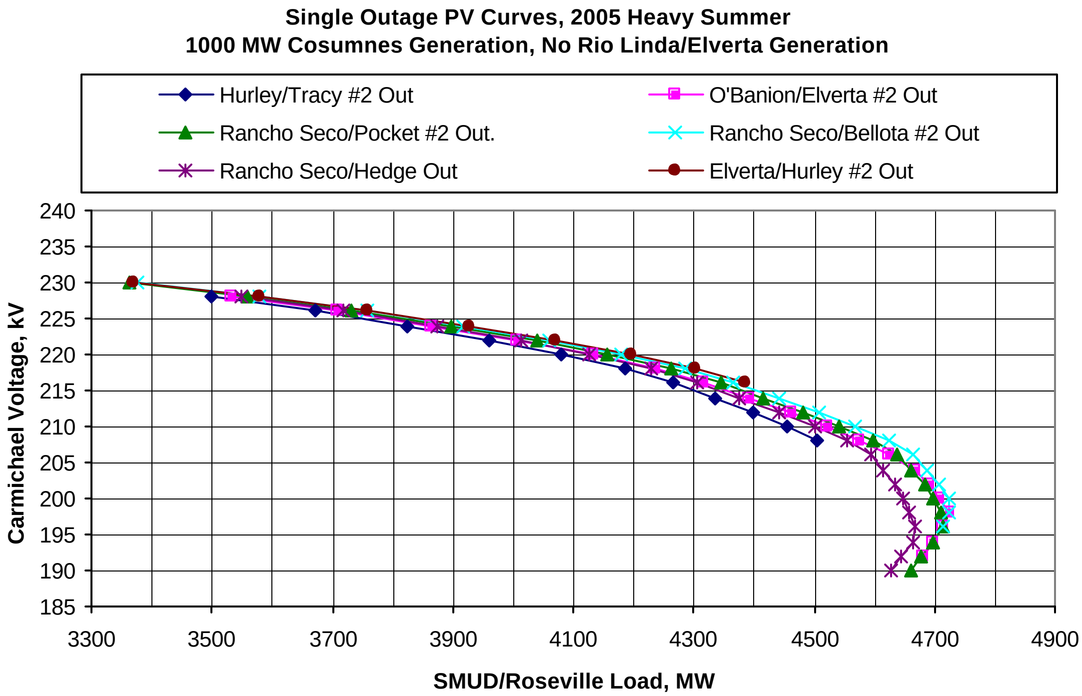


Figure 3

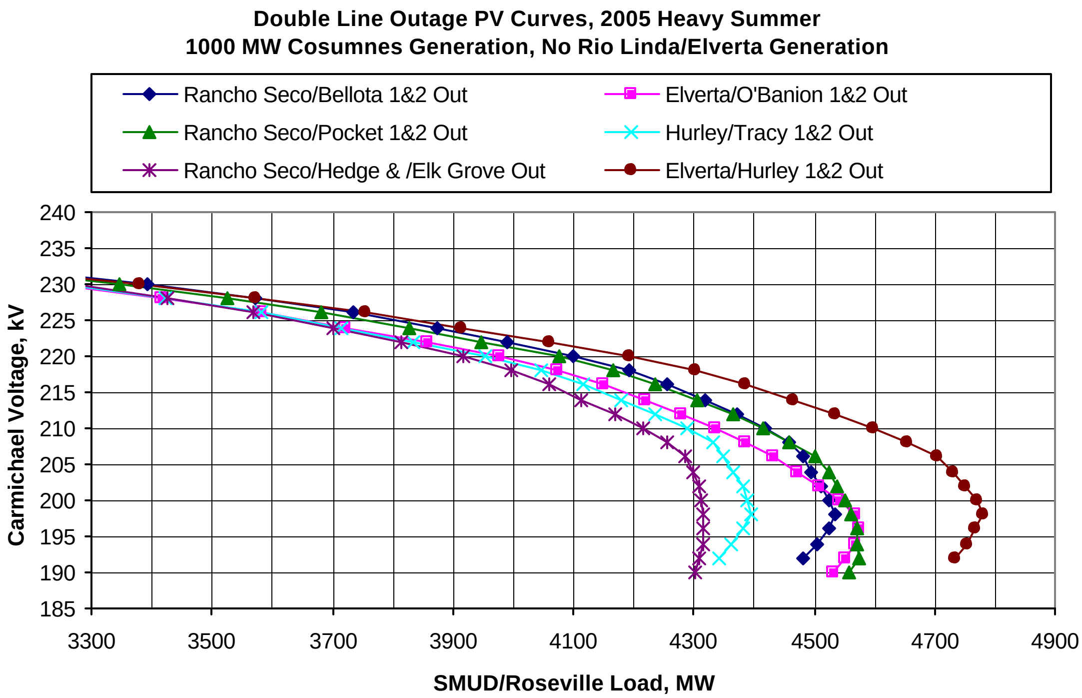


Figure 4

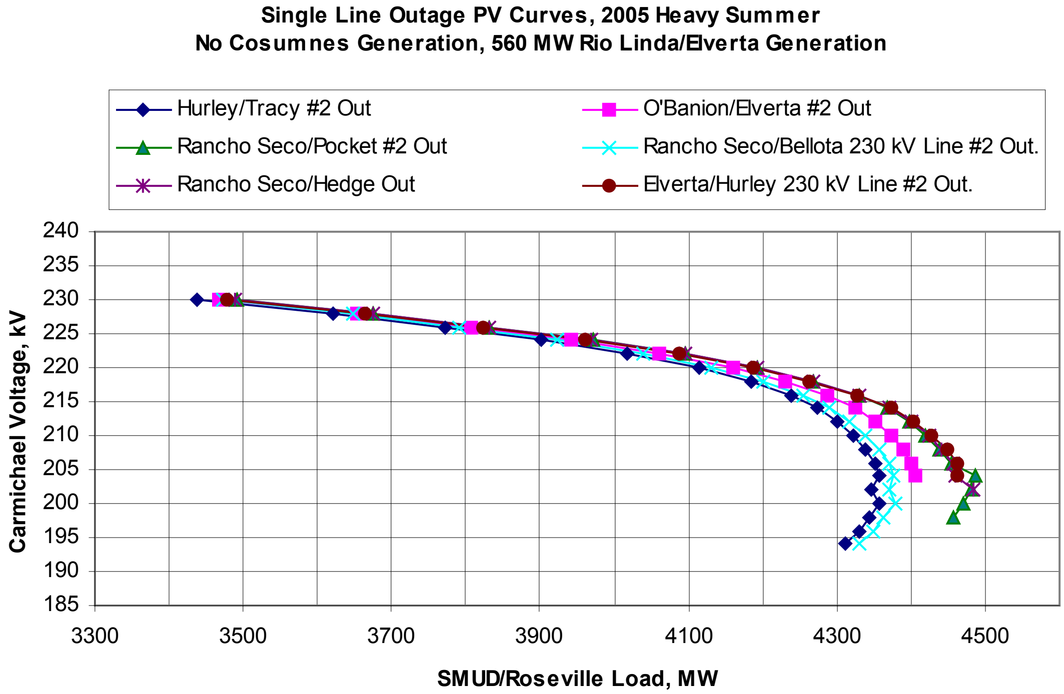


Figure 5

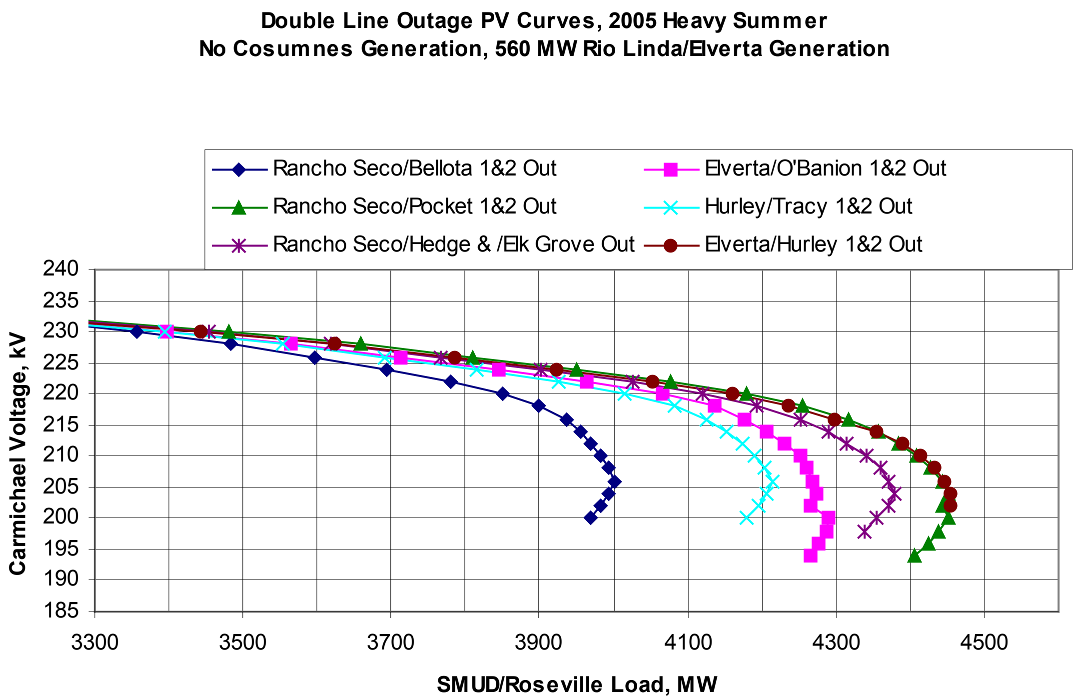


Figure 6

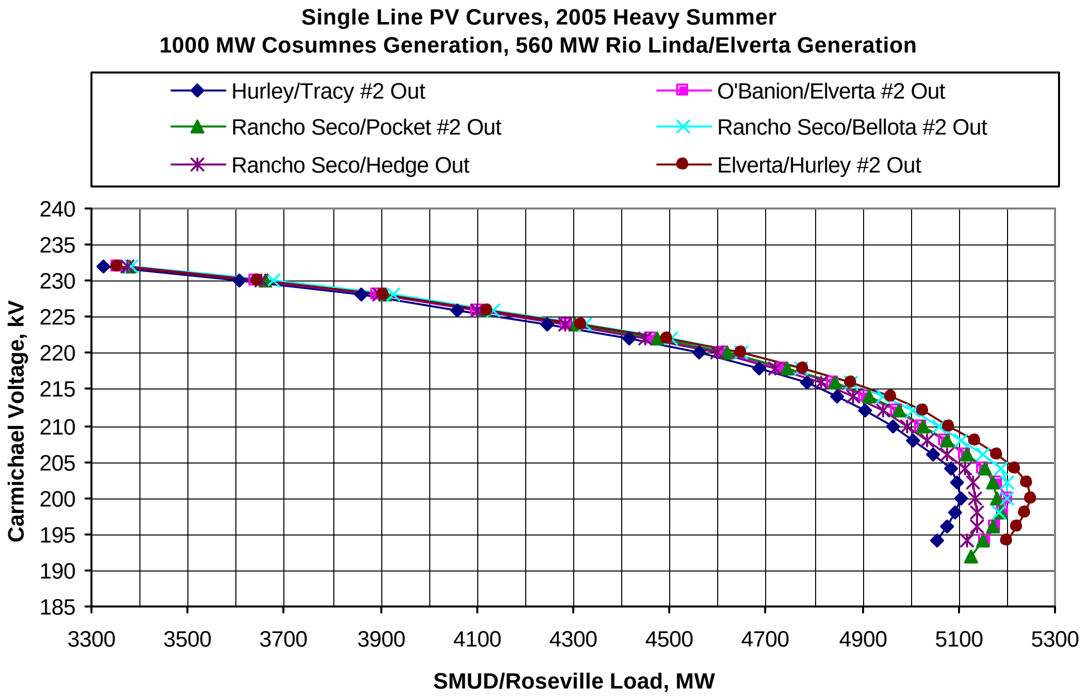


Figure 7

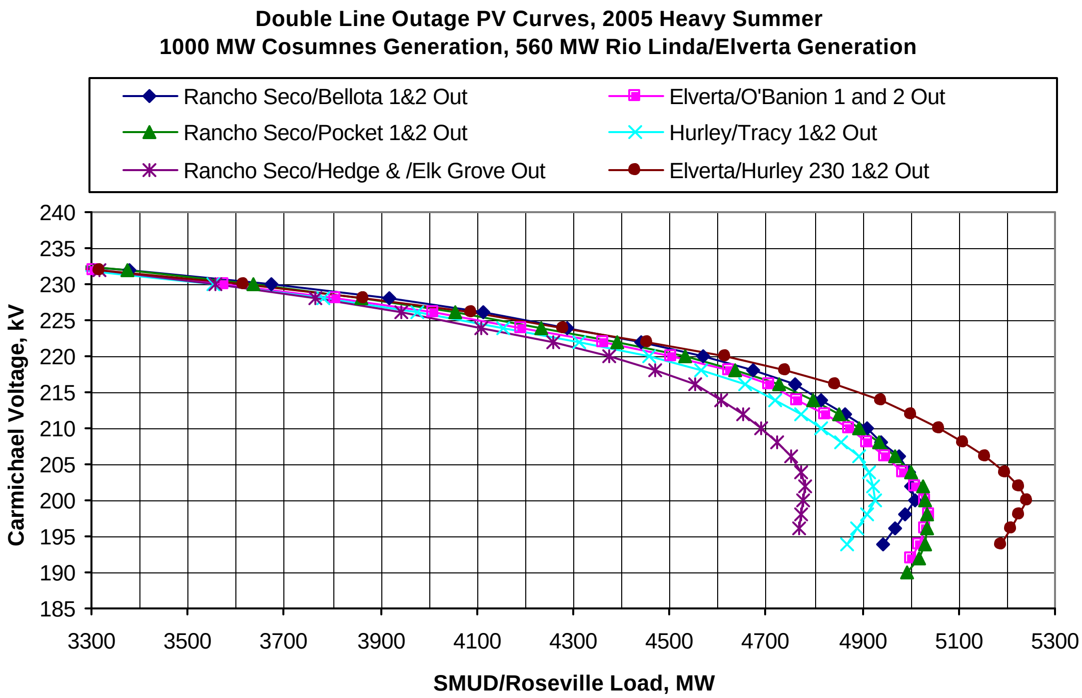


Figure 8

Table 1

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
ROUND MT	500.0	TABLE MT	500.0	2	1627.0	99.2	1635.7	99.1	**8.7**	-0.1
ROUND MT	500.0	TABLE MT	500.0	1	1613.2	98.3	1621.8	98.2	**8.6**	-0.1
BRIGHTON	230.0	BRGHTN M	230.0	1	136.9	114.0	143.8	119.8	**6.9**	5.8
LOCKFORD	230.0	LOCKEFRD	60.0	1	154.5	115.0	156.8	116.7	**2.3**	1.7
LOSBANOS	230.0	LOS BANS	70.0	1	116.9	97.4	119.1	99.2	**2.2**	1.8
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.2	98.3	62.3	98.3	**0.1**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.8	**0.0**	-0.1
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	118.8	35.7	118.6	**0.0**	-0.2
MOSHERJT	60.0	MSHR 60V	60.0	1	38.8	106.0	38.8	104.6	**0.0**	-1.4
CAPEHORN	60.0	ROLLINS	60.0	1	28.5	99.1	28.4	97.4	**-0.1**	-1.7
VACA-DIX	115.0	VACA-DXN	60.0	1	79.2	99.0	79.1	98.9	**-0.1**	-0.1
MONTAVIS	230.0	MNTA VSA	60.0	1	145.6	108.3	145.4	108.2	**-0.2**	-0.1
ATLANTC	230.0	ATLANTIC	60.0	1	150.2	111.7	150.0	111.6	**-0.2**	-0.1
FRBSTNTP	115.0	FORBSTWN	11.5	1	30.8	99.9	30.6	98.7	**-0.2**	-1.2
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.2	97.1	**-0.2**	-1.2
CAPEHORN	60.0	BONNIE N	60.0	1	30.4	105.0	30.2	103.2	**-0.2**	-1.8
FMC	115.0	FMC CT	12.0	1	50.6	98.2	50.4	97.5	**-0.2**	-0.7
POCKET	230.0	POCKET 2	69.0	2	223.4	99.8	223.2	99.7	**-0.2**	-0.1
DRUM	60.0	BONNIE N	60.0	1	32.8	109.5	32.5	107.6	**-0.3**	-1.9
BLACK	230.0	JBBLACK1	13.8	1	82.4	98.5	82.1	97.7	**-0.3**	-0.8
BLACK	230.0	JBBLACK2	13.8	1	82.4	98.5	82.1	97.7	**-0.3**	-0.8
PANOCHE	230.0	PNCHE 2M	230.0	2	123.0	101.0	122.4	100.5	**-0.6**	-0.5
PNCHE 2M	230.0	PANOCHE	115.0	2	122.1	100.2	121.5	99.7	**-0.6**	-0.5
LAKEWD-C	115.0	LKWD_JCT	115.0	1	197.3	120.8	195.6	119.6	**-1.7**	-1.2
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.1	98.7	18.3	89.6	**-1.8**	-9.1
COLGATE	230.0	COLGATE2	13.8	1	149.6	99.1	147.5	97.0	**-2.1**	-2.1
MELONE1	13.8	MELONES	230.0	1	191.6	99.8	187.4	97.6	**-4.2**	-2.2
PITSBURG	230.0	TASSAJAR	230.0	1	366.2	100.6	359.2	98.5	**-7.0**	-2.1
TBL MT D	230.0	RIO OSO	230.0	1	329.2	103.5	283.2	88.4	**-46.0**	-15.1

Table 2

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
WARNERVL	230.0	WRNRVLLE	115.0	1	131.0	87.4	149.4	99.6	**18.4**	12.2
WARNERVL	230.0	WRNRVLLE	115.0	3	65.5	87.4	74.7	99.6	**9.2**	12.2
WARNERVL	230.0	WRNRVLLE	115.0	2	65.5	87.4	74.7	99.6	**9.2**	12.2
BRIGHTON	230.0	BRGHTN M	230.0	1	137.1	114.2	144.4	120.3	**7.3**	6.1
ROUND MT	500.0	TABLE MT	500.0	2	1624.4	98.3	1629.5	98.3	**5.1**	0.0
LOCKFORD	230.0	LOCKEFRD	60.0	1	152.6	113.5	153.6	114.3	**1.0**	0.8
LOSBANOS	230.0	LOS BANS	70.0	1	120.4	100.3	121.2	101.0	**0.8**	0.7
ELVRTAX1	230.0	ELVERTA1	69.0	1	125.8	113.6	126.4	114.1	**0.6**	0.5
MARTIN C	115.0	MRTN ABG	12.0	1	54.9	99.8	54.9	99.9	**0.0**	0.1
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
ELVRTAX2	230.0	ELVERTA2	69.0	1	116.3	104.8	116.3	104.8	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	34.1	113.5	34.1	113.4	**0.0**	-0.1
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
MONTAVIS	230.0	MNTA VSA	60.0	1	150.5	111.9	150.4	111.9	**-0.1**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.8	97.8	**-0.1**	-0.6
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.9	99.9	53.8	99.7	**-0.1**	-0.2
ATLANTC	230.0	ATLANTIC	60.0	1	131.8	98.0	131.7	98.0	**-0.1**	0.0
DONNELLS	115.0	DONNELLS	13.8	1	65.7	98.3	65.5	98.0	**-0.2**	-0.3
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.4	97.7	**-0.2**	-0.8
MELONE1	13.8	MELONES	230.0	1	188.5	98.2	187.4	97.6	**-1.1**	-0.6
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.1	94.0	**-1.1**	-5.6
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.0	121.0	196.4	120.0	**-1.6**	-1.0
PANOCHE	230.0	PNCHE 2M	230.0	2	124.9	102.6	122.4	100.5	**-2.5**	-2.1
PNCHE 2M	230.0	PANOCHE	115.0	2	124.0	101.8	121.4	99.7	**-2.6**	-2.1
PITSBURG	230.0	TASSAJAR	230.0	1	372.8	102.2	366.1	100.3	**-6.7**	-1.9
TEMPLETN	230.0	MORROBAY	230.0	1	305.0	98.4	261.7	83.9	**-43.3**	-14.5

Table 3

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

Rancho Seco to Bellota 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
PANOCHE	230.0	PNCHE 2M	230.0	2	117.1	96.1	122.5	100.6	**5.4**	4.5
PNCHE 2M	230.0	PANOCHE	115.0	2	116.3	95.5	121.6	99.8	**5.3**	4.3
FOLSOM	230.0	FOLSOM2	13.8	1	62.0	98.3	62.3	98.3	**0.3**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	101.6	35.7	101.2	**0.0**	-0.4
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.8	**0.0**	-0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.3	97.5	**-0.3**	-1.0
FRBSTNTP	115.0	FORBSTWN	11.5	1	31.0	100.6	30.6	98.7	**-0.4**	-1.9
BLACK	230.0	JBBLACK1	13.8	1	82.8	99.3	82.1	97.7	**-0.7**	-1.6
BLACK	230.0	JBBLACK2	13.8	1	82.8	99.3	82.1	97.7	**-0.7**	-1.6
POCKET	230.0	POCKET 2	69.0	2	224.2	100.1	223.3	99.7	**-0.9**	-0.4
DRUM	60.0	BONNIE N	60.0	1	34.1	98.9	32.5	92.6	**-1.6**	-6.3
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.0	98.5	18.3	89.6	**-1.7**	-8.9
LAKEWD-C	115.0	LKWD_JCT	115.0	1	197.3	103.9	195.6	102.8	**-1.7**	-1.1
RALSTON	230.0	RALSTON	13.8	1	83.4	99.7	80.4	93.8	**-3.0**	-5.9
MELONE1	13.8	MELONES	230.0	1	190.5	99.2	187.3	97.5	**-3.2**	-1.7
COLGATE	230.0	COLGATE2	13.8	1	150.9	100.3	147.5	97.0	**-3.4**	-3.3
SPRINGCR	13.8	SPRINGCR	230.0	1	192.1	98.5	187.8	96.3	**-4.3**	-2.2
BRIGHTON	230.0	BRGHTN M	230.0	1	149.1	103.5	143.6	99.7	**-5.5**	-3.8

Table 4

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

Rancho Seco to Bellota 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
PANOCHE	230.0	PNCHE 2M	230.0	2	121.6	99.8	124.1	101.9	**2.5**	2.1
PNCHE 2M	230.0	PANOCHE	115.0	2	120.6	99.0	123.1	101.0	**2.5**	2.0
ELVRTAX1	230.0	ELVERTA1	69.0	1	124.9	112.7	126.4	114.1	**1.5**	1.4
ELVRTAX2	230.0	ELVERTA2	69.0	1	115.5	104.0	116.3	104.8	**0.8**	0.8
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
DONNELLS	115.0	DONNELLS	13.8	1	65.6	98.1	65.6	98.0	**0.0**	-0.1
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.9	99.9	53.8	99.7	**-0.1**	-0.2
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.4	97.8	**-0.2**	-0.7
MELONE1	13.8	MELONES	230.0	1	188.2	98.0	187.4	97.6	**-0.8**	-0.4
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.3	94.7	**-0.9**	-4.9
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.0	103.9	196.5	103.1	**-1.5**	-0.8
BRIGHTON	230.0	BRGHTN M	230.0	1	144.1	100.0	140.5	97.6	**-3.6**	-2.4

Table 5

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

Rancho Seco to Pocket 230 kV Lines 1 and 2 Out

					Cosumnes Generation					
From		To			0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
BRIGHTON	230.0	BRGHTN M	230.0	1	137.7	95.6	145.2	100.9	**7.5**	5.3
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.2	98.3	62.2	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	122.9	99.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	101.3	35.7	101.2	**0.0**	-0.1
POCKET	230.0	POCKET 2	69.0	2	223.5	99.8	223.3	99.7	**-0.2**	-0.1
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.2	97.3	**-0.2**	-1.0
FMC	115.0	FMC CT	12.0	1	50.6	98.4	50.4	97.6	**-0.2**	-0.8
FRBSTNTP	115.0	FORBSTWN	11.5	1	30.9	100.0	30.6	98.7	**-0.3**	-1.3
BLACK	230.0	JBBLACK1	13.8	1	82.4	98.5	82.1	97.8	**-0.3**	-0.7
BLACK	230.0	JBBLACK2	13.8	1	82.4	98.5	82.1	97.8	**-0.3**	-0.7
PANOCHE	230.0	PNCHE 2M	230.0	2	122.6	100.7	121.8	100.0	**-0.8**	-0.7
PNCHE 2M	230.0	PANOCHE	115.0	2	121.7	99.9	120.8	99.2	**-0.9**	-0.7
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.1	98.9	18.3	89.6	**-1.8**	-9.3
LAKEWD-C	115.0	LKWD_JCT	115.0	1	197.4	103.9	195.6	102.8	**-1.8**	-1.1
COLGATE	230.0	COLGATE2	13.8	1	149.8	99.3	147.6	97.1	**-2.2**	-2.2
MELONE1	13.8	MELONES	230.0	1	191.6	99.8	187.6	97.7	**-4.0**	-2.1
ELVRTAX2	230.0	ELVERTA2	69.0	1	114.7	103.3	104.4	97.6	**-10.3**	-5.7
ELVRTAX1	230.0	ELVERTA1	69.0	1	123.6	111.6	104.5	94.2	**-19.1**	-17.4

Table 6

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

Rancho Seco to Pocket 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation 0 MW		Cosumnes Generation 1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
WARNERVL	230.0	WRNRVLLE	115.0	1	132.4	88.3	151.2	100.8	**18.8**	12.5
WARNERVL	230.0	WRNRVLLE	115.0	3	66.2	88.3	75.6	100.8	**9.4**	12.5
WARNERVL	230.0	WRNRVLLE	115.0	2	66.2	88.3	75.6	100.8	**9.4**	12.5
BRIGHTON	230.0	BRGHTN M	230.0	1	137.5	95.5	145.5	101.0	**8.0**	5.5
ELVRTAX1	230.0	ELVERTA1	69.0	1	125.6	113.4	126.3	114.0	**0.7**	0.6
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.8	99.8	53.9	99.8	**0.1**	0.0
ELVRTAX2	230.0	ELVERTA2	69.0	1	116.2	104.7	116.3	104.8	**0.1**	0.1
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.8	117.1	99.9	**0.0**	0.1
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.8	97.9	**-0.1**	-0.5
DONNELLS	115.0	DONNELLS	13.8	1	65.7	98.3	65.5	98.0	**-0.2**	-0.3
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.4	97.7	**-0.2**	-0.8
MELONE1	13.8	MELONES	230.0	1	188.8	98.3	187.8	97.8	**-1.0**	-0.5
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.2	94.1	**-1.0**	-5.5
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.0	104.0	196.4	103.1	**-1.6**	-0.9
PANOCHE	230.0	PNCHE 2M	230.0	2	125.0	102.6	121.9	100.1	**-3.1**	-2.5
PNCHE 2M	230.0	PANOCHE	115.0	2	124.0	101.8	120.9	99.2	**-3.1**	-2.6

Table 7

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

Rancho Seco to Hedge and Rancho Seco to Elk Grove 230 kV Lines Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
BRIGHTON	230.0	BRGHTN M	230.0	1	138.7	96.3	146.8	101.9	**8.1**	5.6
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.2	98.3	62.2	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	122.9	99.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	101.4	35.7	101.2	**0.0**	-0.2
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.3	97.3	**-0.1**	-1.0
POCKET	230.0	POCKET 2	69.0	2	223.6	99.8	223.4	99.7	**-0.2**	-0.1
FRBSTNTP	115.0	FORBSTWN	11.5	1	30.8	100.0	30.6	98.8	**-0.2**	-1.2
FMC	115.0	FMC CT	12.0	1	50.6	98.4	50.4	97.7	**-0.2**	-0.7
BLACK	230.0	JBBLACK1	13.8	1	82.4	98.6	82.1	97.8	**-0.3**	-0.8
BLACK	230.0	JBBLACK2	13.8	1	82.4	98.6	82.1	97.8	**-0.3**	-0.8
PANOCHE	230.0	PNCHE 2M	230.0	2	122.0	100.2	120.9	99.3	**-1.1**	-0.9
PNCHE 2M	230.0	PANOCHE	115.0	2	121.1	99.5	120.0	98.5	**-1.1**	-1.0
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.1	98.8	18.3	89.6	**-1.8**	-9.2
LAKEWD-C	115.0	LKWD_JCT	115.0	1	197.4	103.9	195.6	102.8	**-1.8**	-1.1
COLGATE	230.0	COLGATE2	13.8	1	149.8	99.3	147.6	97.2	**-2.2**	-2.1
MELONE1	13.8	MELONES	230.0	1	191.6	99.8	187.8	97.8	**-3.8**	-2.0

Table 8

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

Rancho Seco to Hedge and Rancho Seco to Elk Grove 230 kV Lines Out

					Cosumnes Generation					
From		To			0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
WARNERVL	230.0	WRNRVLLE	115.0	1	134.0	89.3	153.9	102.6	**19.9**	13.3
WARNERVL	230.0	WRNRVLLE	115.0	2	67.0	89.3	76.9	102.6	**9.9**	13.3
WARNERVL	230.0	WRNRVLLE	115.0	3	67.0	89.3	76.9	102.6	**9.9**	13.3
BRIGHTON	230.0	BRGHTN M	230.0	1	138.3	96.0	146.7	101.9	**8.4**	5.9
ELVRTAX1	230.0	ELVERTA1	69.0	1	125.5	113.3	125.9	113.7	**0.4**	0.4
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.8	99.8	53.9	99.8	**0.1**	0.0
ELVRTAX2	230.0	ELVERTA2	69.0	1	116.2	104.7	116.3	104.8	**0.1**	0.1
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.8	97.8	**-0.1**	-0.6
DONNELLS	115.0	DONNELLS	13.8	1	65.7	98.2	65.5	97.9	**-0.2**	-0.3
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.4	97.8	**-0.2**	-0.7
MELONE1	13.8	MELONES	230.0	1	188.5	98.2	188.0	97.9	**-0.5**	-0.3
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.2	94.1	**-1.0**	-5.5
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.0	104.0	196.4	103.1	**-1.6**	-0.9
PANOCHE	230.0	PNCHE 2M	230.0	2	124.6	102.3	121.3	99.6	**-3.3**	-2.7
PNCHE 2M	230.0	PANOCHE	115.0	2	123.6	101.5	120.2	98.7	**-3.4**	-2.8

Table 9

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

Hurley to Tracy 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
BRIGHTON	230.0	BRGHTN M	230.0	1	134.8	93.6	142.3	98.8	**7.5**	5.2
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.1	98.3	62.2	98.3	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	101.4	35.7	101.2	**0.0**	-0.2
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.3	97.4	**-0.1**	-0.9
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.3	97.3	**-0.3**	-1.2
POCKET	230.0	POCKET 2	69.0	2	223.8	99.9	223.3	99.7	**-0.5**	-0.2
BLACK	230.0	JBBLACK1	13.8	1	82.6	98.8	82.1	97.7	**-0.5**	-1.1
BLACK	230.0	JBBLACK2	13.8	1	82.6	98.8	82.1	97.7	**-0.5**	-1.1
FRBSTNTP	115.0	FORBSTWN	11.5	1	31.1	101.1	30.6	98.7	**-0.5**	-2.4
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	18.3	89.6	**-1.9**	-10.0
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.1	104.3	195.9	102.9	**-2.2**	-1.4
RALSTON	230.0	RALSTON	13.8	1	82.8	98.6	80.5	94.1	**-2.3**	-4.5
PANOCHE	230.0	PNCHE 2M	230.0	2	126.3	103.7	123.9	101.7	**-2.4**	-2.0
PNCHE 2M	230.0	PANOCHE	115.0	2	125.3	102.9	122.9	100.9	**-2.4**	-2.0
MELONE1	13.8	MELONES	230.0	1	191.6	99.8	187.6	97.7	**-4.0**	-2.1
COLGATE	230.0	COLGATE2	13.8	1	151.8	101.2	147.7	97.2	**-4.1**	-4.0

Table 10

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

Hurley to Tracy 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
WARNERVL	230.0	WRNRVLLE	115.0	1	124.5	83.0	148.7	99.1	**24.2**	16.1
WARNERVL	230.0	WRNRVLLE	115.0	2	62.3	83.0	74.3	99.1	**12.0**	16.1
WARNERVL	230.0	WRNRVLLE	115.0	3	62.3	83.0	74.3	99.1	**12.0**	16.1
BRIGHTON	230.0	BRGHTN M	230.0	1	135.2	93.9	144.2	100.1	**9.0**	6.2
ELVRTAX1	230.0	ELVERTA1	69.0	1	125.2	113.1	126.0	113.8	**0.8**	0.7
ELVRTAX2	230.0	ELVERTA2	69.0	1	116.1	104.6	116.2	104.7	**0.1**	0.1
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.8	99.8	53.9	99.8	**0.1**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.8	117.1	99.9	**0.0**	0.1
FMC	115.0	FMC CT	12.0	1	50.6	98.4	50.6	98.5	**0.0**	0.1
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.8	98.0	**-0.1**	-0.4
DONNELLS	115.0	DONNELLS	13.8	1	65.7	98.4	65.5	98.0	**-0.2**	-0.4
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.2	94.2	**-1.0**	-5.4
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.4	104.1	196.6	103.2	**-1.8**	-0.9
MELONE1	13.8	MELONES	230.0	1	189.4	98.7	187.6	97.7	**-1.8**	-1.0
PANOCHE	230.0	PNCHE 2M	230.0	2	126.9	104.2	122.6	100.6	**-4.3**	-3.6
PNCHE 2M	230.0	PANOCHE	115.0	2	125.9	103.3	121.5	99.7	**-4.4**	-3.6

Table 11

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

Elverta to Hurley 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
BRIGHTON	230.0	BRGHTN M	230.0	1	136.7	95.0	143.7	99.8	**7.0**	4.8
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.1	99.1	20.2	99.7	**0.1**	0.6
FOLSOM	230.0	FOLSOM2	13.8	1	62.2	98.3	62.3	98.3	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
FMC	115.0	FMC CT	12.0	1	50.6	98.4	50.6	98.5	**0.0**	0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	122.9	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	101.3	35.7	101.2	**0.0**	-0.1
FRBSTNTP	115.0	FORBSTWN	11.5	1	30.8	99.9	30.6	98.7	**-0.2**	-1.2
POCKET	230.0	POCKET 2	69.0	2	223.5	99.8	223.2	99.7	**-0.3**	-0.1
BLACK	230.0	JBBLACK1	13.8	1	82.4	98.5	82.1	97.7	**-0.3**	-0.8
BLACK	230.0	JBBLACK2	13.8	1	82.4	98.5	82.1	97.7	**-0.3**	-0.8
PANOCHE	230.0	PNCHE 2M	230.0	2	123.0	101.0	122.5	100.6	**-0.5**	-0.4
PNCHE 2M	230.0	PANOCHE	115.0	2	122.1	100.3	121.5	99.8	**-0.6**	-0.5
LAKEWD-C	115.0	LKWD_JCT	115.0	1	197.3	103.8	195.6	102.8	**-1.7**	-1.0
MELONE1	13.8	MELONES	230.0	1	191.6	99.8	188.9	98.4	**-2.7**	-1.4
COLGATE	230.0	COLGATE2	13.8	1	149.7	99.3	146.7	96.2	**-3.0**	-3.1

Table 12

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

Elverta to Hurley 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
WARNERVL	230.0	WRNRVLLE	115.0	1	131.6	87.7	149.1	99.4	**17.5**	11.7
WARNERVL	230.0	WRNRVLLE	115.0	3	65.8	87.7	74.6	99.4	**8.8**	11.7
WARNERVL	230.0	WRNRVLLE	115.0	2	65.8	97.7	74.6	99.4	**8.8**	1.7
BRIGHTON	230.0	BRGHTN M	230.0	1	136.7	94.9	144.0	100.0	**7.3**	5.1
ELVRTAX1	230.0	ELVERTA1	69.0	1	125.5	113.3	126.1	113.9	**0.6**	0.6
ELVRTAX2	230.0	ELVERTA2	69.0	1	116.3	104.8	116.4	104.9	**0.1**	0.1
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.8	117.1	99.9	**0.0**	0.1
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.8	99.8	53.8	99.8	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.8	98.0	**-0.1**	-0.4
DONNELLS	115.0	DONNELLS	13.8	1	65.7	98.3	65.5	98.0	**-0.2**	-0.3
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.4	97.8	**-0.2**	-0.7
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.2	94.3	**-1.0**	-5.3
MELONE1	13.8	MELONES	230.0	1	188.9	98.4	187.6	97.7	**-1.3**	-0.7
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.0	104.0	196.4	103.1	**-1.6**	-0.9
PANOCHE	230.0	PNCHE 2M	230.0	2	125.3	102.8	122.5	100.6	**-2.8**	-2.2
PNCHE 2M	230.0	PANOCHE	115.0	2	124.3	102.0	121.4	99.7	**-2.9**	-2.3

Table 13

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, No New Generation at Elverta

O'Banion to Elverta 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation					
					0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
BRIGHTON	230.0	BRGHTN M	230.0	1	136.0	94.4	142.9	99.2	**6.9**	4.8
HYATT	230.0	HYATT 2	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.8	99.2	122.9	99.2	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	37.9	100.0	38.0	100.0	**0.1**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.1	98.3	62.2	98.3	**0.1**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.5	99.6	59.6	99.6	**0.1**	0.0
HYATT	230.0	HYATT 3	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
HYATT	230.0	HYATT 5	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.8	117.1	99.9	**0.0**	0.1
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.4	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.4	99.6	46.4	99.6	**0.0**	0.0
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	122.9	99.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.5	99.6	59.5	99.6	**0.0**	0.0
WADHMJCT	60.0	WESCOT2	60.0	1	35.7	101.6	35.7	101.3	**0.0**	-0.3
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.3	97.5	**-0.1**	-0.8
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.5	98.0	**-0.1**	-0.5
POCKET	230.0	POCKET 2	69.0	2	223.7	99.9	223.3	99.7	**-0.4**	-0.2
BLACK	230.0	JBBLACK1	13.8	1	82.6	98.9	82.2	98.0	**-0.4**	-0.9
BLACK	230.0	JBBLACK2	13.8	1	82.6	98.9	82.2	98.0	**-0.4**	-0.9
FRBSTNTP	115.0	FORBSTWN	11.5	1	31.0	100.7	30.6	98.9	**-0.4**	-1.8
PANOCHE	230.0	PNCHE 2M	230.0	2	123.6	101.5	122.9	100.9	**-0.7**	-0.6
PNCHE 2M	230.0	PANOCHE	115.0	2	122.7	100.8	121.9	100.1	**-0.8**	-0.7
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	18.5	90.5	**-1.7**	-9.1
LAKEWD-C	115.0	LKWD_JCT	115.0	1	197.3	103.9	195.5	102.8	**-1.8**	-1.1
COLGATE	230.0	COLGATE2	13.8	1	151.0	100.4	147.9	97.5	**-3.1**	-2.9
MELONE1	13.8	MELONES	230.0	1	191.6	99.8	187.8	97.8	**-3.8**	-2.0
SUTTER	230.0	ELVERTAW	230.0	1	749.6	103.2	675.6	92.0	**-74.0**	-11.2

Table 14

Power Flows Without and With Cosumnes Generation
2005 Heavy Summer, 560 MW New Generation at Elverta

O'Banion to Elverta 230 kV Lines 1 and 2 Out

From		To			Cosumnes Generation				Increase	
					0 MW		1000 MW			
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
WARNERVL	230.0	WRNRVLLE	115.0	1	129.2	86.1	147.8	98.5	**18.6**	12.4
WARNERVL	230.0	WRNRVLLE	115.0	2	64.6	86.1	73.9	98.5	**9.3**	12.4
WARNERVL	230.0	WRNRVLLE	115.0	3	64.6	86.1	73.9	98.5	**9.3**	12.4
BRIGHTON	230.0	BRGHTN M	230.0	1	136.0	94.5	143.5	99.7	**7.5**	5.2
ELVRTAX1	230.0	ELVERTA1	69.0	1	125.2	113.0	126.0	113.8	**0.8**	0.8
ELVRTAX2	230.0	ELVERTA2	69.0	1	116.1	104.6	116.2	104.7	**0.1**	0.1
HYATT	230.0	HYATT 1	12.5	1	122.9	99.3	123.0	99.3	**0.1**	0.0
BLLTA 1M	230.0	BELLTA T	13.8	1	38.0	100.0	38.0	100.0	**0.0**	0.0
DRUM	115.0	DRUM 5	13.8	1	46.5	99.6	46.5	99.6	**0.0**	0.0
FOLSOM	230.0	FOLSOM2	13.8	1	62.3	98.3	62.3	98.3	**0.0**	0.0
HYATT	230.0	HYATT 2	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 3	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 4	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
HYATT	230.0	HYATT 5	12.5	1	123.0	99.3	123.0	99.3	**0.0**	0.0
HYATT	230.0	HYATT 6	12.5	1	122.9	99.2	122.9	99.2	**0.0**	0.0
POTRERO	115.0	POTRERO1	12.0	1	67.5	99.3	67.5	99.3	**0.0**	0.0
PRDE JCT	60.0	PRDE 1-3	7.2	1	18.4	98.3	18.4	98.3	**0.0**	0.0
STD. OIL	115.0	ChevGen1	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
STD. OIL	115.0	ChevGen2	13.8	1	59.6	99.6	59.6	99.6	**0.0**	0.0
TOSCO	12.5	FOSTER W	12.5	1	117.1	99.9	117.1	99.9	**0.0**	0.0
CH.STN	115.0	CH.STN.	13.8	1	23.9	98.4	23.9	98.3	**0.0**	-0.1
OREGON	115.0	OREGON1	12.5	1	22.4	106.7	22.4	106.6	**0.0**	-0.1
HNTRSPTD	12.0	HNTRS P1	12.0	1	53.9	99.9	53.8	99.8	**-0.1**	-0.1
FMC	115.0	FMC CT	12.0	1	50.6	98.5	50.5	98.0	**-0.1**	-0.5
DONNELLS	115.0	DONNELLS	13.8	1	65.7	98.4	65.5	98.0	**-0.2**	-0.4
ULTPWRJ	115.0	ULTR.PWR	9.1	1	20.2	99.6	19.3	94.8	**-0.9**	-4.8
LAKEWD-C	115.0	LKWD_JCT	115.0	1	198.0	104.0	196.4	103.1	**-1.6**	-0.9
MELONE1	13.8	MELONES	230.0	1	189.4	98.7	187.7	97.8	**-1.7**	-0.9
PANOCHE	230.0	PNCHE 2M	230.0	2	125.6	103.1	122.8	100.8	**-2.8**	-2.3
PNCHE 2M	230.0	PANOCHE	115.0	2	124.6	102.3	121.8	100.0	**-2.8**	-2.3

Table 15

Power Flows Without and With Cosumnes Generation
2004 Spring, No New Generation at Elverta

No New Generation at Elverta					Rancho Seco Generation					
From		To			0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
RVRBKJCT	115.0	MANTECA	115.0	1	53.6	76.4	70.4	100.1	**16.8**	23.7
WLLW SLJ	60.0	KNGHTSLJ	60.0	1	15.2	94.2	15.9	98.5	**0.7**	4.3
KRN OL M	70.0	KERN OIL	11.0	1	5.5	109.0	5.8	115.2	**0.3**	6.2
TAFT M	115.0	TAFT	12.5	1	10.6	150.9	10.6	150.9	**0.0**	0.0
SPICER	21.0	NEWSPICE	4.2	1	5.0	99.6	5.0	99.6	**0.0**	0.0
MID CTY3	22.0	UCDMC	22.0	1	23.1	99.0	23.1	99.9	**0.0**	0.9
MNDTA TP	115.0	MENDOTA	70.0	1	18.9	151.5	18.7	149.7	**-0.2**	-1.8
TWISSLMN	70.0	TX-LOSTH	9.1	1	10.9	99.5	10.4	94.8	**-0.5**	-4.7
WITCO	115.0	GOLD.BER	9.1	1	19.1	121.5	18.5	117.9	**-0.6**	-3.6

Table 16

Power Flows Without and With Cosumnes Generation
2004 Spring, 560 MW New Generation at Elverta

560 MW New Generation at Elverta					Rancho Seco Generation					
From		To			0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
RVRBKJCT	115.0	MANTECA	115.0	1	58.2	82.9	75.1	106.9	**16.9**	24.0
WESTLEY	230.0	TRCY PMP	230.0	1	348.0	97.4	361.5	101.9	**13.5**	4.5
KRN OL M	70.0	KERN OIL	11.0	1	5.6	111.6	6.0	119.4	**0.4**	7.8
WLLW SLJ	60.0	KNGHTSLJ	60.0	1	15.3	95.0	16.1	100.0	**0.8**	5.0
TAFT M	115.0	TAFT	12.5	1	10.6	150.9	10.6	150.9	**0.0**	0.0
SPICER	21.0	NEWSPICE	4.2	1	5.0	99.6	5.0	99.6	**0.0**	0.0
MID CTY3	22.0	UCDMC	22.0	1	23.1	99.6	23.1	100.4	**0.0**	0.8
MNDTA TP	115.0	MENDOTA	70.0	1	18.8	150.7	18.7	149.4	**-0.1**	-1.3
WITCO	115.0	GOLD.BER	9.1	1	18.8	120.0	18.3	116.6	**-0.5**	-3.4

Table 17

Power Flows Without and With Cosumnes Generation
2004 Spring, No New Generation at Elverta

Rancho Seco to Bellota 230 kV Lines 1 and 2 Out

					Rancho Seco Generation					
From		To			0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
HURLEY S	230.0	PROCTER	230.0	1	65.4	15.2	590.1	139.7	**524.7**	124.5
HEDGE	230.0	PROCTER	230.0	1	95.7	22.2	445.6	104.8	**349.9**	82.6
HURLEY W	230.0	TRCY PMP	230.0	2	128.2	39.7	365.4	115.6	**237.2**	75.9
HURLEY W	230.0	TRCY PMP	230.0	1	125.5	38.9	357.0	113.0	**231.5**	74.1
WESTLEY	230.0	TRCY PMP	230.0	1	334.7	93.3	408.9	115.4	**74.2**	22.1
KRN OL M	70.0	KERN OIL	11.0	1	5.4	108.9	5.7	114.8	**0.3**	5.9
MNDTA TP	115.0	MENDOTA	70.0	1	19.0	151.7	19.0	151.7	**0.0**	0.0
TAFT M	115.0	TAFT	12.5	1	10.6	150.9	10.6	150.9	**0.0**	0.0
SPICER	21.0	NEWSPICE	4.2	1	5.0	99.6	5.0	99.6	**0.0**	0.0
TWISSLMN	70.0	TX-LOSTH	9.1	1	10.9	99.5	10.5	95.0	**-0.4**	-4.5
MID CTY3	22.0	UCDMC	22.0	1	23.1	99.2	22.7	99.0	**-0.4**	-0.2
WITCO	115.0	GOLD.BER	9.1	1	19.1	121.5	18.6	118.4	**-0.5**	-3.1

Table 18

Power Flows Without and With Cosumnes Generation
2004 Spring, 560 MW New Generation at Elverta

Rancho Seco to Bellota 230 kV Lines 1 and 2 Out

					Rancho Seco Generation					
From		To			0 MW		1000 MW		Increase	
Name	kV	Name	kV	ID	MVA	% Rate	MVA	% Rate	**MVA**	% Rate
HURLEY S	230.0	PROCTER	230.0	1	67.5	15.8	577.5	138.4	**510.0**	122.6
HEDGE	230.0	PROCTER	230.0	1	108.6	25.3	432.4	102.4	**323.8**	77.1
HURLEY W	230.0	TRCY PMP	230.0	1	256.0	79.9	497.3	159.3	**241.3**	79.4
HURLEY W	230.0	TRCY PMP	230.0	2	262.0	81.7	485.7	155.5	**223.7**	73.8
COTWDPGE	230.0	COTWDWAP	230.0	1	395.6	77.7	513.3	101.5	**117.7**	23.8
WESTLEY	230.0	TRCY PMP	230.0	1	378.7	106.4	448.2	127.8	**69.5**	21.4
KRN OL M	70.0	KERN OIL	11.0	1	5.6	111.1	5.9	118.0	**0.3**	6.9
MNDTA TP	115.0	MENDOTA	70.0	1	18.9	151.4	18.9	151.4	**0.0**	0.0
TAFT M	115.0	TAFT	12.5	1	10.6	150.9	10.6	150.9	**0.0**	0.0
SPICER	21.0	NEWSPICE	4.2	1	5.0	99.6	5.0	99.6	**0.0**	0.0
WITCO	115.0	GOLD.BER	9.1	1	18.9	120.5	18.6	118.3	**-0.3**	-2.2
MID CTY3	22.0	UCDMC	22.0	1	23.1	99.9	22.2	96.5	**-0.9**	-3.4

Base Case Title:

rs05hs00, 2005 Heavy Summer Cosumnes Generation Study Case
No Cosumnes Generation Plant, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple

Transfer Schedule Case Title:

rs05hs00, 2005 Heavy Summer Cosumnes Generation Study Case
No Cosumnes Generation Plant, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple
100 MW INCREMENTAL SCHEDULE INTO SMUD/ROSEVILLE LOAD AREA

No non-rated lines were identified.

1 overloaded lines were detected:

From Bus	To Bus	ID	Sens.	Percent Overload	
BRGHTN M 230	BRIGHTN 115	1	-0.0050	11.7%	Overload

8 forward schedule normal limits were detected:

From Bus	To Bus	ID	Sens.	Schedule MW Limit
HURLEY W 230	TRCY PMP 230	2	-0.1680	523
HURLEY W 230	TRCY PMP 230	1	-0.1680	549
CARMICAL 230	HURLEY S 230	1	-0.1010	916
BELLOTA 230	RNCHSECO 230	1	0.2140	959
BELLOTA 230	RNCHSECO 230	2	0.2140	959
GOLDHILL 230	LAKE 230	1	0.1120	1236
HURLEY 115	HURLEY S 230	1	-0.0400	1403
COTWDWAP 230	ROSEVILL 230	1	0.0580	1908

20 forward schedule outage limits were found:

Limiting Element			Outage					
From Bus	To Bus	ID	From Bus	To Bus	ID	Sens.	Schedule MW Limit	
ELVERTAW 230	OBANION 230	1	ELVERTAW 230	OBANION 230	2	-0.0575	-5.8%	Overload
ELVERTAW 230	OBANION 230	2	ELVERTAW 230	OBANION 230	1	-0.0575	-5.8%	Overload
ATLANTC 230	RIO OSO 230	1	GOLDHILL 230	RIO OSO 230	1	-0.0221	-5.1%	Overload
HURLEY 115	HURLEY S 230	1	HEDGE 230	PROCTER 230	1	-0.0391	110	
HURLEY 115	HURLEY S 230	1	ELVERTAS 115	NORTHCTY 115	1	-0.0413	559	
HURLEY 115	HURLEY S 230	1	EAST CTY 115	HEDGE 115	1	-0.0491	750	
HURLEY 115	HURLEY S 230	1	HURLEY S 230	PROCTER 230	1	-0.0391	828	
HURLEY 115	HURLEY S 230	1	HEDGE 115	HEDGE 230	6	-0.0460	923	
HURLEY W 230	TRCY PMP 230	2	HURLEY W 230	TRCY PMP 230	1	-0.2121	129	
HURLEY W 230	TRCY PMP 230	2	COTWDWAP 230	ROSEVILL 230	1	-0.1778	293	
HURLEY W 230	TRCY PMP 230	2	BELLOTA 230	RNCHSECO 230	1	-0.1896	312	
HURLEY W 230	TRCY PMP 230	2	BELLOTA 230	RNCHSECO 230	2	-0.1896	312	
HURLEY W 230	TRCY PMP 230	2	GOLDHILL 230	LAKE 230	1	-0.1871	331	

HURLEY W	230	TRCY PMP	230	1	HURLEY W	230	TRCY PMP	230	2	-0.2124	142
HURLEY W	230	TRCY PMP	230	1	COTWDWAP	230	ROSEVILL	230	1	-0.1776	322
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	1	-0.1893	338
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	2	-0.1893	338
HURLEY W	230	TRCY PMP	230	1	GOLDHILL	230	LAKE	230	1	-0.1868	358
GOLDHILL	230	RIO OSO	230	1	ATLANTC	230	RIO OSO	230	1	-0.0221	202
BELLOTA	230	RNCHSECO	230	1	BELLOTA	230	RNCHSECO	230	2	0.3492	346
BELLOTA	230	RNCHSECO	230	2	BELLOTA	230	RNCHSECO	230	1	0.3492	346
CARMICAL	230	HURLEY S	230	1	ELVERTAS	230	FOOTHILL	230	1	-0.1258	420
CARMICAL	230	HURLEY S	230	1	HEDGE	230	PROCTER	230	1	-0.0993	421
CARMICAL	230	HURLEY S	230	1	ELVERTAS	230	ORANGEVL	230	1	-0.1135	560
CARMICAL	230	HURLEY S	230	1	GOLDHILL	230	LAKE	230	1	-0.1407	609
CARMICAL	230	HURLEY S	230	1	ORANGEVL	230	WHITEROK	230	1	-0.1043	723
EAST CTY	115	HEDGE	115	1	HURLEY	115	HURLEY S	230	1	-0.0505	1069
EAST CTY	115	HEDGE	115	1	SOUTHCTY	115	STA. B	115	1	-0.0501	1665
HEDGE	115	SOUTHCTY	115	1	HEDGE	115	SOUTHCTY	115	2	0.0334	1147
HEDGE	115	SOUTHCTY	115	1	EAST CTY	115	HEDGE	115	1	0.0317	1438
HEDGE	115	SOUTHCTY	115	1	HURLEY	115	HURLEY S	230	1	0.0264	1862
HEDGE	115	SOUTHCTY	115	2	HEDGE	115	SOUTHCTY	115	1	0.0334	1147
HEDGE	115	SOUTHCTY	115	2	EAST CTY	115	HEDGE	115	1	0.0317	1438
HEDGE	115	SOUTHCTY	115	2	HURLEY	115	HURLEY S	230	1	0.0264	1862
GOLDHILL	230	LAKE	230	1	HURLEY W	230	TRCY PMP	230	2	0.1319	1185
GOLDHILL	230	LAKE	230	1	HURLEY W	230	TRCY PMP	230	1	0.1316	1196
GOLDHILL	230	LAKE	230	1	BELLOTA	230	RNCHSECO	230	1	0.1310	1214
GOLDHILL	230	LAKE	230	1	BELLOTA	230	RNCHSECO	230	2	0.1310	1214
COTWDWAP	230	ROSEVILL	230	1	HURLEY W	230	TRCY PMP	230	2	0.0704	1325
COTWDWAP	230	ROSEVILL	230	1	HURLEY W	230	TRCY PMP	230	1	0.0703	1334
COTWDWAP	230	ROSEVILL	230	1	BELLOTA	230	RNCHSECO	230	1	0.0653	1546
COTWDWAP	230	ROSEVILL	230	1	BELLOTA	230	RNCHSECO	230	2	0.0653	1546
COTWDWAP	230	ROSEVILL	230	1	GOLDHILL	230	LAKE	230	1	0.0651	1553
HEDGE	115	HEDGE	230	4	HEDGE	115	HEDGE	230	6	-0.0393	1599
HEDGE	115	HEDGE	230	4	HURLEY	115	HURLEY S	230	1	-0.0337	1930
HEDGE	115	HEDGE	230	2	HEDGE	115	HEDGE	230	6	-0.0306	1661
BELLOTA	230	COTTLE B	230	1	TESLA E	230	WEBER	230	1	-0.1162	1796
BELLOTA	230	COTTLE B	230	1	BELLOTA	230	TESLA E	230	1	-0.1157	1889
BELLOTA	230	COTTLE B	230	1	BELLOTA	230	COTTLE A	230	1	-0.1161	1927
BELLOTA	230	COTTLE B	230	1	CARMICAL	230	ORANGEVL	230	1	-0.1240	1946
HEDGE	115	HEDGE	230	6	HURLEY	115	HURLEY S	230	1	-0.0456	1822
ELVERTAS	230	FOOTHILL	230	1	CARMICAL	230	HURLEY S	230	1	0.0717	1843

Base Case Title:

rs05hs10, 2005 Heavy Summer Cosumnes Generation Study Case
Cosumnes Generation = 1000 MW, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple

Transfer Schedule Case Title:

rs05hs10, 2005 Heavy Summer Cosumnes Generation Study Case
Cosumnes Generation = 1000 MW, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple
100 MW INCREMENTAL SCHEDULE INTO SMUD/ROSEVILLE LOAD AREA

No non-rated lines were identified.

1 overloaded lines were detected:

From Bus	To Bus	ID	Sens.	Percent Overload	
BRGHTN M 230	BRIGHTN 115	1	-0.0060	17.8%	Overload

8 forward schedule normal limits were detected:

From Bus	To Bus	ID	Sens.	Schedule MW Limit
CARMICAL 230	HURLEY S 230	1	-0.1020	1188
HURLEY W 230	TRCY PMP 230	2	-0.1650	1275
HURLEY W 230	TRCY PMP 230	1	-0.1620	1310
EAST CTY 115	HEDGE 115	1	-0.0350	1417
ELKGROVE 230	RNCHSECO 230	1	-0.1410	1735
HEDGE 115	SOUTHCTY 115	1	0.0210	1903
HEDGE 115	SOUTHCTY 115	2	0.0210	1903
GOLDHILL 230	LAKE 230	1	0.1100	1952

20 forward schedule outage limits were found:

Limiting Element			Outage					
From Bus	To Bus	ID	From Bus	To Bus	ID	Sens.	Schedule MW Limit	
ATLANTC 230	RIO OSO 230	1	GOLDHILL 230	RIO OSO 230	1	-0.0237	-3.4%	Overload
ELVERTAW 230	OBANION 230	1	ELVERTAW 230	OBANION 230	2	-0.0589	394	
ELVERTAW 230	OBANION 230	2	ELVERTAW 230	OBANION 230	1	-0.0589	394	
GOLDHILL 230	RIO OSO 230	1	ATLANTC 230	RIO OSO 230	1	-0.0237	443	
HEDGE 115	SOUTHCTY 115	1	HEDGE 115	SOUTHCTY 115	2	0.0335	552	
HEDGE 115	SOUTHCTY 115	1	EAST CTY 115	HEDGE 115	1	0.0312	796	
HEDGE 115	SOUTHCTY 115	1	HURLEY 115	HURLEY S 230	1	0.0266	1538	
HEDGE 115	SOUTHCTY 115	2	HEDGE 115	SOUTHCTY 115	1	0.0335	552	
HEDGE 115	SOUTHCTY 115	2	EAST CTY 115	HEDGE 115	1	0.0312	796	
HEDGE 115	SOUTHCTY 115	2	HURLEY 115	HURLEY S 230	1	0.0266	1538	

CARMICAL	230	HURLEY S	230	1	ELVERTAS	230	FOOTHILL	230	1	-0.1269	701
CARMICAL	230	HURLEY S	230	1	ELVERTAS	230	ORANGEVL	230	1	-0.1152	907
CARMICAL	230	HURLEY S	230	1	ORANGEVL	230	WHITEROK	230	1	-0.1053	915
CARMICAL	230	HURLEY S	230	1	GOLDHILL	230	LAKE	230	1	-0.1411	996
EAST CTY	115	HEDGE	115	1	HURLEY	115	HURLEY S	230	1	-0.0487	729
EAST CTY	115	HEDGE	115	1	SOUTHCTY	115	STA. B	115	1	-0.0475	838
HURLEY W	230	TRCY PMP	230	2	HURLEY W	230	TRCY PMP	230	1	-0.2076	869
HURLEY W	230	TRCY PMP	230	2	COTWDWAP	230	ROSEVILL	230	1	-0.1751	1040
HURLEY W	230	TRCY PMP	230	2	GOLDHILL	230	LAKE	230	1	-0.1834	1075
HURLEY W	230	TRCY PMP	230	2	ELKGROVE	230	RNCHSECO	230	1	-0.1713	1133
HURLEY W	230	TRCY PMP	230	2	BELLOTA	230	RNCHSECO	230	1	-0.1845	1143
HURLEY W	230	TRCY PMP	230	1	HURLEY W	230	TRCY PMP	230	2	-0.2051	888
HURLEY W	230	TRCY PMP	230	1	COTWDWAP	230	ROSEVILL	230	1	-0.1718	1076
HURLEY W	230	TRCY PMP	230	1	GOLDHILL	230	LAKE	230	1	-0.1798	1109
HURLEY W	230	TRCY PMP	230	1	ELKGROVE	230	RNCHSECO	230	1	-0.1682	1167
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	1	-0.1815	1172
HEDGE	115	HEDGE	230	4	HEDGE	115	HEDGE	230	6	-0.0379	933
HEDGE	115	HEDGE	230	4	HURLEY	115	HURLEY S	230	1	-0.0329	1589
HEDGE	115	HEDGE	230	4	HEDGE	115	HEDGE	230	2	-0.0312	1799
HEDGE	115	HEDGE	230	2	HEDGE	115	HEDGE	230	6	-0.0303	958
HEDGE	115	HEDGE	230	2	HEDGE	115	HEDGE	230	4	-0.0266	1518
HEDGE	115	HEDGE	230	2	HURLEY	115	HURLEY S	230	1	-0.0263	1613
HURLEY	115	HURLEY S	230	1	EAST CTY	115	HEDGE	115	1	-0.0496	1141
HURLEY	115	HURLEY S	230	1	HEDGE	115	HEDGE	230	6	-0.0469	1397
HURLEY	115	HURLEY S	230	1	ELVERTAS	115	NORTHCTY	115	1	-0.0428	1485
HURLEY	115	HURLEY S	230	1	SOUTHCTY	115	STA. B	115	1	-0.0454	1572
HURLEY	115	HURLEY S	230	1	HEDGE	115	HEDGE	230	4	-0.0448	1611
ELKGROVE	230	RNCHSECO	230	1	HEDGE	230	RNCHSECO	230	1	-0.1846	1300
HEDGE	115	HEDGE	230	6	HEDGE	115	HEDGE	230	4	-0.0454	1365
HEDGE	115	HEDGE	230	6	HURLEY	115	HURLEY S	230	1	-0.0449	1460
HEDGE	115	HEDGE	230	6	HEDGE	115	HEDGE	230	2	-0.0426	1663
SOUTHCTY	115	STA. B	115	1	EAST CTY	115	HEDGE	115	1	0.0411	1509
BELLOTA	230	RNCHSECO	230	1	BELLOTA	230	RNCHSECO	230	2	0.3478	1726
BELLOTA	230	RNCHSECO	230	2	BELLOTA	230	RNCHSECO	230	1	0.3478	1726
HEDGE	230	RNCHSECO	230	1	ELKGROVE	230	RNCHSECO	230	1	-0.1662	1834
GOLDHILL	230	LAKE	230	1	HURLEY W	230	TRCY PMP	230	2	0.1297	1908
GOLDHILL	230	LAKE	230	1	HURLEY W	230	TRCY PMP	230	1	0.1291	1920

Base Case Title:

rs05hs01, 2005 Heavy Summer Cosumnes Generation Study Case
No Cosumnes Generation Plant, FPLE Generation = 560 MW
From Western FPLE Study Case 05s-pgepeak_fplesrev1

Transfer Schedule Case Title:

rs05hs01, 2005 Heavy Summer Cosumnes Generation Study Case
No Cosumnes Generation Plant, FPLE Generation = 560 MW
From Western FPLE Study Case 05s-pgepeak_fplesrev1
100 MW INCREMENTAL SCHEDULE INTO SMUD/ROSEVILLE LOAD AREA

No non-rated lines were identified.

2 overloaded lines were detected:

From Bus	To Bus	ID	Sens.	Percent Overload	
BRGHTN M 230	BRIGHTN 115	1	-0.0060	7.0%	Overload
HEDGE 230	PROCTER 230	1	-0.0010	-28.8%	Overload

7 forward schedule normal limits were detected:

From Bus	To Bus	ID	Sens.	Schedule MW Limit
CARMICAL 230	HURLEY S 230	1	-0.1020	976
HURLEY W 230	TRCY PMP 230	2	-0.1640	1193
HURLEY W 230	TRCY PMP 230	1	-0.1610	1231
HURLEY 115	HURLEY S 230	1	-0.0410	1232
BELLOTA 230	RNCHSECO 230	1	0.2070	1486
BELLOTA 230	RNCHSECO 230	2	0.2070	1486
GOLDHILL 230	LAKE 230	1	0.1110	1661

20 forward schedule outage limits were found:

Limiting Element			Outage					
From Bus	To Bus	ID	From Bus	To Bus	ID	Sens.	Schedule MW Limit	
HURLEY 115	HURLEY S 230	1	HEDGE 230	PROCTER 230	1	-0.0412	-10.3%	Overload
HURLEY 115	HURLEY S 230	1	ELVERTAS 115	NORTHCTY 115	1	-0.0432	74	
HURLEY 115	HURLEY S 230	1	HURLEY S 230	PROCTER 230	1	-0.0412	172	
HURLEY 115	HURLEY S 230	1	EAST CTY 115	HEDGE 115	1	-0.0499	720	
HURLEY 115	HURLEY S 230	1	HEDGE 115	HEDGE 230	6	-0.0469	846	
ELVERTAW 230	HURLEY W 230	2	ELVERTAS 230	HURLEY S 230	3	-0.0270	4.6%	Overload
ELVERTAW 230	HURLEY W 230	2	ELVERTAW 230	HURLEY W 230	1	-0.0283	4.3%	Overload
ELVERTAW 230	HURLEY W 230	1	ELVERTAW 230	HURLEY W 230	2	-0.0275	1.9%	Overload
ELVERTAW 230	HURLEY W 230	1	ELVERTAS 230	HURLEY S 230	3	-0.0258	1.0%	Overload
CARMICAL 230	HURLEY S 230	1	HEDGE 230	PROCTER 230	1	-0.1023	134	
CARMICAL 230	HURLEY S 230	1	ELVERTAS 230	FOOTHILL 230	1	-0.1273	334	
CARMICAL 230	HURLEY S 230	1	ELVERTAS 230	ORANGEVL 230	1	-0.1151	353	
CARMICAL 230	HURLEY S 230	1	HURLEY S 230	PROCTER 230	1	-0.1023	645	
CARMICAL 230	HURLEY S 230	1	GOLDHILL 230	LAKE 230	1	-0.1415	759	

ELVERTAW	230	OBANION	230	1	ELVERTAW	230	OBANION	230	2	-0.0604	468
ELVERTAW	230	OBANION	230	2	ELVERTAW	230	OBANION	230	1	-0.0604	468
ATLANTC	230	RIO OSO	230	1	GOLDHILL	230	RIO OSO	230	1	-0.0237	727
HURLEY W	230	TRCY PMP	230	2	HURLEY W	230	TRCY PMP	230	1	-0.2059	788
HURLEY W	230	TRCY PMP	230	2	BELLOTA	230	RNCHSECO	230	1	-0.1845	959
HURLEY W	230	TRCY PMP	230	2	BELLOTA	230	RNCHSECO	230	2	-0.1845	959
HURLEY W	230	TRCY PMP	230	2	COTWDWAP	230	ROSEVILL	230	1	-0.1743	966
HURLEY W	230	TRCY PMP	230	2	GOLDHILL	230	LAKE	230	1	-0.1823	971
HURLEY W	230	TRCY PMP	230	1	HURLEY W	230	TRCY PMP	230	2	-0.2035	808
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	1	-0.1811	993
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	2	-0.1811	993
HURLEY W	230	TRCY PMP	230	1	COTWDWAP	230	ROSEVILL	230	1	-0.1710	1003
HURLEY W	230	TRCY PMP	230	1	GOLDHILL	230	LAKE	230	1	-0.1789	1006
BELLOTA	230	RNCHSECO	230	1	BELLOTA	230	RNCHSECO	230	2	0.3374	845
BELLOTA	230	RNCHSECO	230	2	BELLOTA	230	RNCHSECO	230	1	0.3374	845
ELVERTAS	230	FOOTHILL	230	1	CARMICAL	230	HURLEY S	230	1	0.0731	1443
EAST CTY	115	HEDGE	115	1	HURLEY	115	HURLEY S	230	1	-0.0498	1504
ELVERTAS	230	ORANGEVL	230	1	CARMICAL	230	HURLEY S	230	1	0.0614	1543
GOLDHILL	230	RIO OSO	230	1	ATLANTC	230	RIO OSO	230	1	-0.0237	1590
HEDGE	115	SOUTHCTY	115	1	HEDGE	115	SOUTHCTY	115	2	0.0334	1646
HEDGE	115	SOUTHCTY	115	1	EAST CTY	115	HEDGE	115	1	0.0314	1994
HEDGE	115	SOUTHCTY	115	2	HEDGE	115	SOUTHCTY	115	1	0.0334	1646
HEDGE	115	SOUTHCTY	115	2	EAST CTY	115	HEDGE	115	1	0.0314	1994
GOLDHILL	230	LAKE	230	1	HURLEY W	230	TRCY PMP	230	2	0.1305	1654
GOLDHILL	230	LAKE	230	1	BELLOTA	230	RNCHSECO	230	1	0.1293	1660
GOLDHILL	230	LAKE	230	1	BELLOTA	230	RNCHSECO	230	2	0.1293	1660
LOCKFORD	230	RIO OSO	230	1	BELLOTA	230	LOCKFORD	230	1	-0.1102	1753
STAGG	230	TESLA E	230	1	BELLOTA	230	LOCKFORD	230	1	-0.1147	1785

Base Case Title:

rs05hs11, 2005 Heavy Summer Cosumnes Generation Study Case
Cosumnes Generation = 1000 MW, FPLE Generation = 560 MW
From Western FPLE Study Case 05s-pgepeak_fplesrev1

Transfer Schedule Case Title:

rs05hs11, 2005 Heavy Summer Cosumnes Generation Study Case
Cosumnes Generation = 1000 MW, FPLE Generation = 560 MW
From Western FPLE Study Case 05s-pgepeak_fplesrev1
100 MW INCREMENTAL SCHEDULE INTO SMUD/ROSEVILLE LOAD AREA

No non-rated lines were identified.

1 overloaded lines were detected:

From Bus	To Bus	ID	Sens.	Percent Overload	
BRGHTN M 230	BRIGHTN 115	1	-0.0060	13.8%	Overload

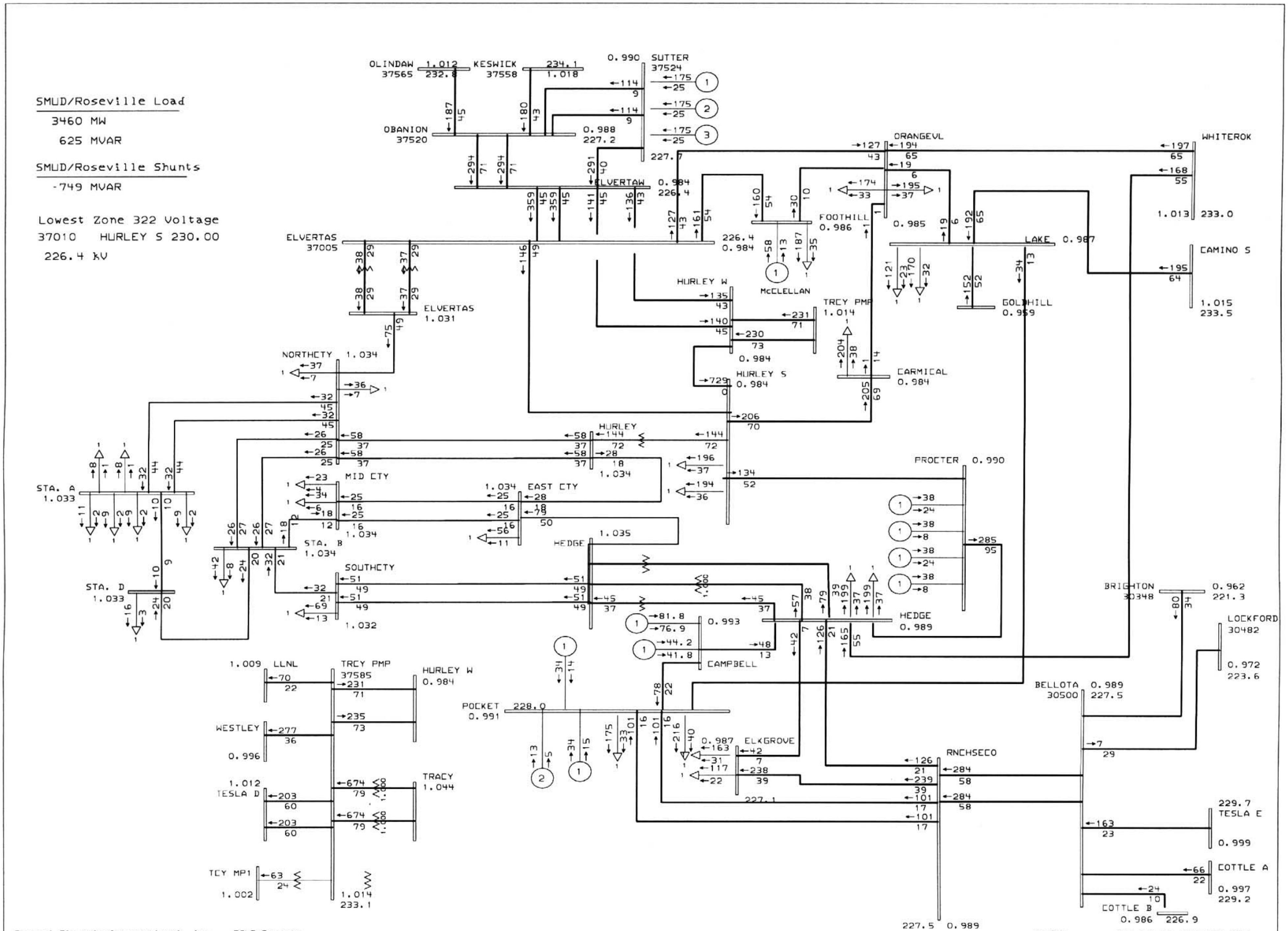
4 forward schedule normal limits were detected:

From Bus	To Bus	ID	Sens.	Schedule MW Limit
CARMICAL 230	HURLEY S 230	1	-0.1020	1244
HURLEY 115	HURLEY S 230	1	-0.0410	1912
HURLEY W 230	TRCY PMP 230	2	-0.1620	1953
HURLEY W 230	TRCY PMP 230	1	-0.1580	1999

16 forward schedule outage limits were found:

Limiting Element			Outage				
From Bus	To Bus	ID	From Bus	To Bus	ID	Sens.	Schedule MW Limit
CARMICAL 230	HURLEY S 230	1	ELVERTAS 230	FOOTHILL 230	1	-0.1274	606
CARMICAL 230	HURLEY S 230	1	ELVERTAS 230	ORANGEVL 230	1	-0.1152	698
CARMICAL 230	HURLEY S 230	1	ORANGEVL 230	WHITEROK 230	1	-0.1053	1028
CARMICAL 230	HURLEY S 230	1	GOLDHILL 230	LAKE 230	1	-0.1409	1143
ATLANTC 230	RIO OSO 230	1	GOLDHILL 230	RIO OSO 230	1	-0.0237	885
HURLEY 115	HURLEY S 230	1	ELVERTAS 115	NORTHCTY 115	1	-0.0436	1020
HURLEY 115	HURLEY S 230	1	EAST CTY 115	HEDGE 115	1	-0.0496	1132
HURLEY 115	HURLEY S 230	1	HEDGE 115	HEDGE 230	6	-0.0467	1356
HURLEY 115	HURLEY S 230	1	CARMICAL 230	HURLEY S 230	1	-0.0460	1516
HURLEY 115	HURLEY S 230	1	HEDGE 115	HEDGE 230	4	-0.0446	1542
HEDGE 115	SOUTHCTY 115	1	HEDGE 115	SOUTHCTY 115	2	0.0318	1065
HEDGE 115	SOUTHCTY 115	1	EAST CTY 115	HEDGE 115	1	0.0301	1346
HEDGE 115	SOUTHCTY 115	1	HURLEY 115	HURLEY S 230	1	0.0255	1965
HEDGE 115	SOUTHCTY 115	2	HEDGE 115	SOUTHCTY 115	1	0.0318	1065
HEDGE 115	SOUTHCTY 115	2	EAST CTY 115	HEDGE 115	1	0.0301	1346
HEDGE 115	SOUTHCTY 115	2	HURLEY 115	HURLEY S 230	1	0.0255	1965

EAST CTY	115	HEDGE	115	1	HURLEY	115	HURLEY S	230	1	-0.0487	1124
EAST CTY	115	HEDGE	115	1	SOUTHCTY	115	STA. B	115	1	-0.0468	1523
ELVERTAW	230	OBANION	230	1	ELVERTAW	230	OBANION	230	2	-0.0604	1234
ELVERTAW	230	OBANION	230	2	ELVERTAW	230	OBANION	230	1	-0.0604	1234
HEDGE	115	HEDGE	230	4	HEDGE	115	HEDGE	230	6	-0.0366	1455
HEDGE	115	HEDGE	230	4	HURLEY	115	HURLEY S	230	1	-0.0319	1979
HEDGE	115	HEDGE	230	2	HEDGE	115	HEDGE	230	6	-0.0290	1492
HURLEY W	230	TRCY PMP	230	2	HURLEY W	230	TRCY PMP	230	1	-0.2048	1529
HURLEY W	230	TRCY PMP	230	2	COTWDWAP	230	ROSEVILL	230	1	-0.1724	1720
HURLEY W	230	TRCY PMP	230	2	GOLDHILL	230	LAKE	230	1	-0.1798	1724
HURLEY W	230	TRCY PMP	230	2	BELLOTA	230	RNCHSECO	230	1	-0.1817	1792
HURLEY W	230	TRCY PMP	230	2	BELLOTA	230	RNCHSECO	230	2	-0.1817	1792
HURLEY W	230	TRCY PMP	230	1	HURLEY W	230	TRCY PMP	230	2	-0.2028	1541
HURLEY W	230	TRCY PMP	230	1	COTWDWAP	230	ROSEVILL	230	1	-0.1681	1764
HURLEY W	230	TRCY PMP	230	1	GOLDHILL	230	LAKE	230	1	-0.1752	1767
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	1	-0.1773	1833
HURLEY W	230	TRCY PMP	230	1	BELLOTA	230	RNCHSECO	230	2	-0.1773	1833
ELVERTAS	230	FOOTHILL	230	1	CARMICAL	230	HURLEY S	230	1	0.0731	1746
GOLDHILL	230	RIO OSO	230	1	ATLANTC	230	RIO OSO	230	1	-0.0237	1753
ELKGROVE	230	RNCHSECO	230	1	HEDGE	230	RNCHSECO	230	1	-0.1807	1779
HEDGE	115	HEDGE	230	6	HURLEY	115	HURLEY S	230	1	-0.0439	1831
HEDGE	115	HEDGE	230	6	HEDGE	115	HEDGE	230	4	-0.0440	1899



General Electric International, Inc. PSLF Program

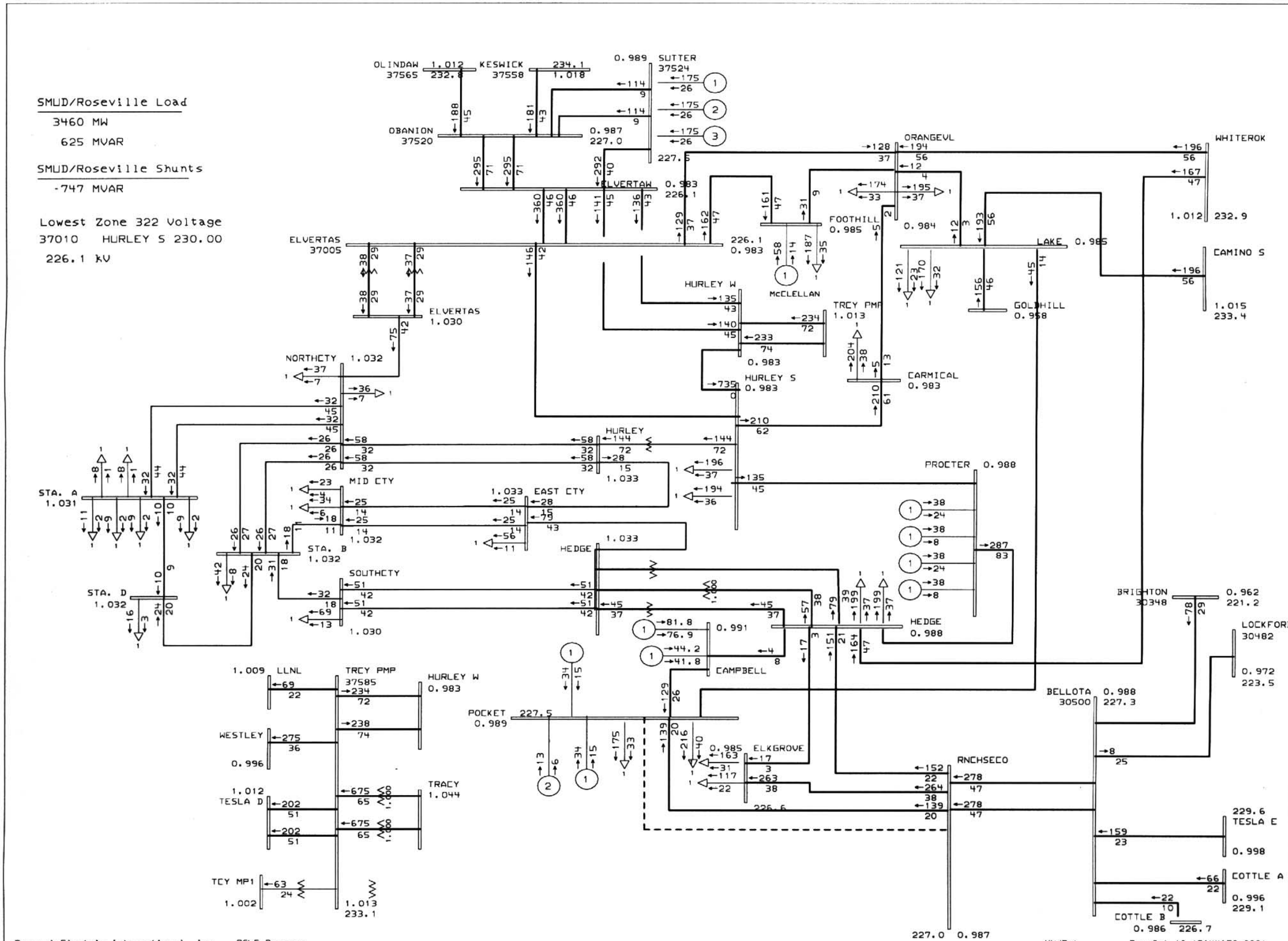
MW/Pct Tue Oct 16 13:44:55 2001

SMUD

rs05hs00, 2005 Heavy Summer Rancho Seco Generation Study Case
No Rancho Seco Generation Plant, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple

BASE CASE

sac-gb2.drw
t.wrk
Rating = 1



General Electric International, Inc. PSLF Program

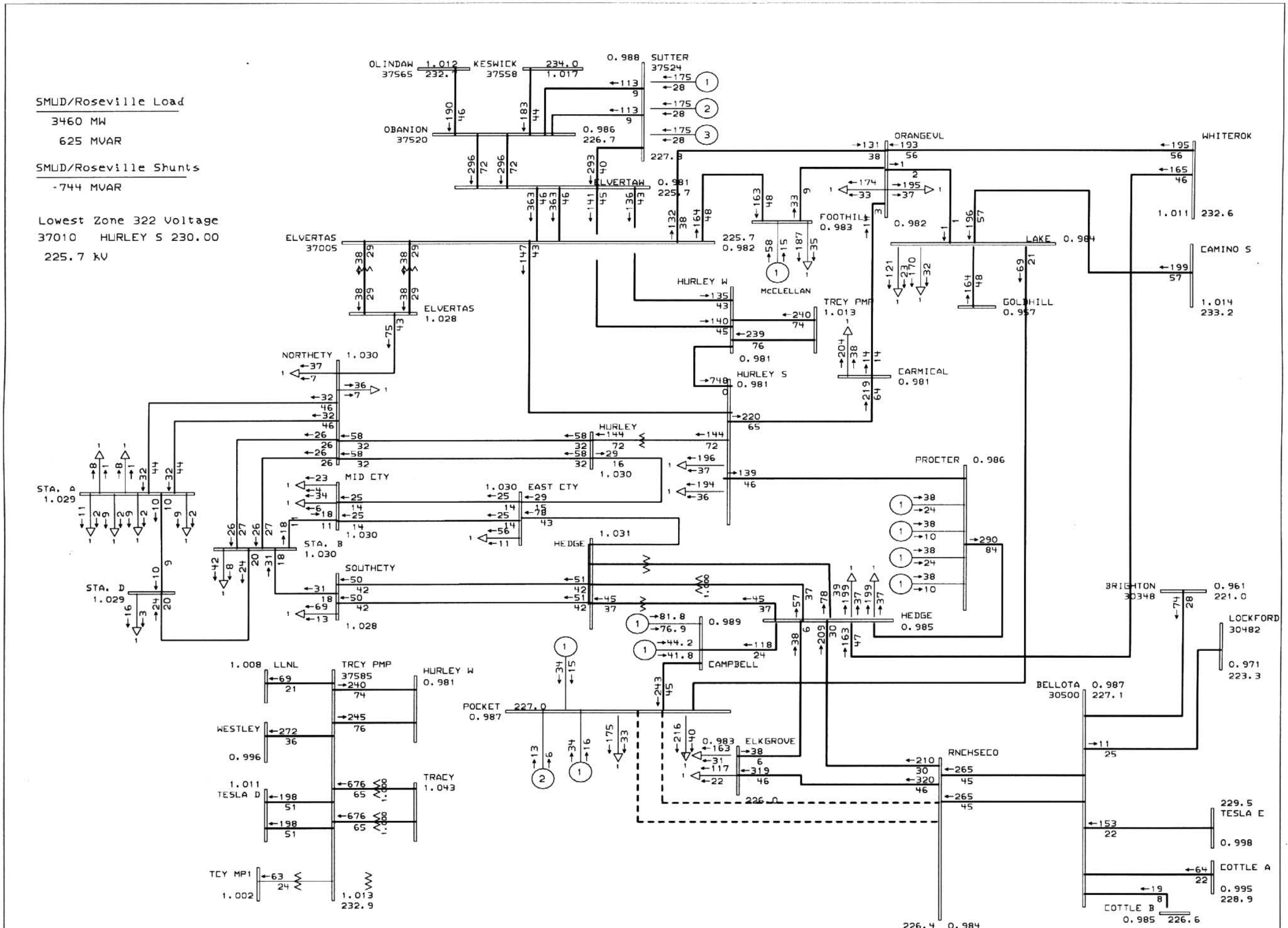
Tue Oct 16 13:44:59 2001

SMUD

rs05hs00, 2005 Heavy Summer Rancho Seco Generation Study Case
No Rancho Seco Generation Plant, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple

POCKET 230.00 -RNCHSECO 230.00 #2

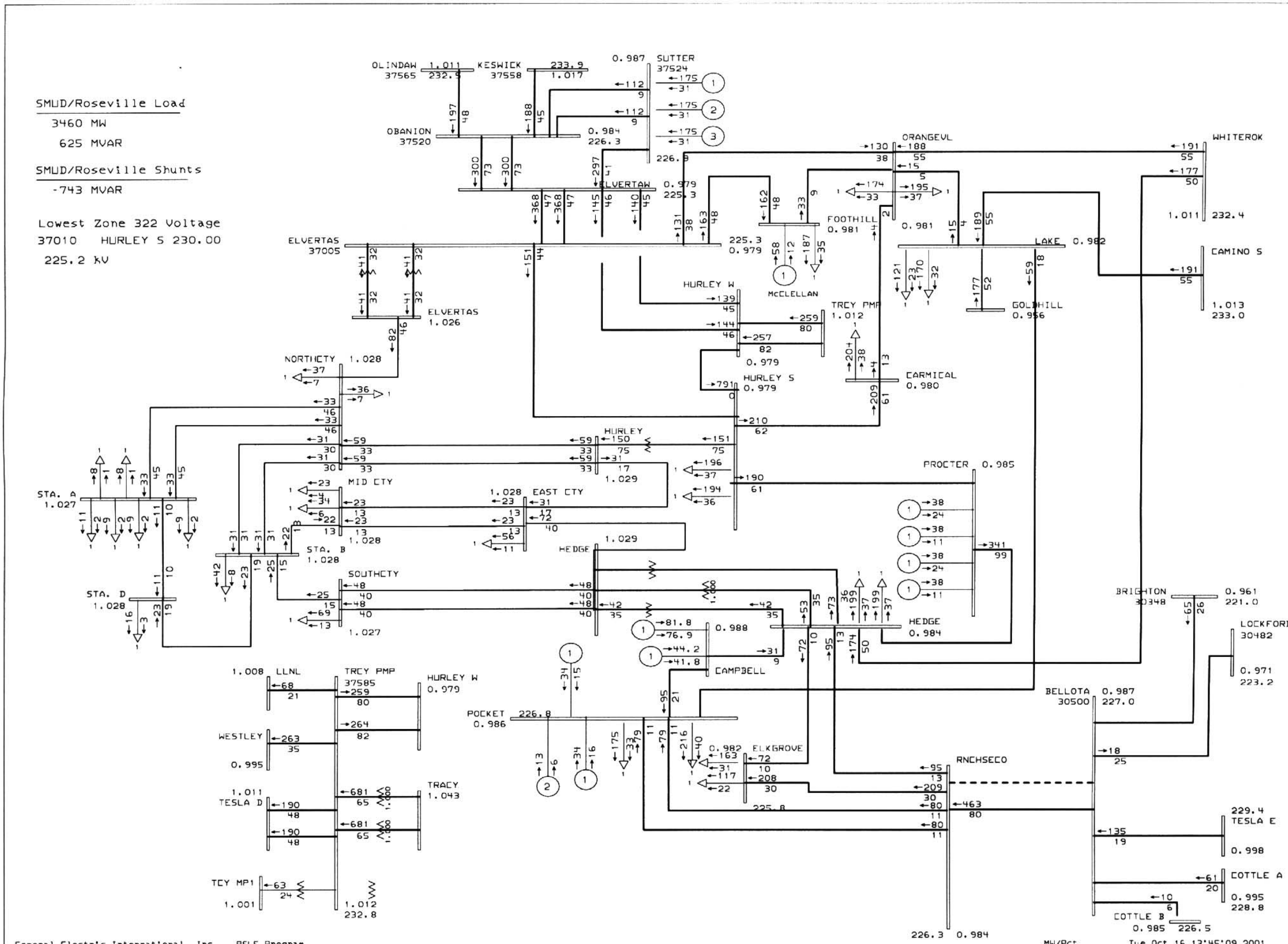
sac-gb2.drw
t.wrk
Rating = 2



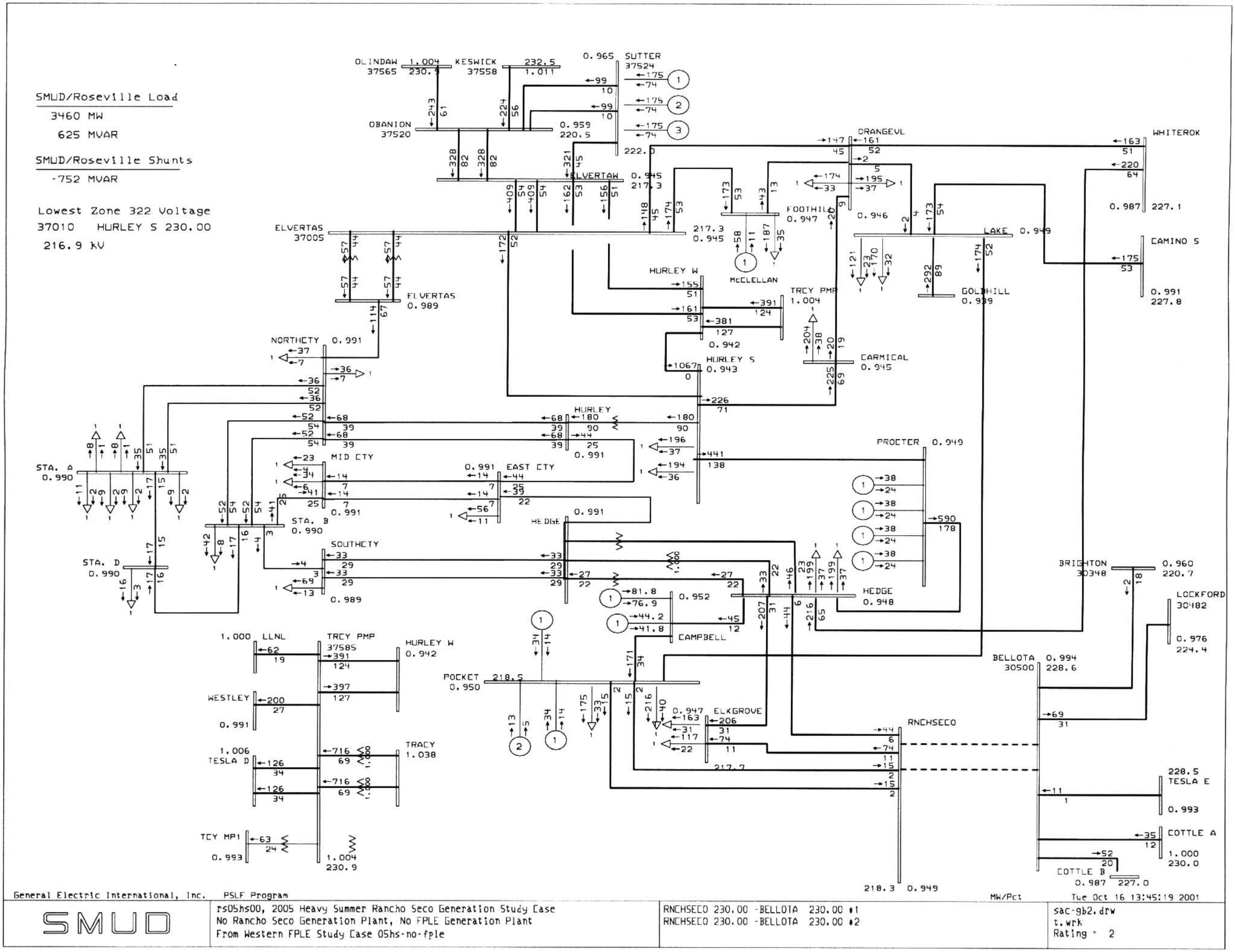
General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 13:45:04 2001

SMUD	rs05hs00, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	POCKET 230.00 -RNCHSECO 230.00 #1 POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

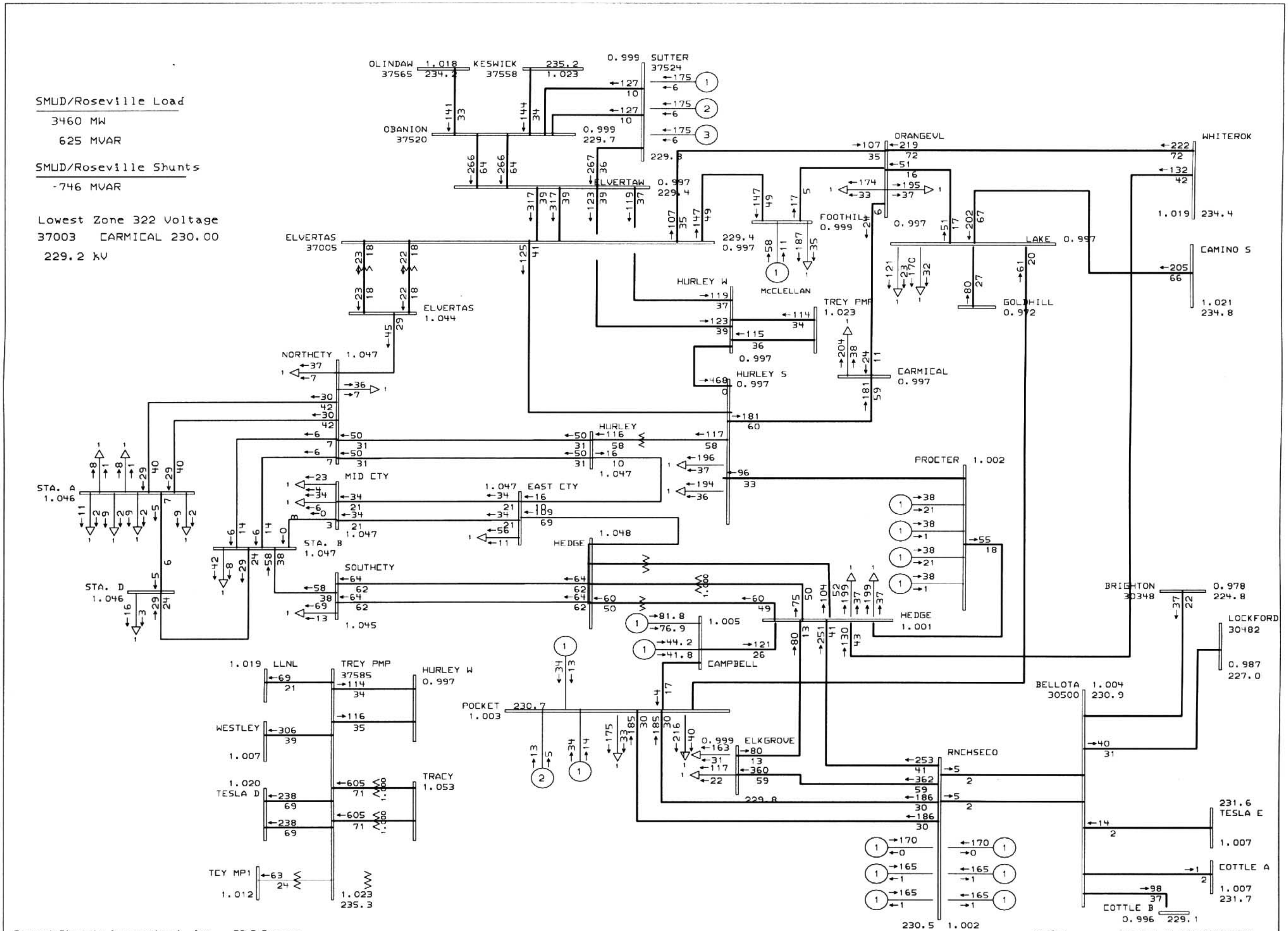
E102001008SAC 10/22/01 dfacile



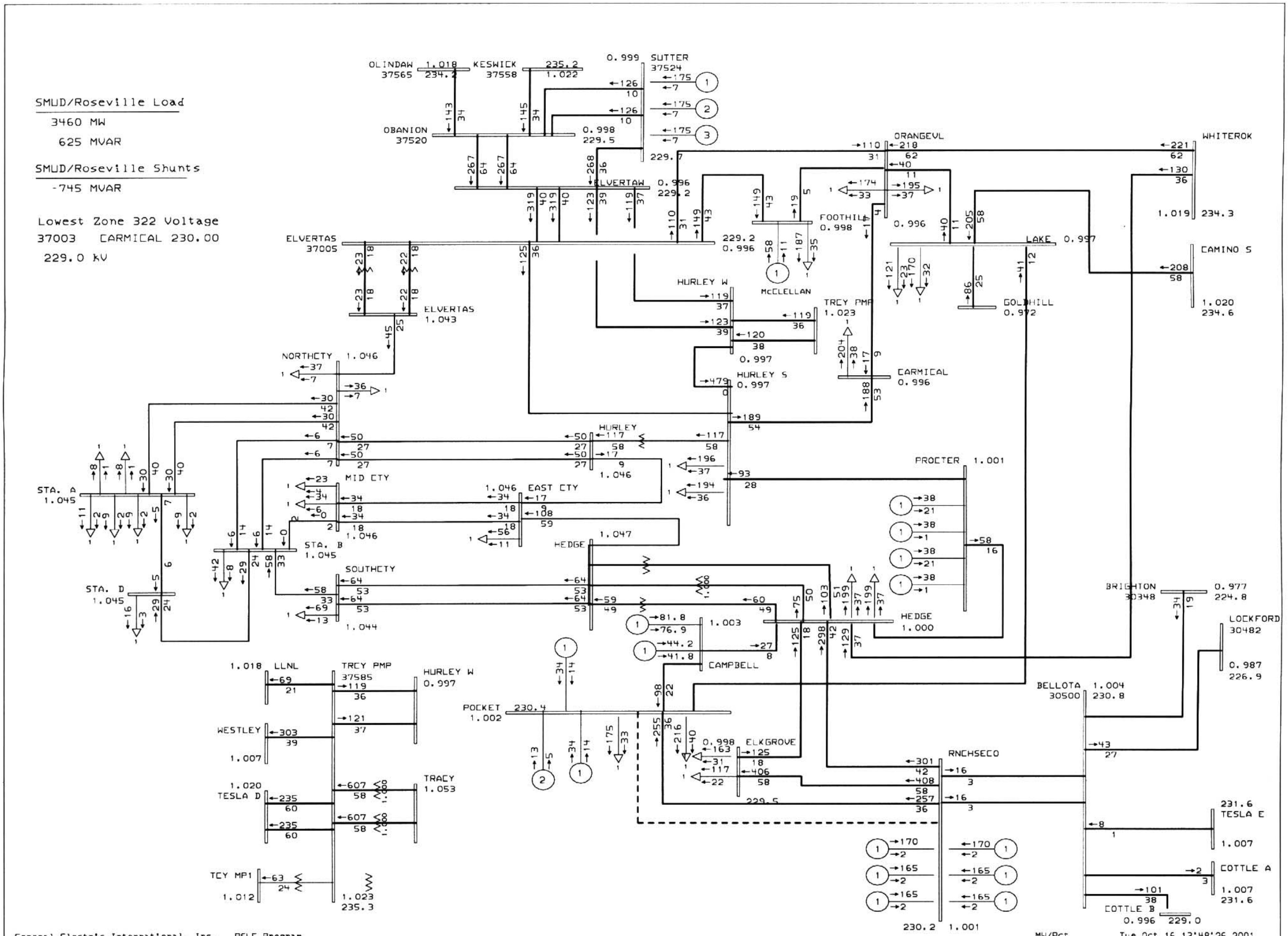
SMUD	rs05hs00, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	RNCHSECO 230.00 -BELLOTA 230.00 #1	sac-gb2.drw t.wrk Rating = 2



SMUD/Roseville Load
3460 MW
625 MVAR
SMUD/Roseville Shunts
-752 MVAR
Lowest Zone 322 Voltage
37010 HURLEY S 230.00
216.9 kV
OLINDAW 37565
KESWICK 37558
SUTTER 37524
OBANION 37520
ELVERTAW
ELVERTAS 37005
ORANGEVL
WHITEROK
FOOTHILL
McCLELLAN
LAKE
CAMINO S
HURLEY W
TRCY PMP
GOLDHILL
CARMICAL
HURLEY S
NORTHCTY
HURLEY
PROCTER
STA. A
MID CTY
EAST CTY
STA. B
HEDGE
SOUTHCTY
STA. D
BRIGHTON 30348
LOCKFORD 30482
CAMPBELL
LLNL
TRCY PMP 37585
POCKET
BELLOTA 30500
WESTLEY
ELKGROVE
RNCHSECO
TESLA D
TRACY
TESLA E
COTTLE A
COTTLE B
TCY MP1
General Electric International, Inc. PSLF Program
MW/Pct
Tue Oct 16 13:45:19 2001
SMUD
rs05hs00, 2005 Heavy Summer Rancho Seco Generation Study Case
No Rancho Seco Generation Plant, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple
RNCHSECO 230.00 -BELLOTA 230.00 #1
RNCHSECO 230.00 -BELLOTA 230.00 #2
sac-gb2.drw
t.wrk
Rating = 2



General Electric International, Inc.	PSLF Program		Tue Oct 16 13:48:22 2001
SMUD	rs05hs10, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	BASE CASE	sac-gb2.drw t.wrk Rating = 1

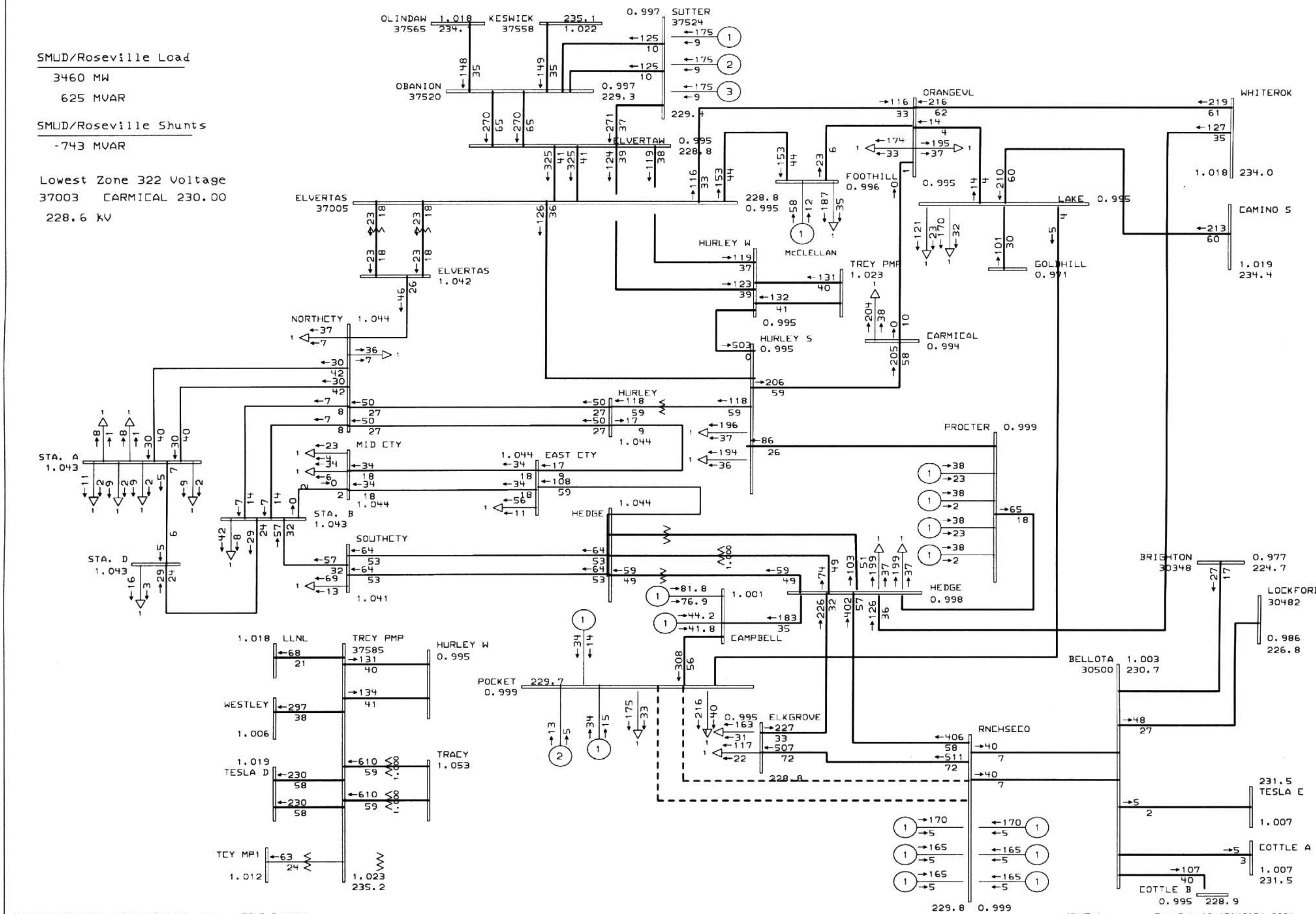


SMUD

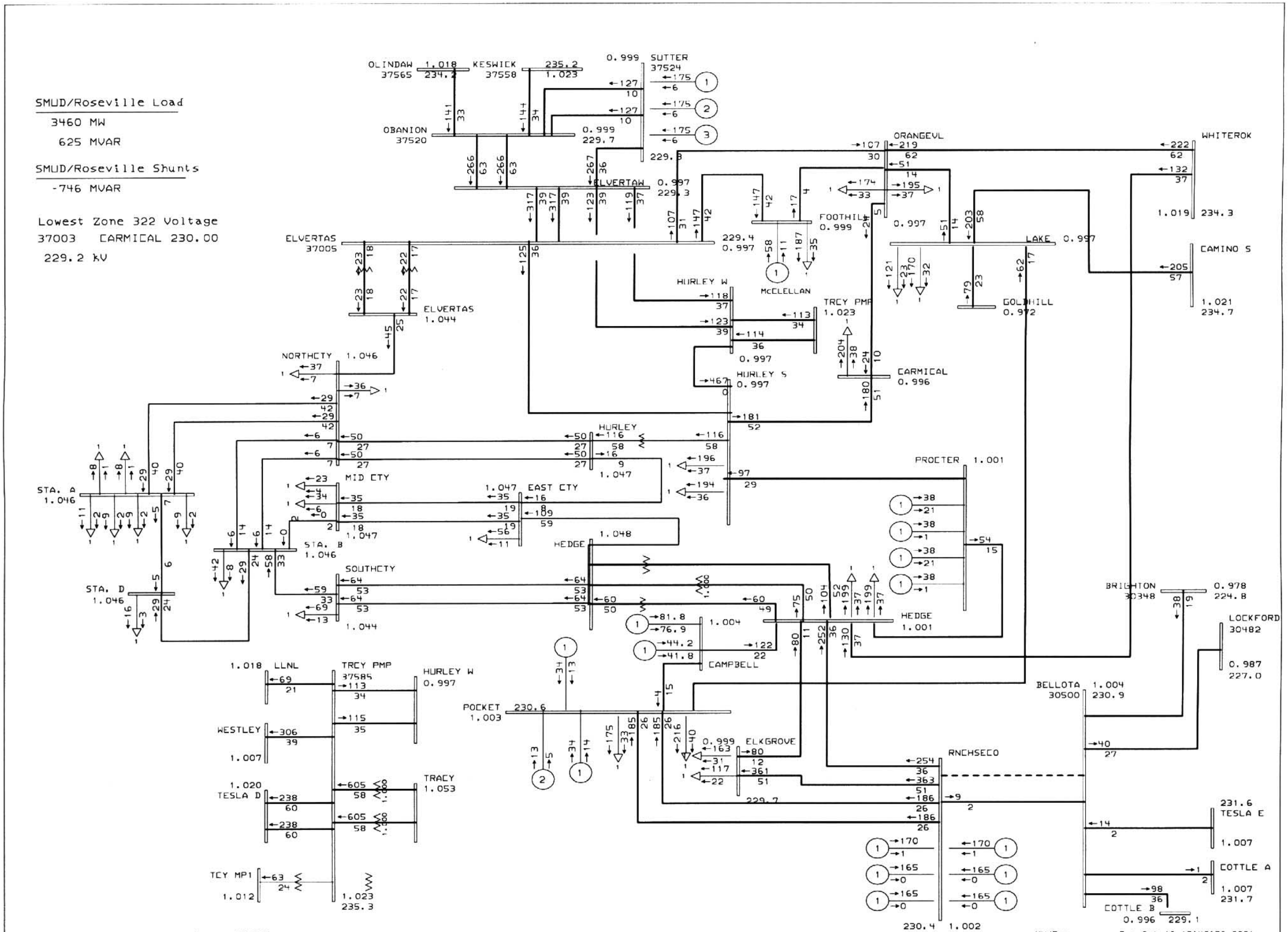
rs05hs10, 2005 Heavy Summer Rancho Seco Generation Study Case
Rancho Seco Generation = 1000 MW, No FPLE Generation Plant
From Western FPLE Study Case 05hs-no-fple

POCKET 230.00 -RNCHSECO 230.00 #2

sac-gb2.drw
t.wrk
Rating = 2



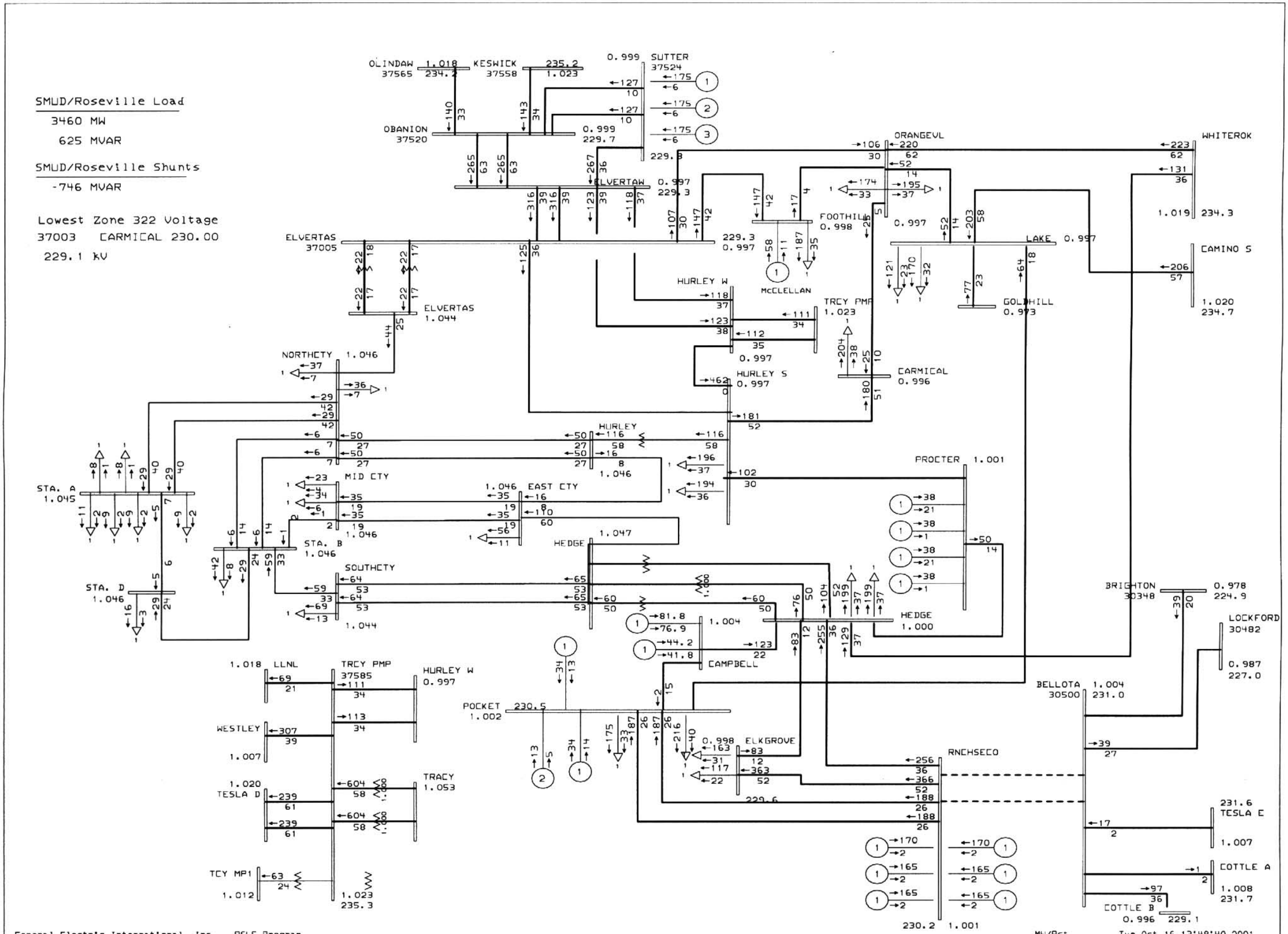
General Electric International, Inc. PSLF Program		MW/Pct Tue Oct 16 13:48:31 2001
SMUD	rs05hs10, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	POCKET 230.00 -RNCHSECO 230.00 #1 POCKET 230.00 -RNCHSECO 230.00 #2
		sac-gb2.drw t.wrk Rating = 2



General Electric International, Inc. PSLF Program Tue Oct 16 13:48:36 2001

SMUD	rs05hs10, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	RNCHSECO 230.00 -BELLOTA 230.00 #1	sac-gb2.drw t.wrk Rating = 2

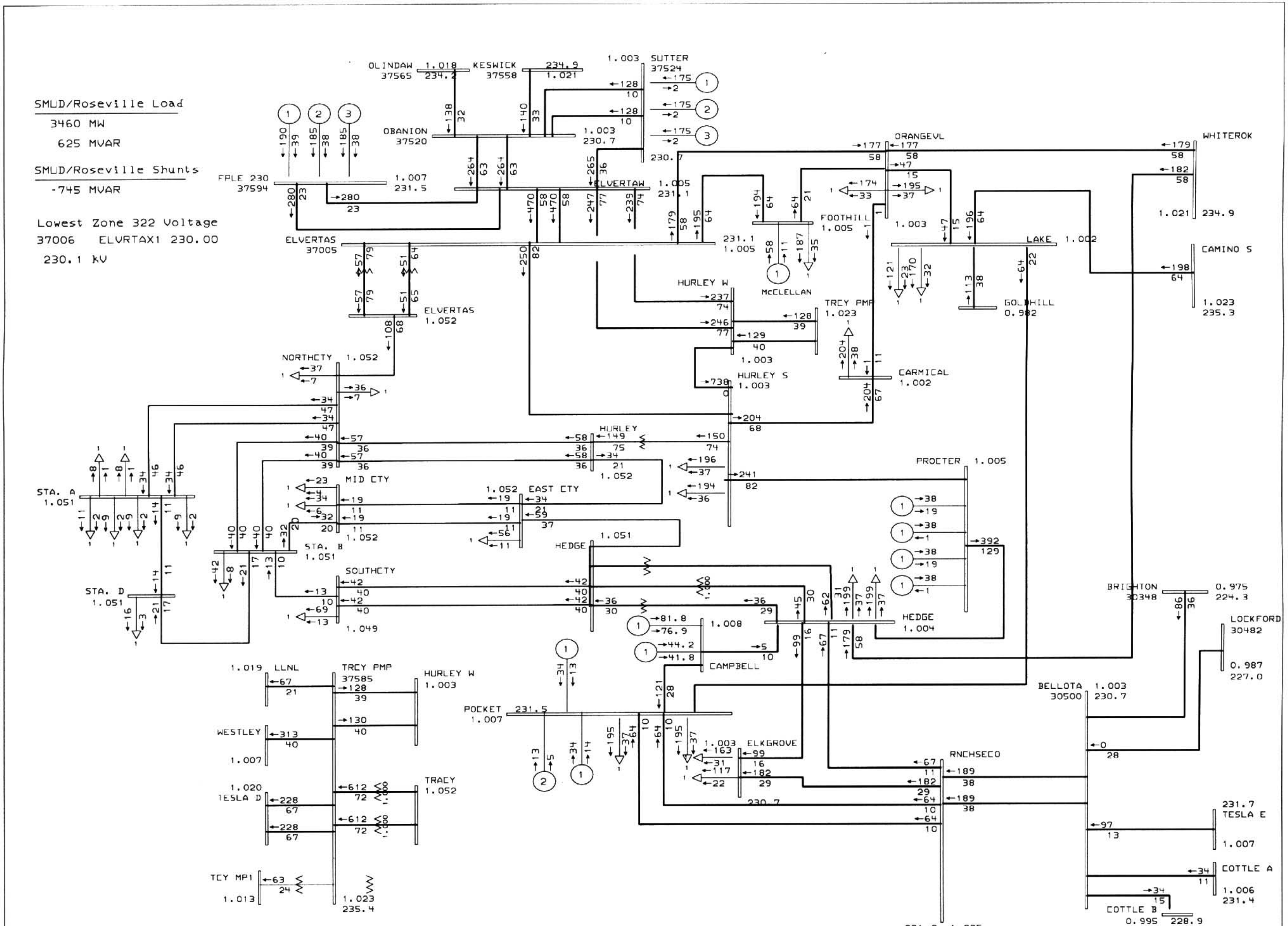
E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program Tue Oct 16 13:48:40 2001

SMUD	rs05hs10, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	RNCHSECO 230.00 -BELLOTA 230.00 #1 RNCHSECO 230.00 -BELLOTA 230.00 #2	sac-gb2.drw t.wrk Rating = 2

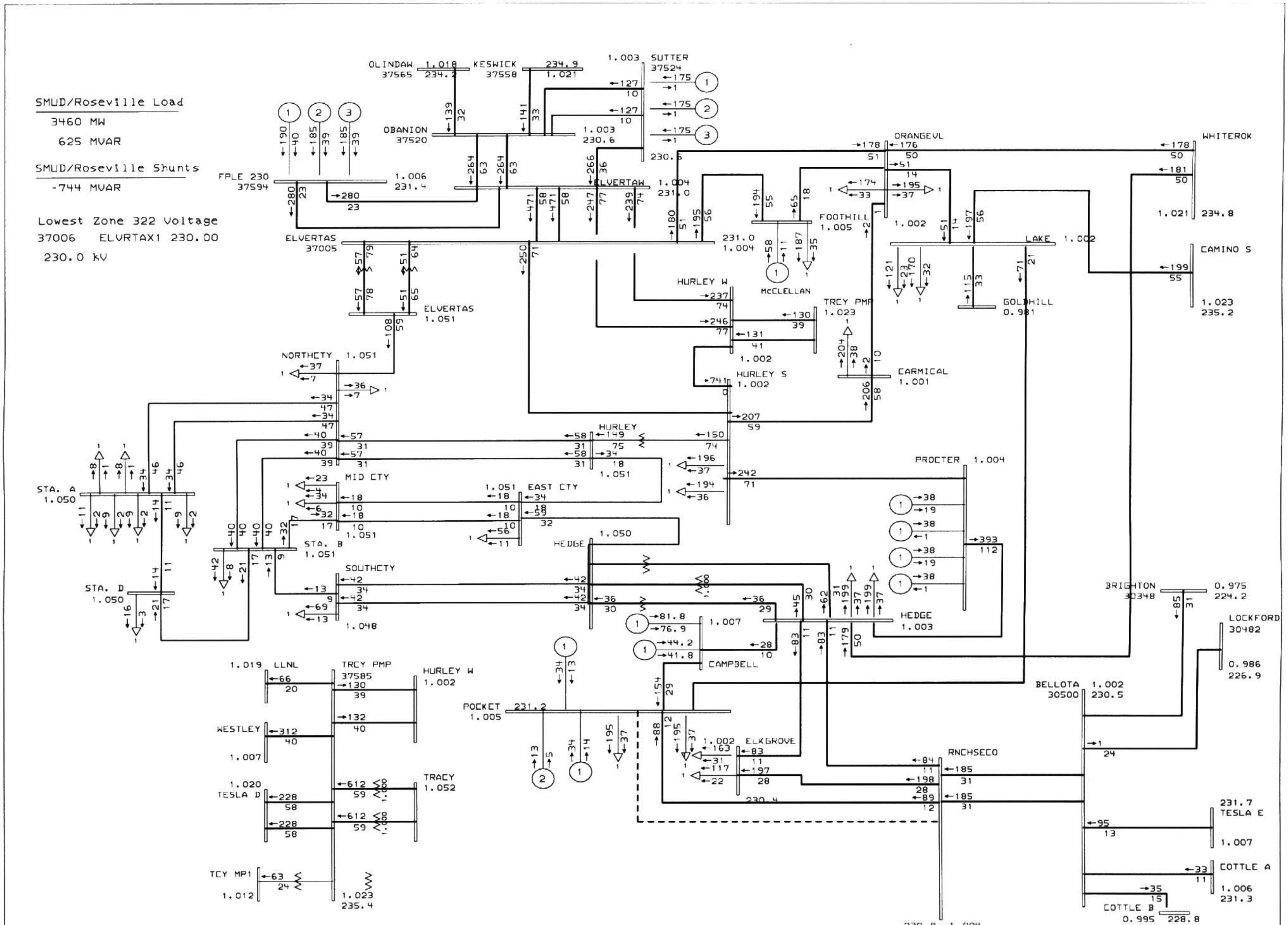
E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

SMUD	rs05hs01, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	BASE CASE	sac-gb2.drw t.wrk Rating = 1

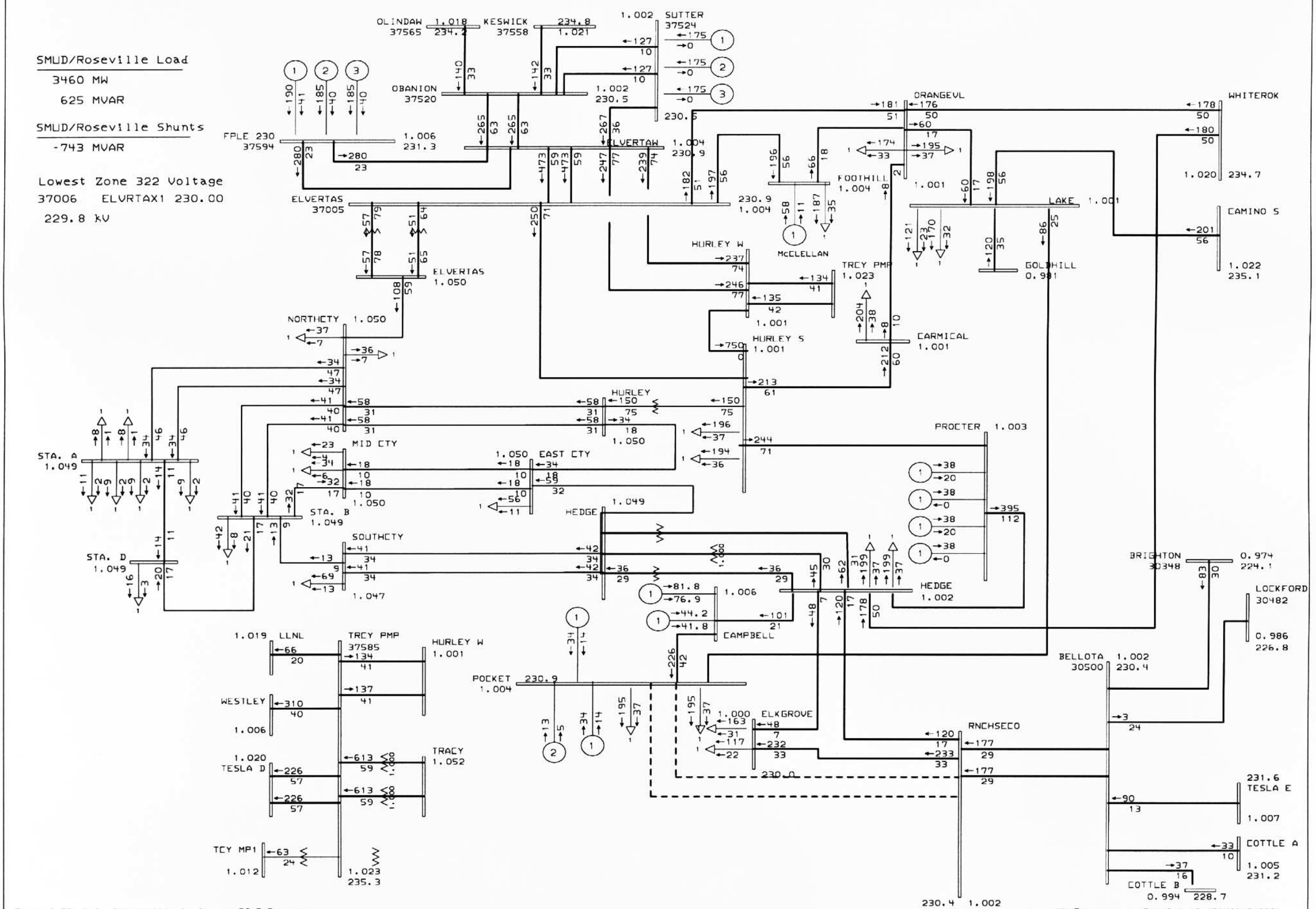
E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 13:46:36 2001

SMUD	rs05hs01, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

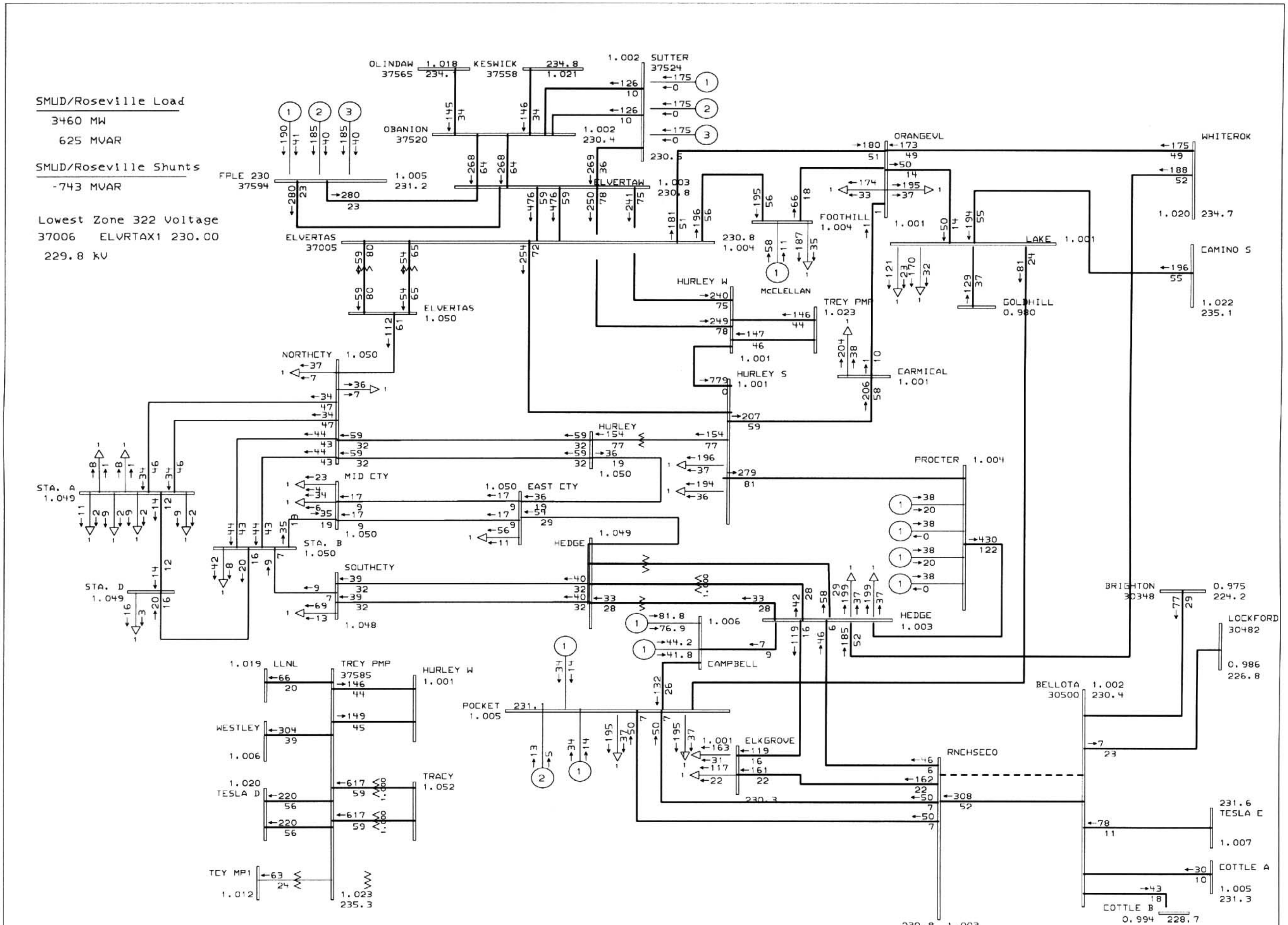
E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program Tue Oct 16 13:46:42 2001

SMUD	rs05hs01, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	POCKET 230.00 -RNCHSECO 230.00 #1 POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

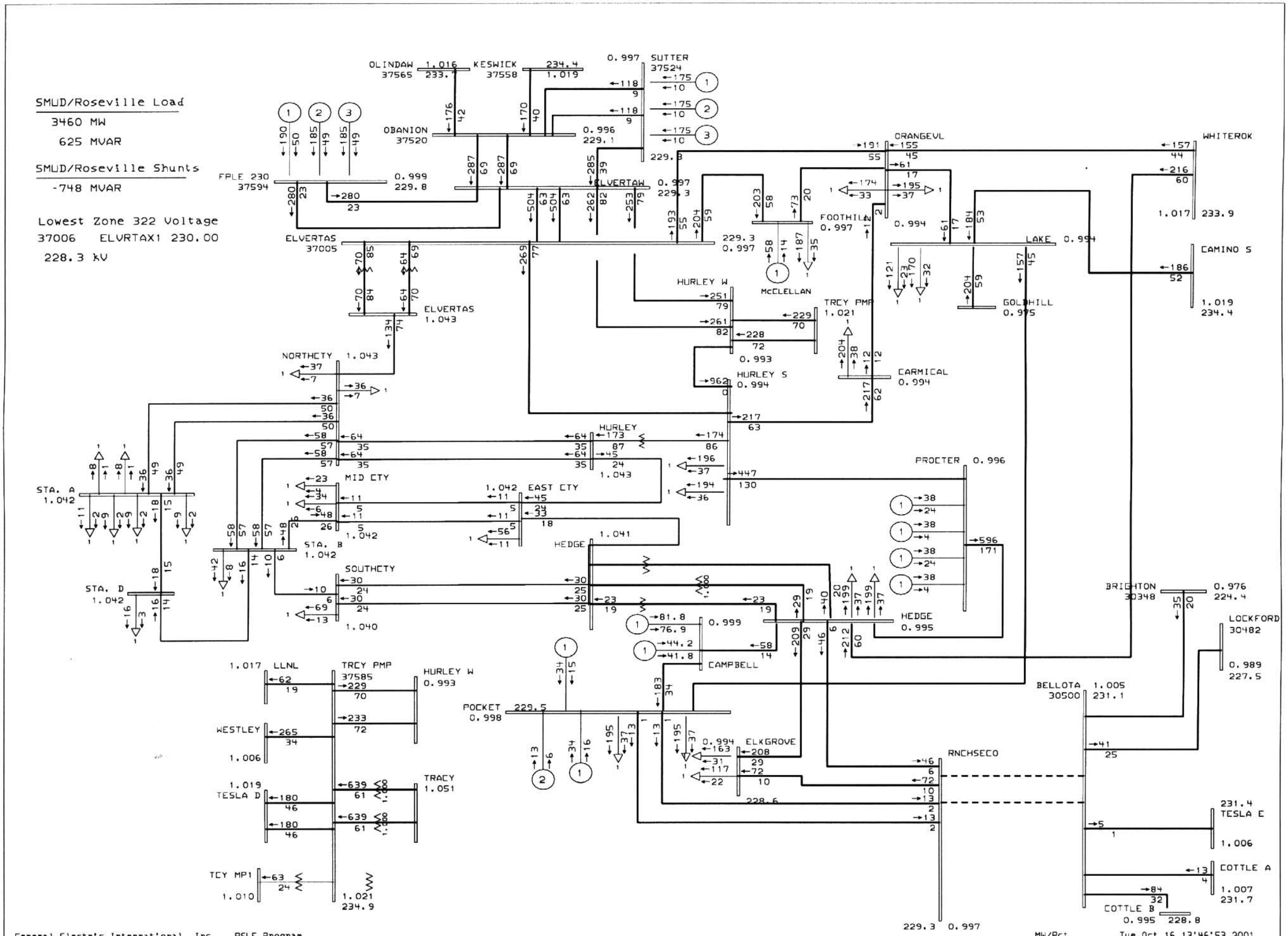
SMUD

rs05hs01, 2005 Heavy Summer Rancho Seco Generation Study Case
No Rancho Seco Generation Plant, FPLE Generation = 560 MW
From Western FPLE Study Case 05s-pgepeak_fplesrev1

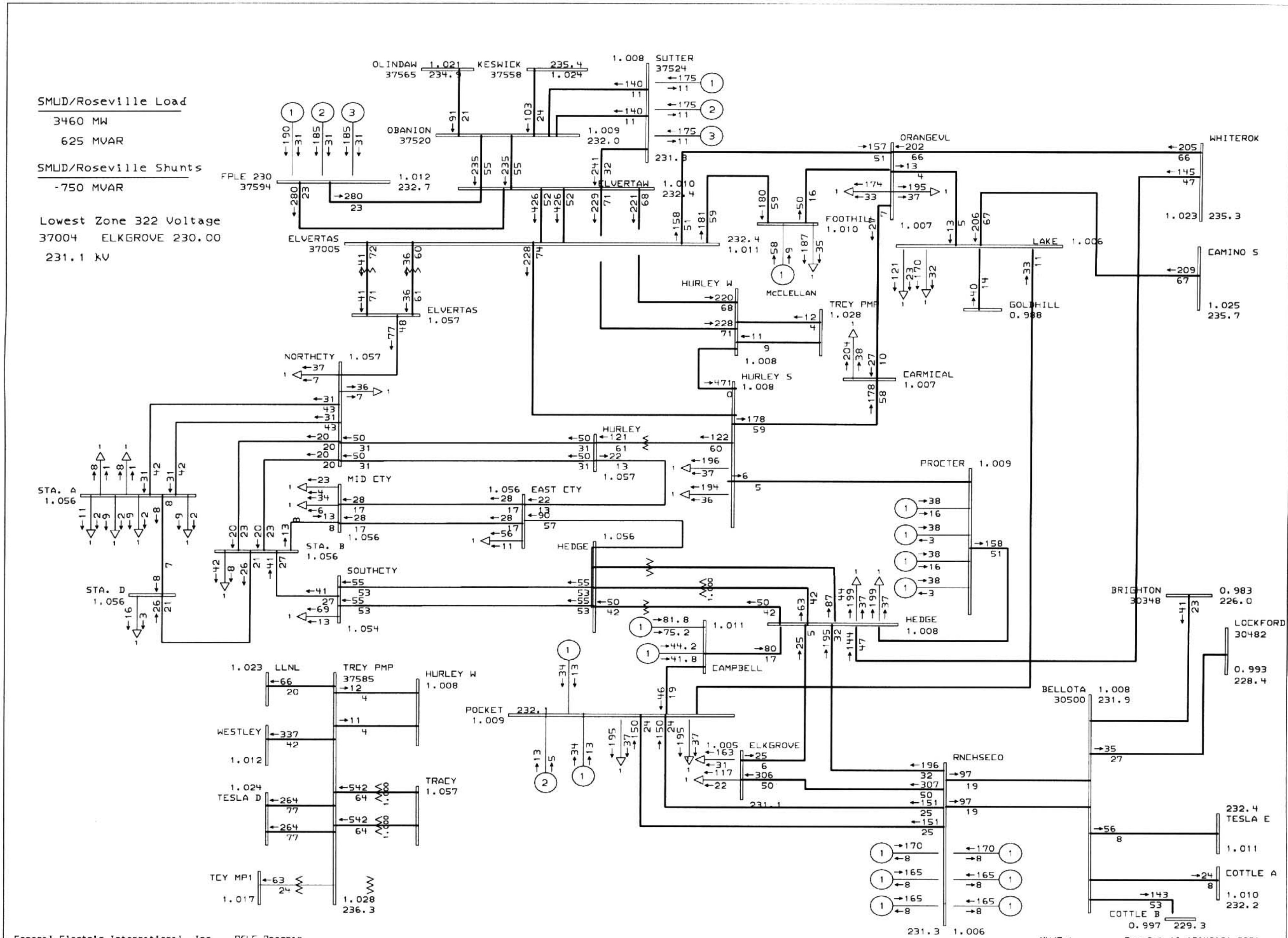
RNCHSECO 230.00 -BELLOTA 230.00 #1

MW/Pct Tue Oct 16 13:46:48 2001

sac-gb2.drw
t.wrk
Rating = 2



rs05hs01, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	RNCHSECO 230.00 -BELLOTA 230.00 #1 RNCHSECO 230.00 -BELLOTA 230.00 #2	sac-gb2.drw t.wrk Rating = 2

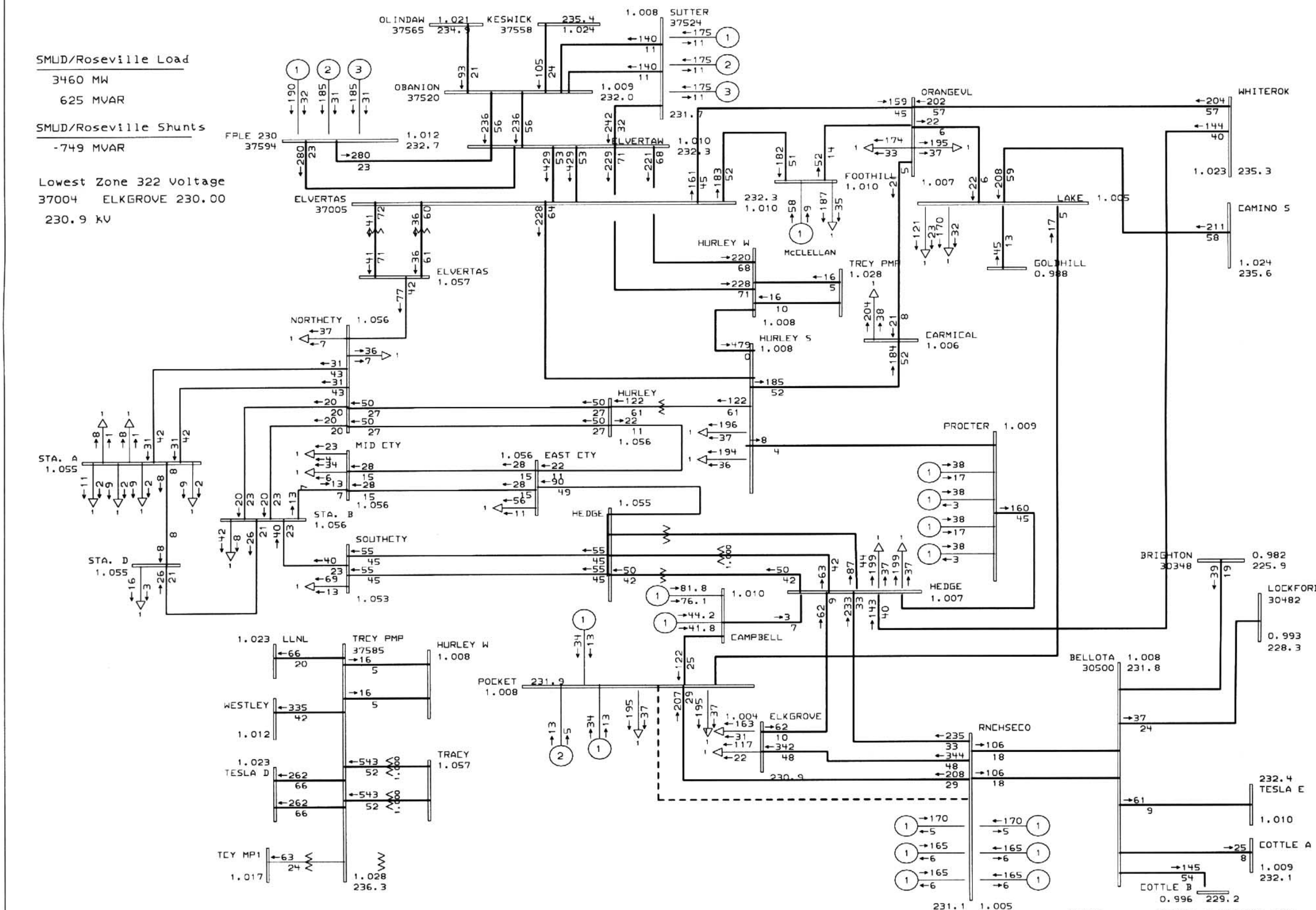


General Electric International, Inc. PSLF Program

MW/Pct Tue Oct 16 13:49:21 2001

SMUD	rs05hs11, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	BASE CASE	sac-gb2.drw t.wrk Rating = 1

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

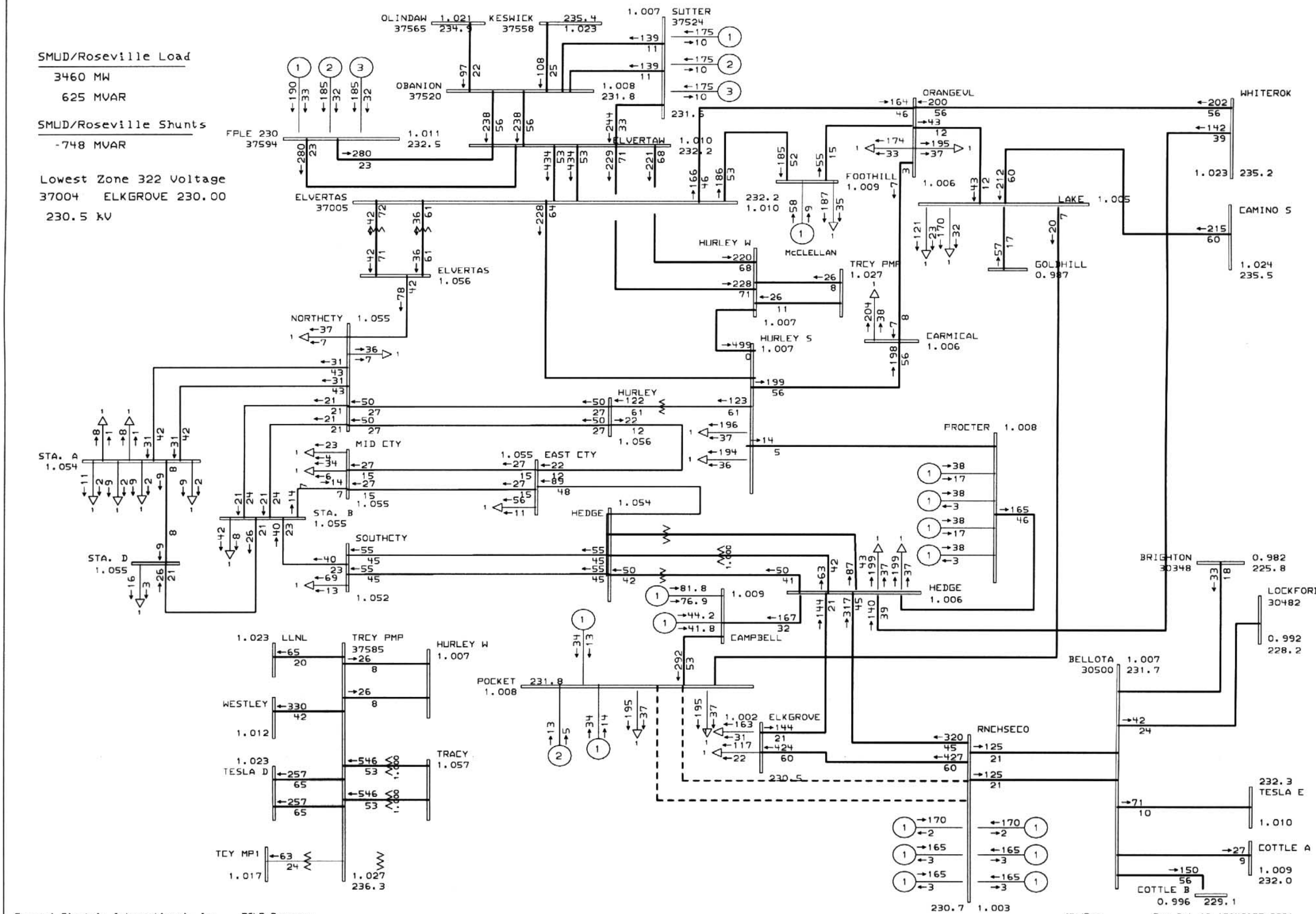
SMUD	rs05hs11, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile

SMUD/Roseville Load
3460 MW
625 MVAR

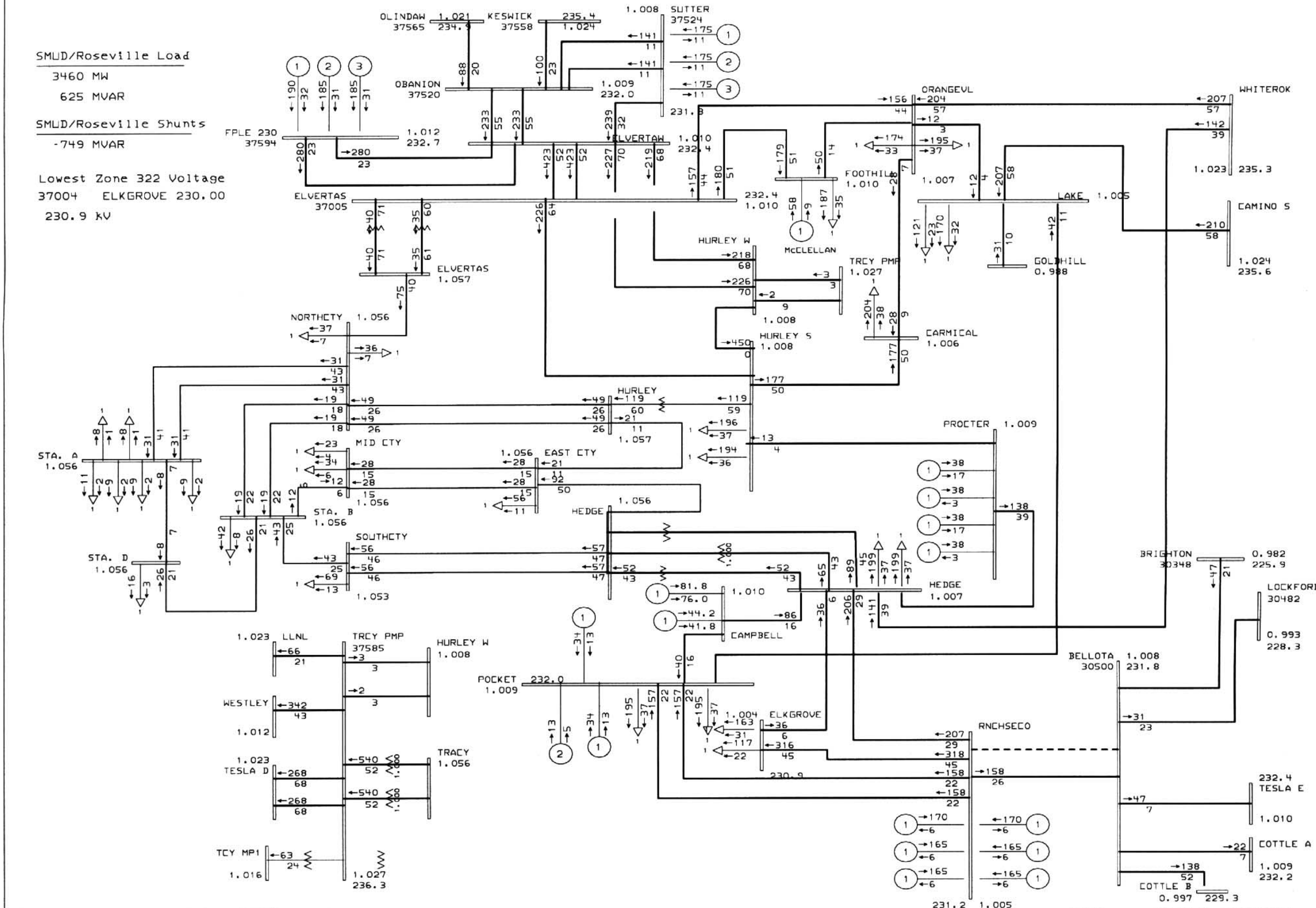
SMUD/Roseville Shunts
-748 MVAR

Lowest Zone 322 Voltage
37004 ELKGROVE 230.00
230.5 kV



General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 13:49:35 2001

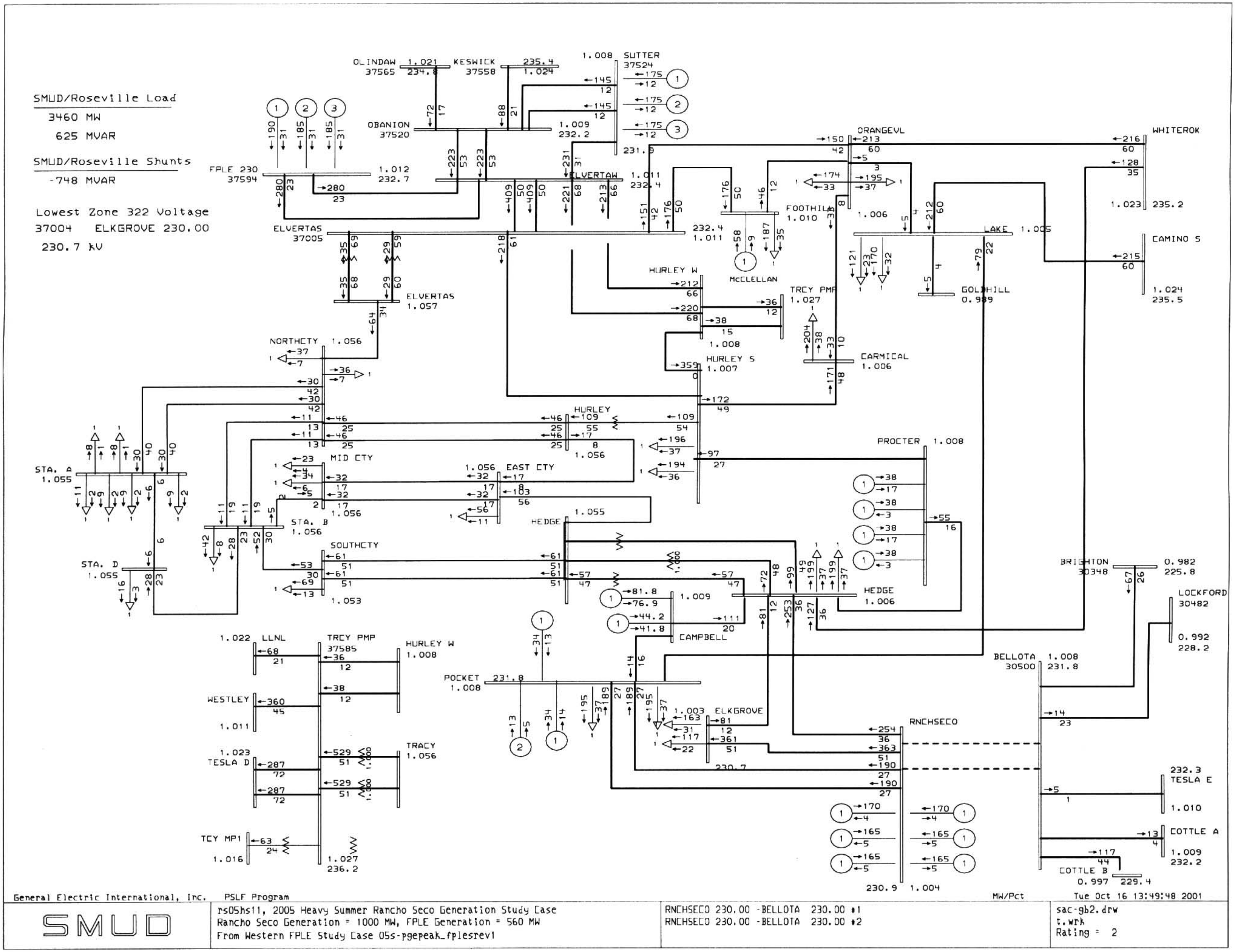
SMUD	rs05hs11, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	POCKET 230.00 -RNCHSECO 230.00 #1 POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2



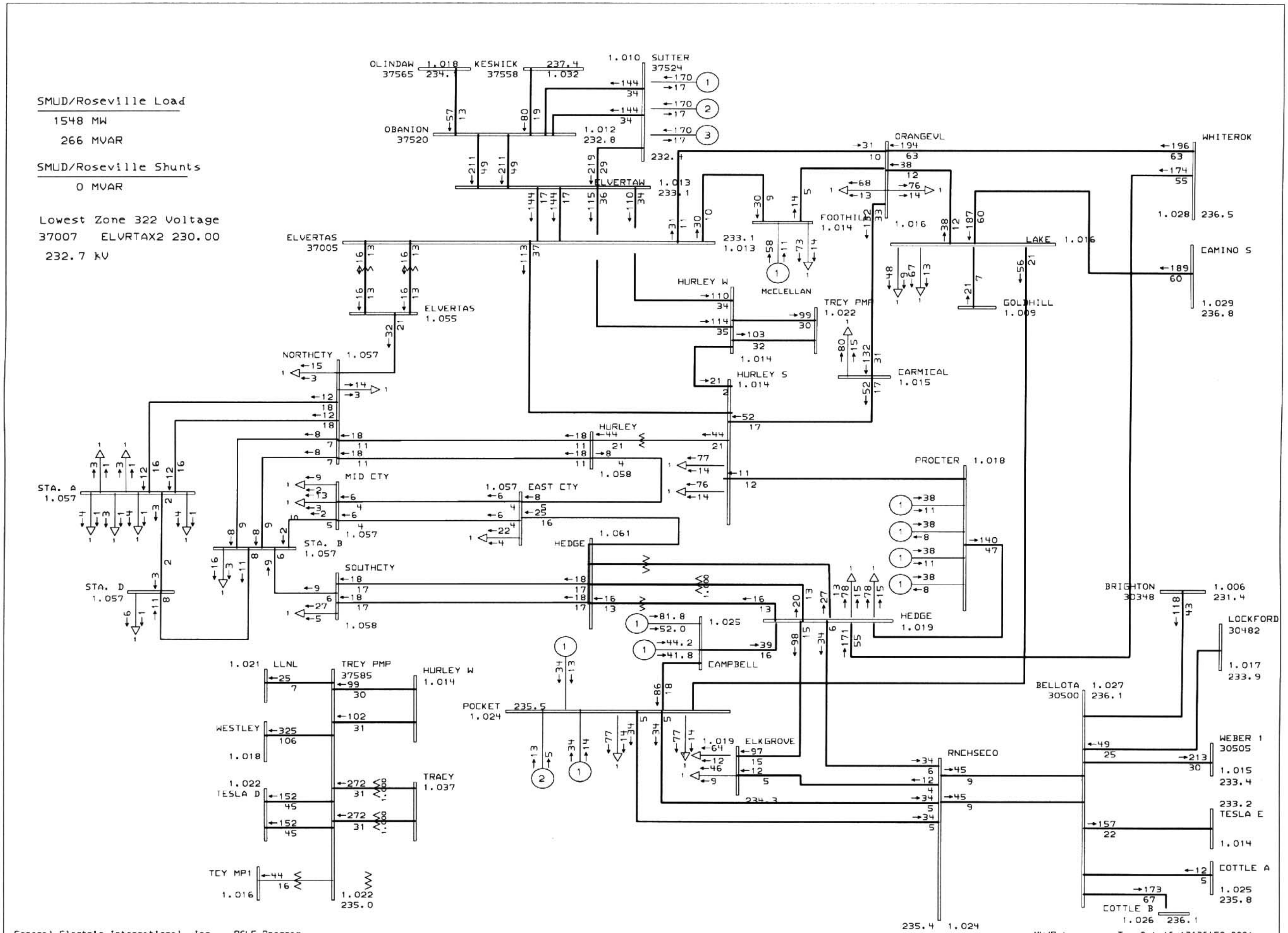
General Electric International, Inc. PSLF Program

SMUD	rs05hs11, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	RNCHSECO 230.00 -BELLOTA 230.00 #1	sac-gb2.drw t.wrk Rating = 2

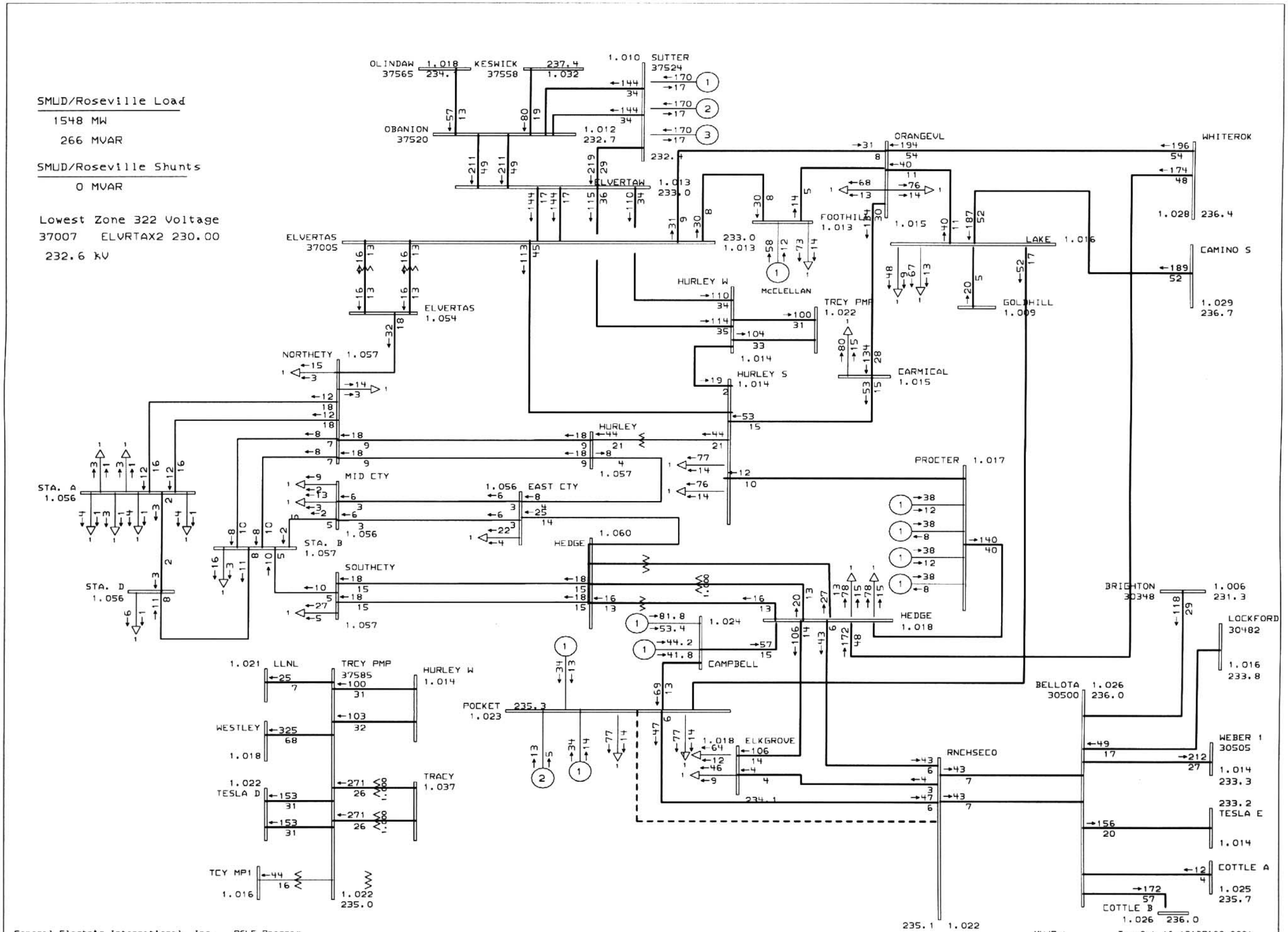
E102001008SAC 10/22/01 dfacile



E102001008SAC 10/22/01 dfacile



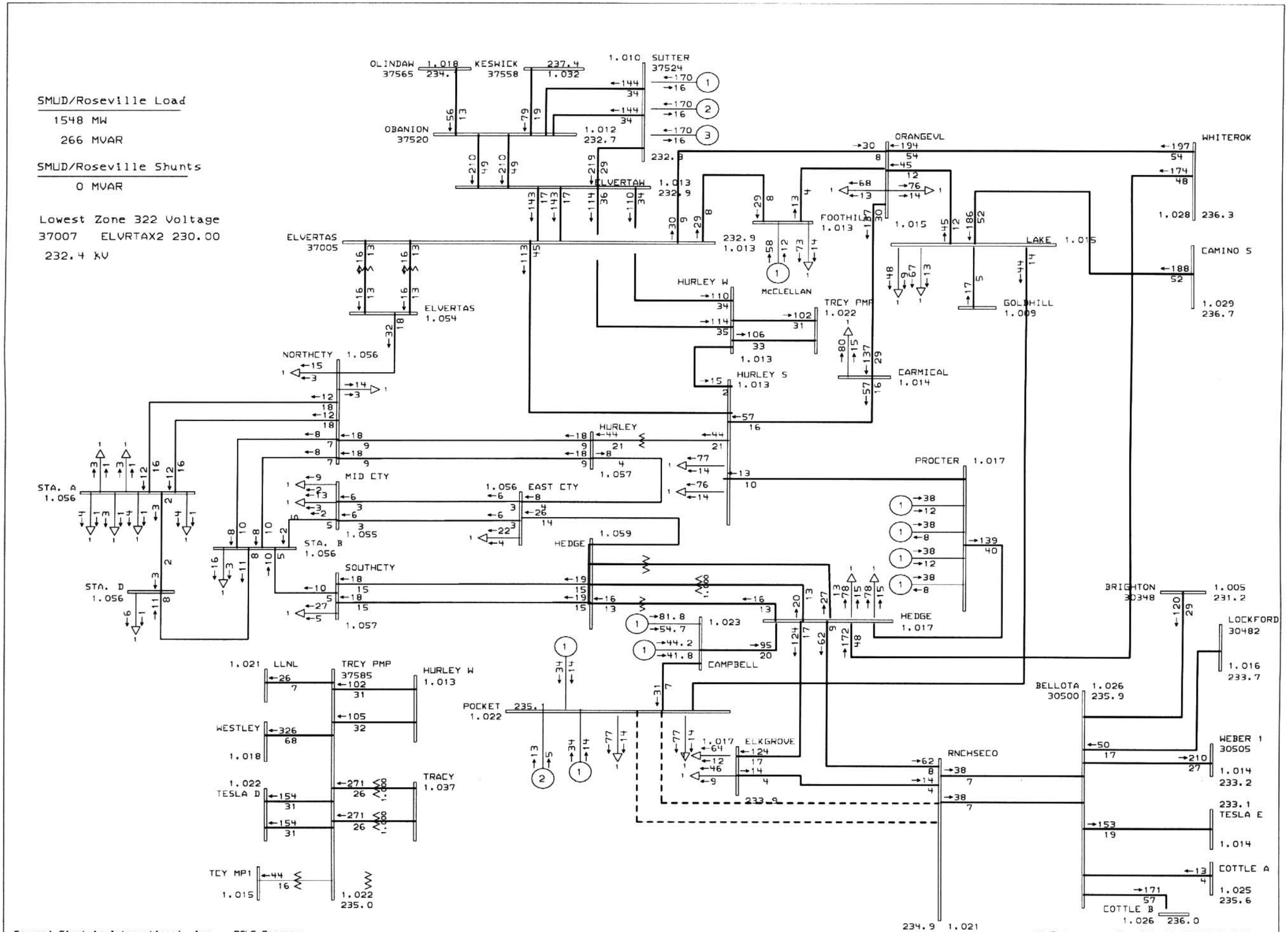
General Electric International, Inc.	PSLF Program		Tue Oct 16 13:36:58 2001
SMUD	rs04sp00, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, No FPLE Generation Plant From Western FPLE Study Case 04sp-fplesrev	BASE CASE	sac-gb2.drw t.wrk Rating = 1



General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 13:37:02 2001

SMUD	rs04sp00, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, No FPLE Generation Plant From Western FPLE Study Case 04sp-fplesrev	POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

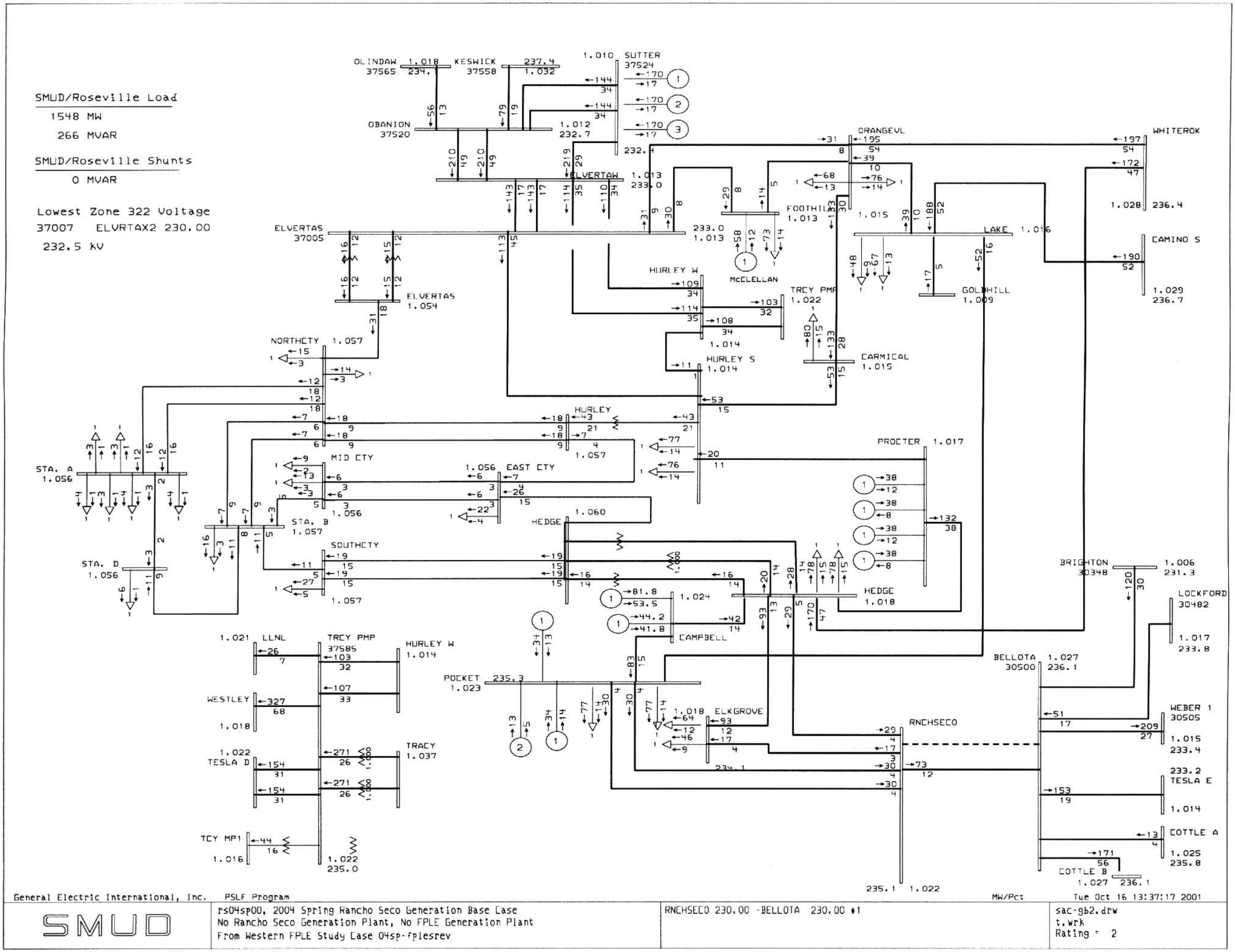
SMUD

rs04sp00, 2004 Spring Rancho Seco Generation Base Case
No Rancho Seco Generation Plant, No FPLE Generation Plant
From Western FPLE Study Case 04sp-fplesrev

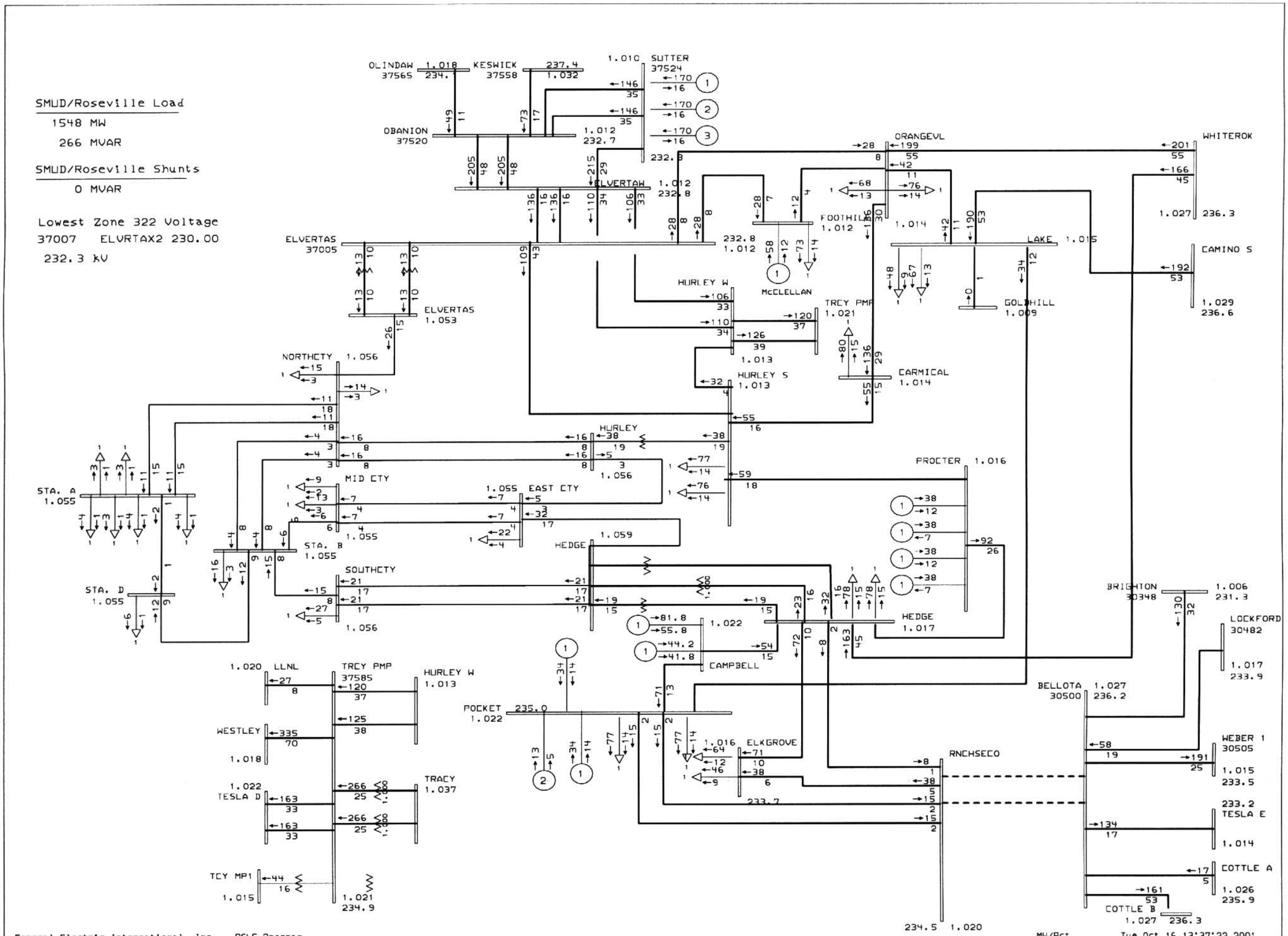
POCKET 230.00 -RNCHSECO 230.00 #1
POCKET 230.00 -RNCHSECO 230.00 #2

Tue Oct 16 13:37:12 2001
sac-gb2.drw
t.wrk
Rating = 2

E102001008SAC 10/22/01 dfacile

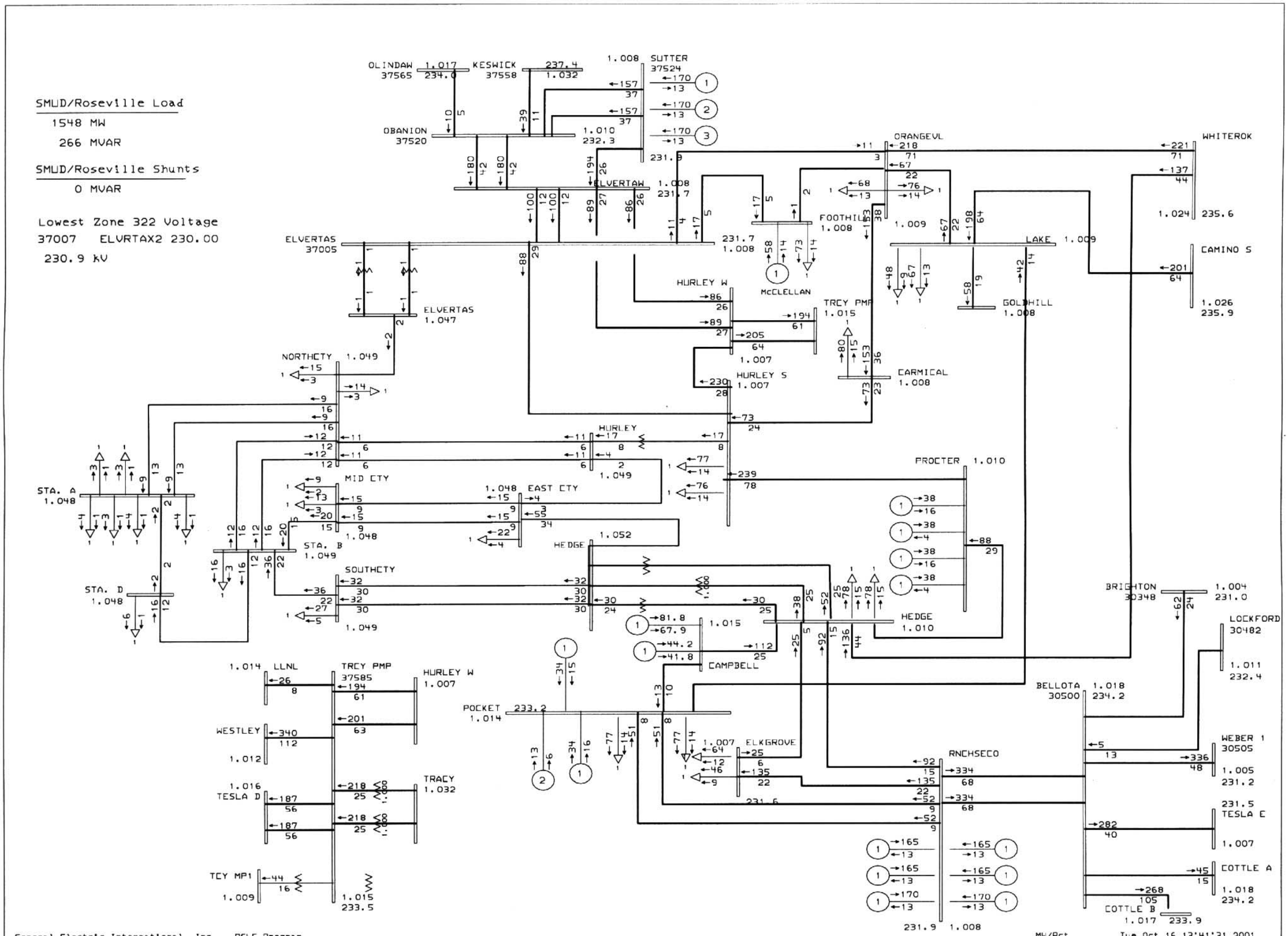


E102001008SAC 10/22/01 dfacile



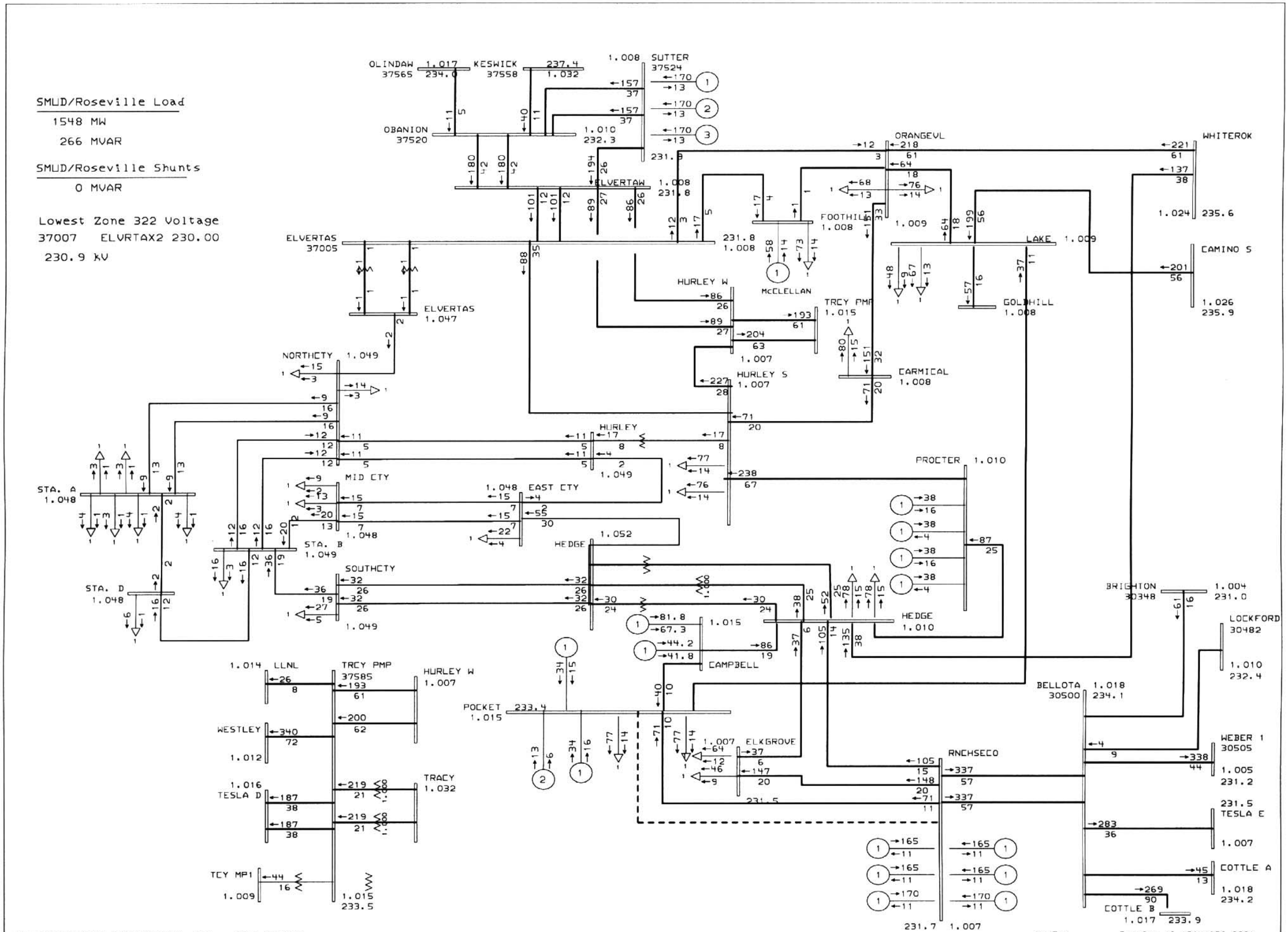
SMUD	rs04sp00, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, No FPLE Generation Plant From Western FPLE Study Case 04sp-fplesrev	RNCHSECO 230.00 -BELLOTA 230.00 #1 RNCHSECO 230.00 -BELLOTA 230.00 #2	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program Tue Oct 16 13:41:31 2001

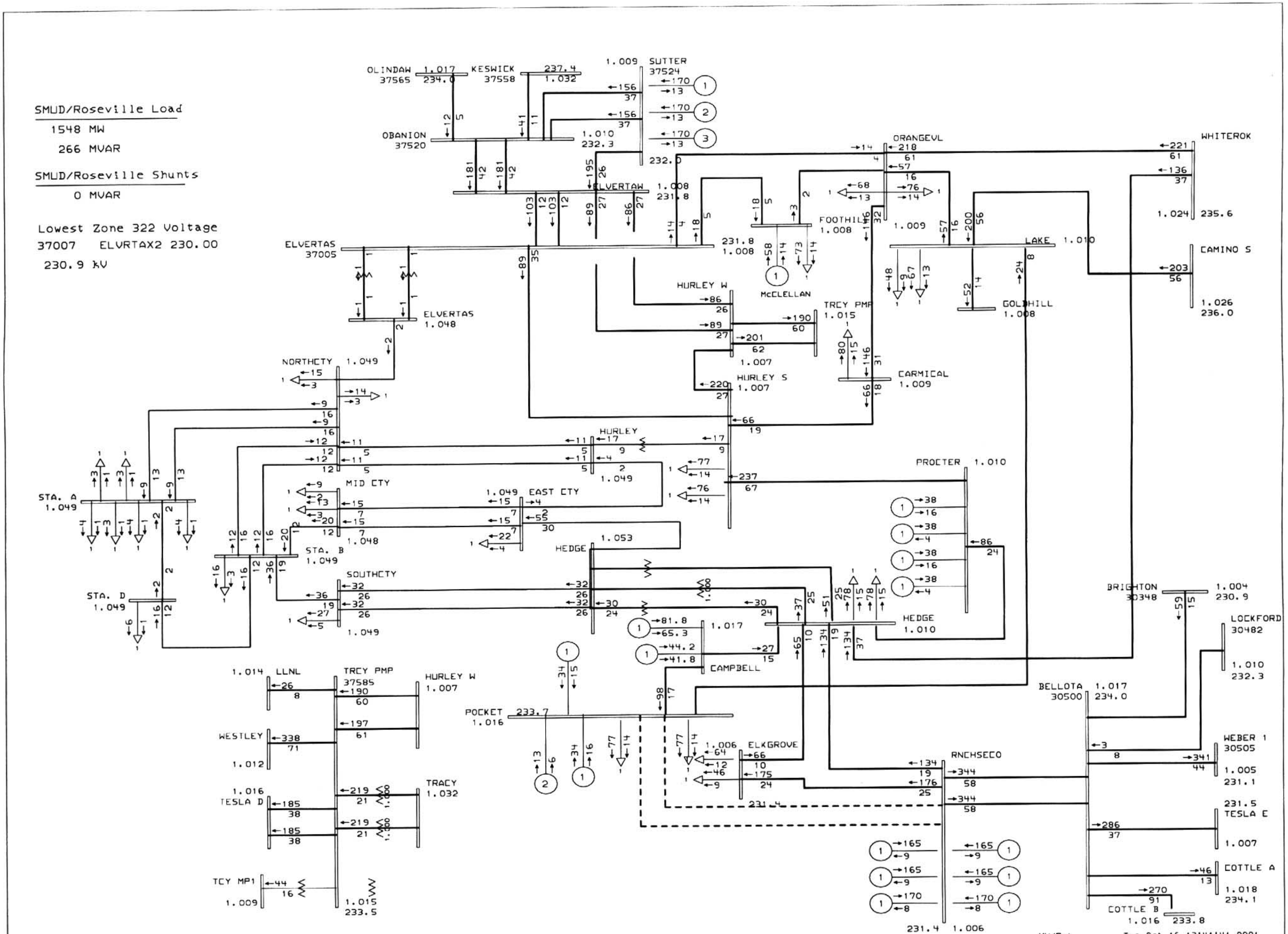
SMUD	rs04sp10, 2004 Spring Rancho Seco Generation Base Case 1000 MW Rancho Seco Generation, No FPLE Generation Plant From Western FPLE Study Case 04sp-fplesrev	BASE CASE	sac-gb2.drw t.wrk Rating = 1



General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 13:41:36 2001

SMUD	rs04sp10, 2004 Spring Rancho Seco Generation Base Case 1000 MW Rancho Seco Generation, No FPLE Generation Plant From Western FPLE Study Case 04sp-fplesrev	POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

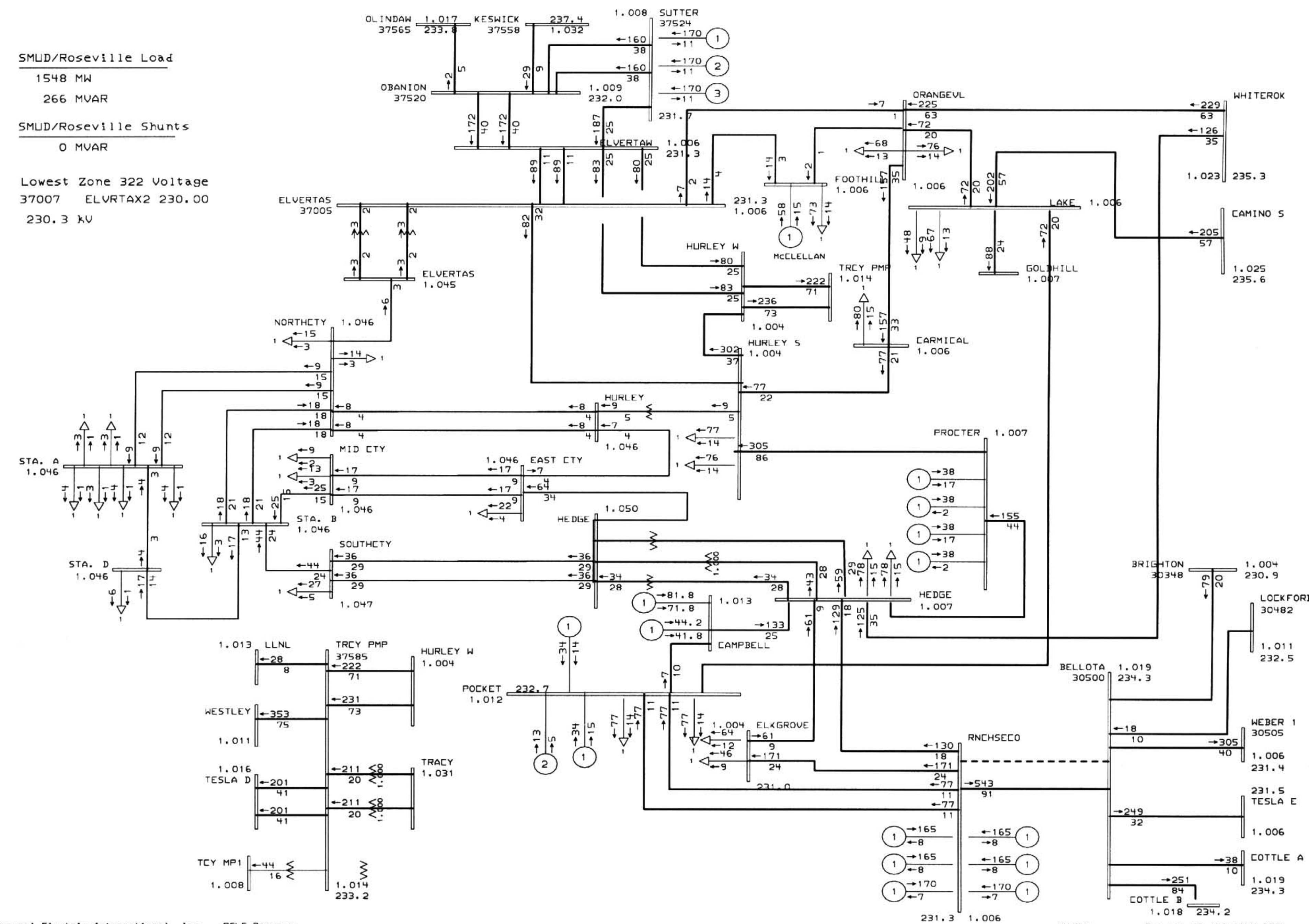
SMUD

rs04sp10, 2004 Spring Rancho Seco Generation Base Case
1000 MW Rancho Seco Generation, No FPLE Generation Plant
From Western FPLE Study Case 04sp-fplesrev

POCKET 230.00 -RNCHSECO 230.00 #1
POCKET 230.00 -RNCHSECO 230.00 #2

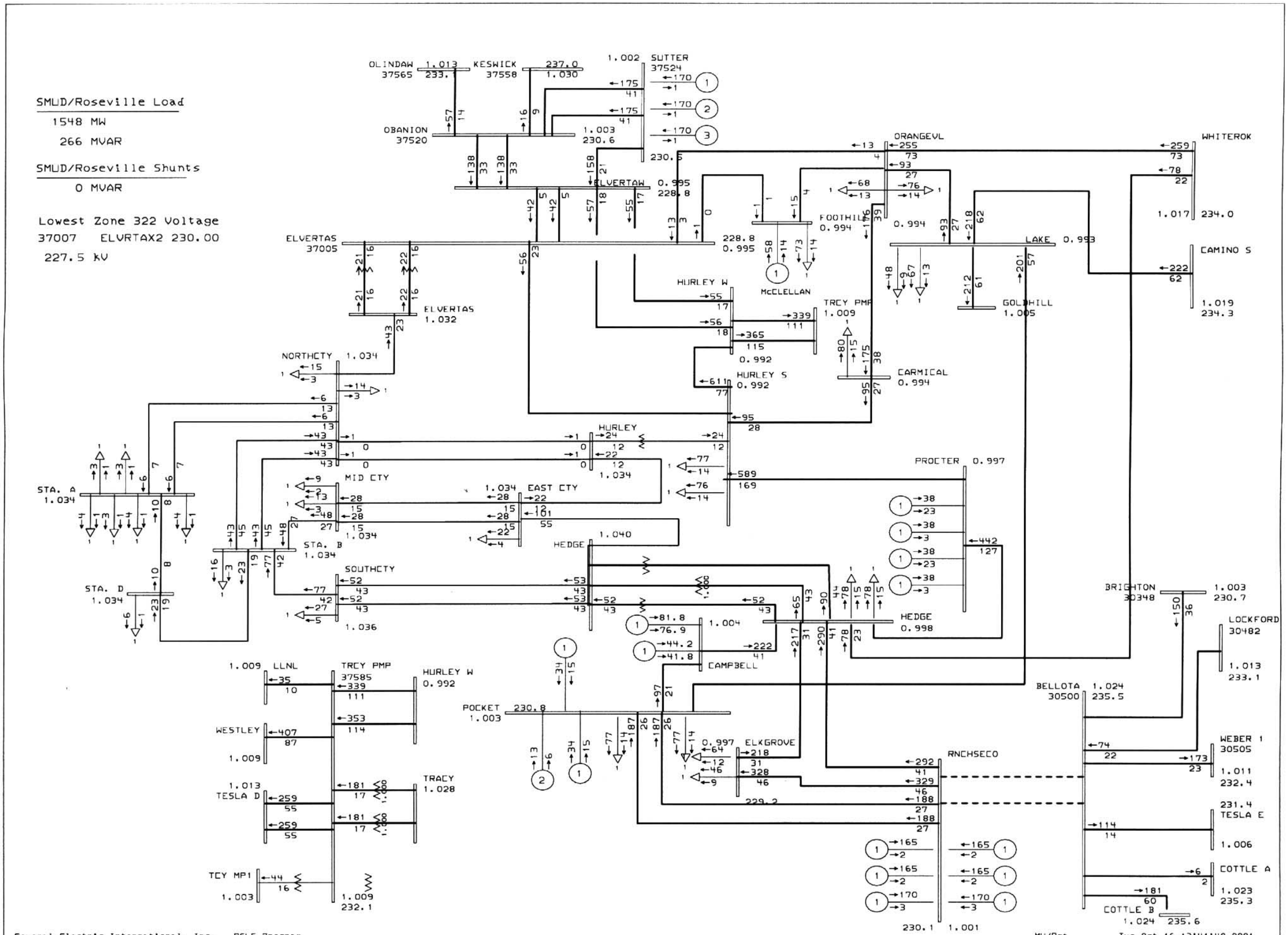
sac-gb2.drw
t.wrk
Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc.	PSLF Program		Tue Oct 16 13:41:45 2001
SMUD	rs04sp10, 2004 Spring Rancho Seco Generation Base Case 1000 MW Rancho Seco Generation, No FPLE Generation Plant From Western FPLE Study Case 04sp-fplesrev	RNCHSECO 230.00 -BELLOTA 230.00 #1	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

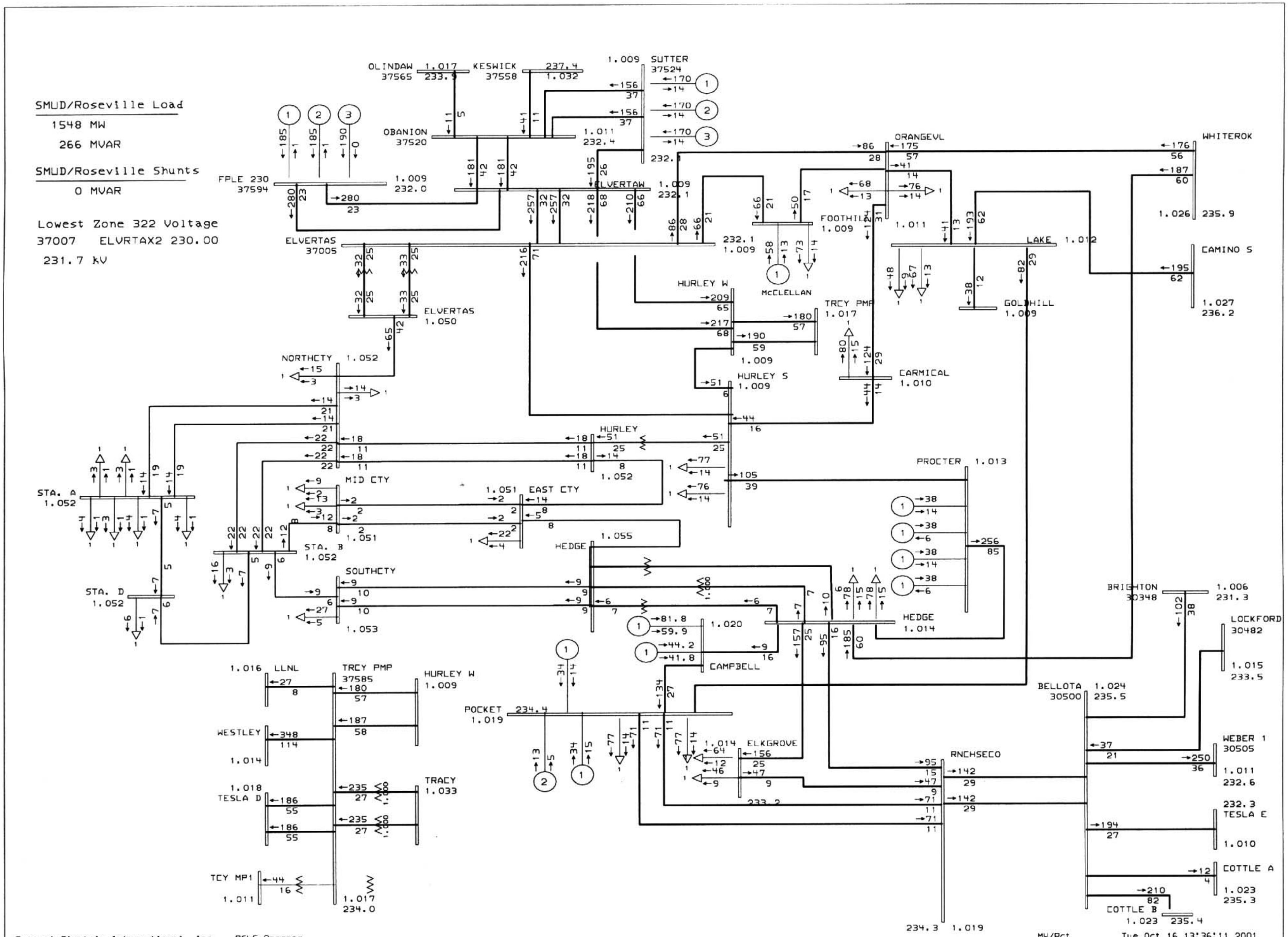
SMUD

rs04sp10, 2004 Spring Rancho Seco Generation Base Case
1000 MW Rancho Seco Generation, No FPLE Generation Plant
From Western FPLE Study Case 04sp-fplesrev

RNCHSECO 230.00 -BELLOTA 230.00 #1
RNCHSECO 230.00 -BELLOTA 230.00 #2

Tue Oct 16 13:41:49 2001
sac-gb2.drw
t.wrk
Rating = 2

E102001008SAC 10/22/01 dfacile



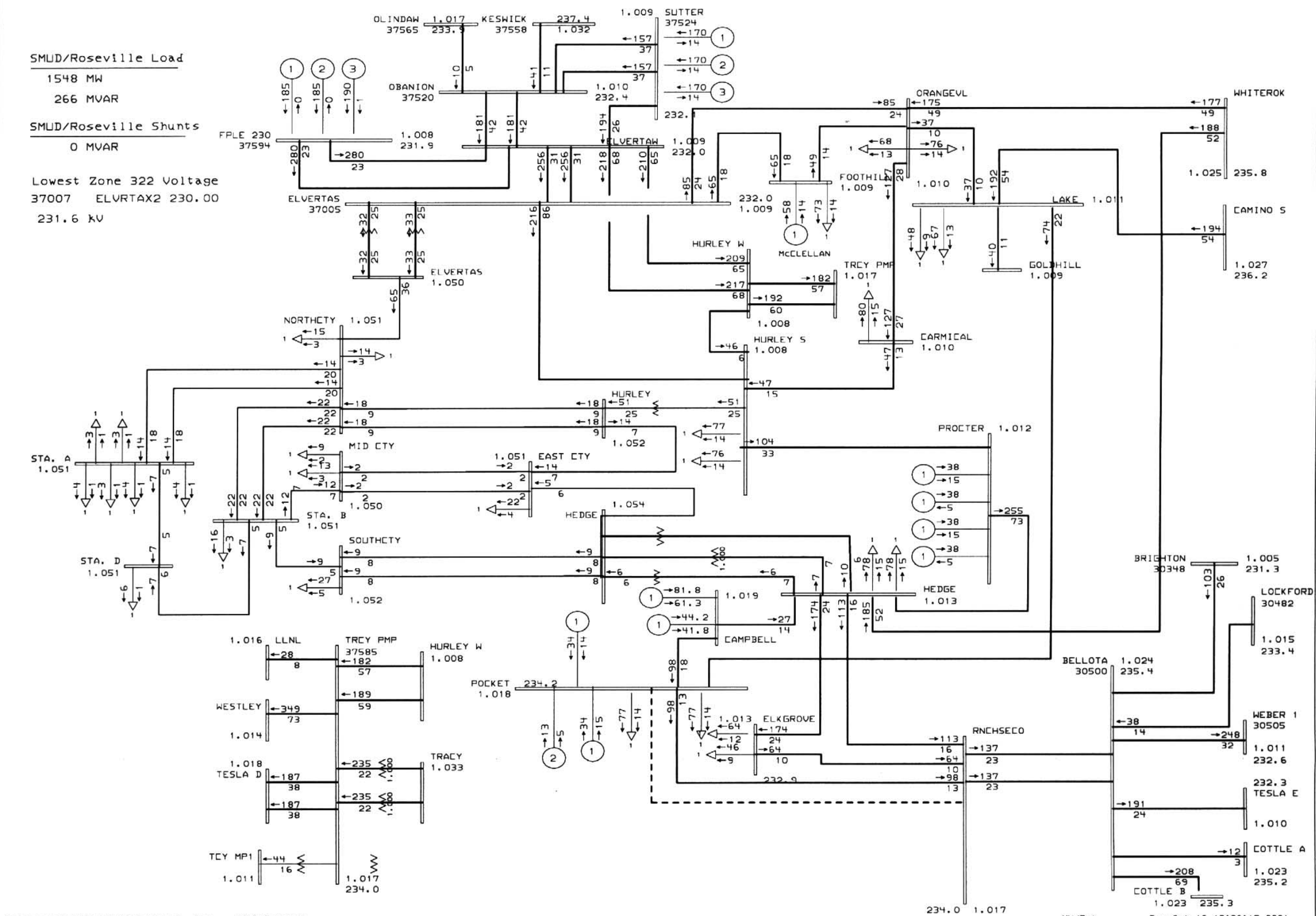
General Electric International, Inc. PSLF Program

SMUD

rs04sp01, 2004 Spring Rancho Seco Generation Base Case
No Rancho Seco Generation Plant, FPLE Generation at 560 MW
From Western FPLE Study Case 04sp-fplesrev

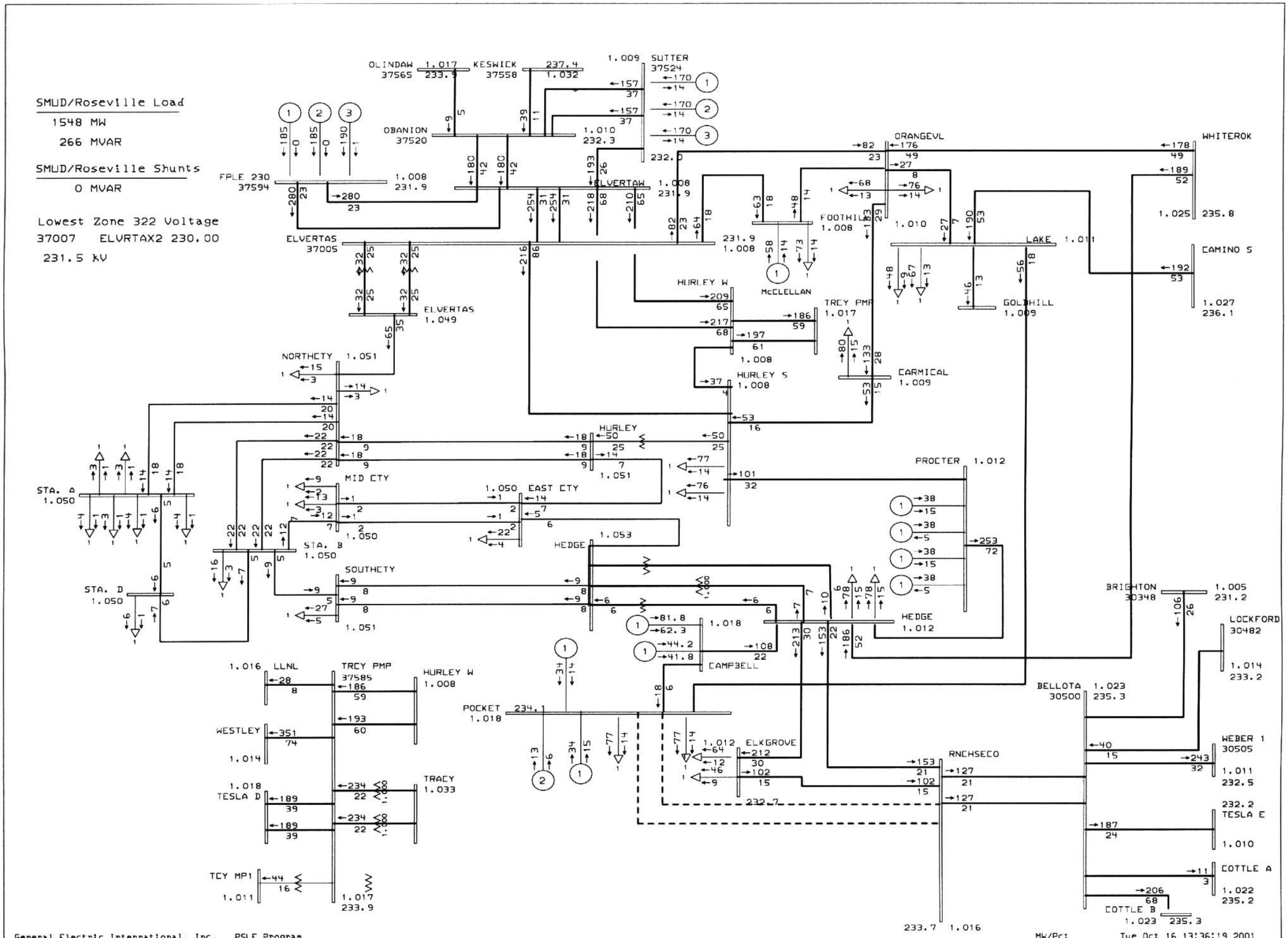
BASE CASE

sac-gb2.drw
t.wrk
Rating = 1



General Electric International, Inc. PSLF Program			Tue Oct 16 13:36:15 2001
SMUD	rs04sp01, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

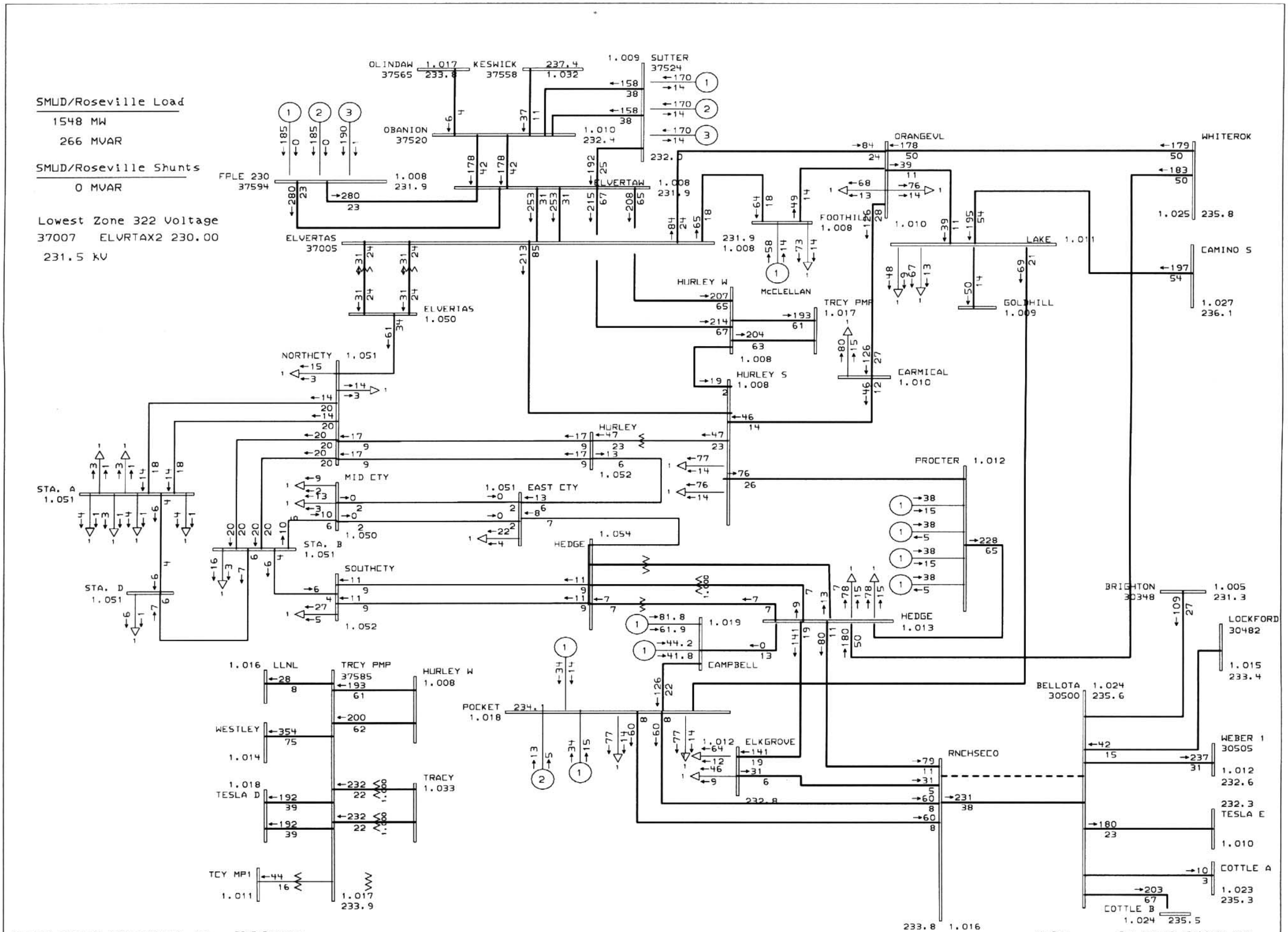
E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program

SMUD	rs04sp01, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	POCKET 230.00 -RNCHSECO 230.00 #1 POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile

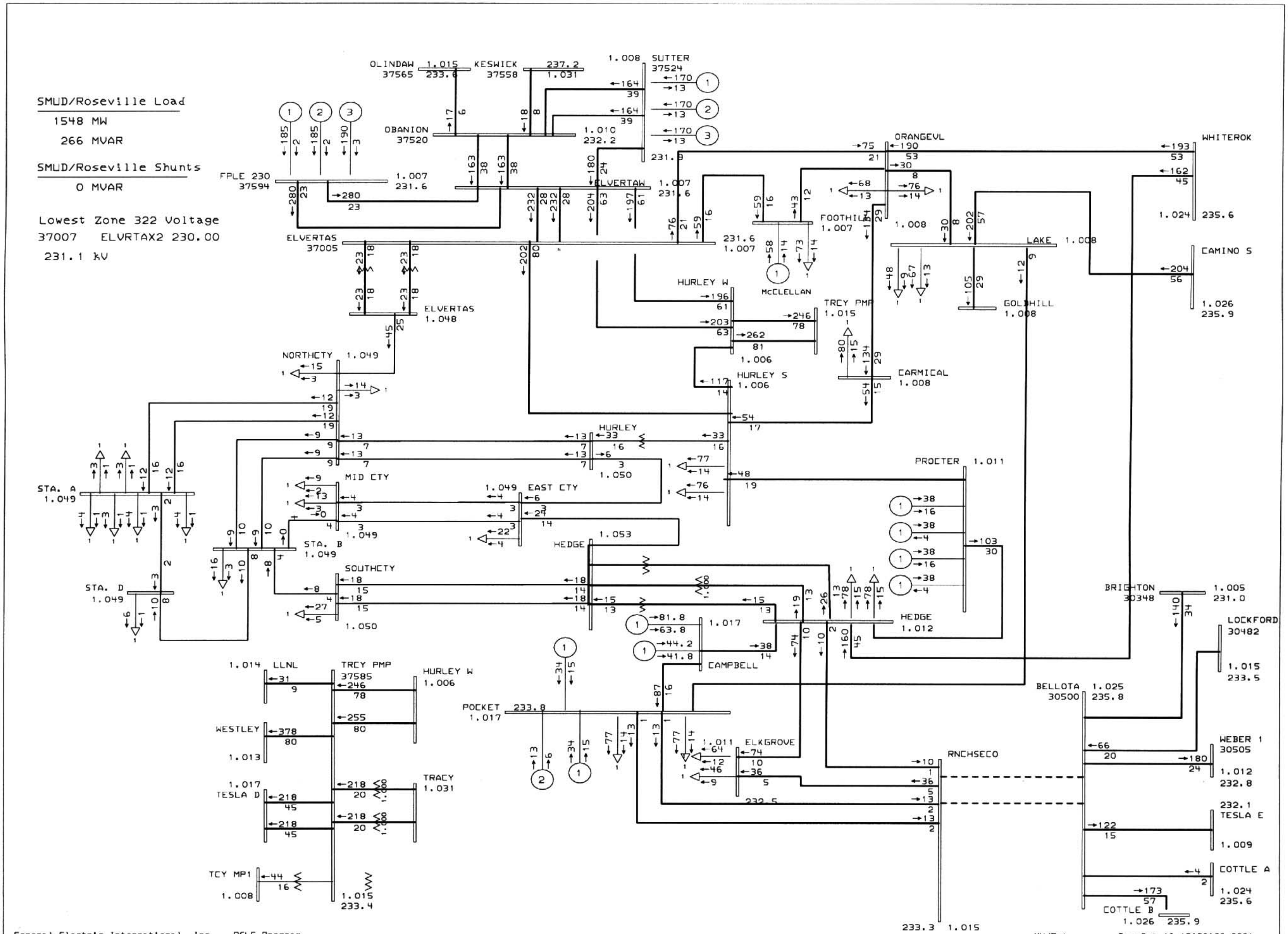


General Electric International, Inc. PSLF Program

MW/Pct Tue Oct 16 13:36:22 2001

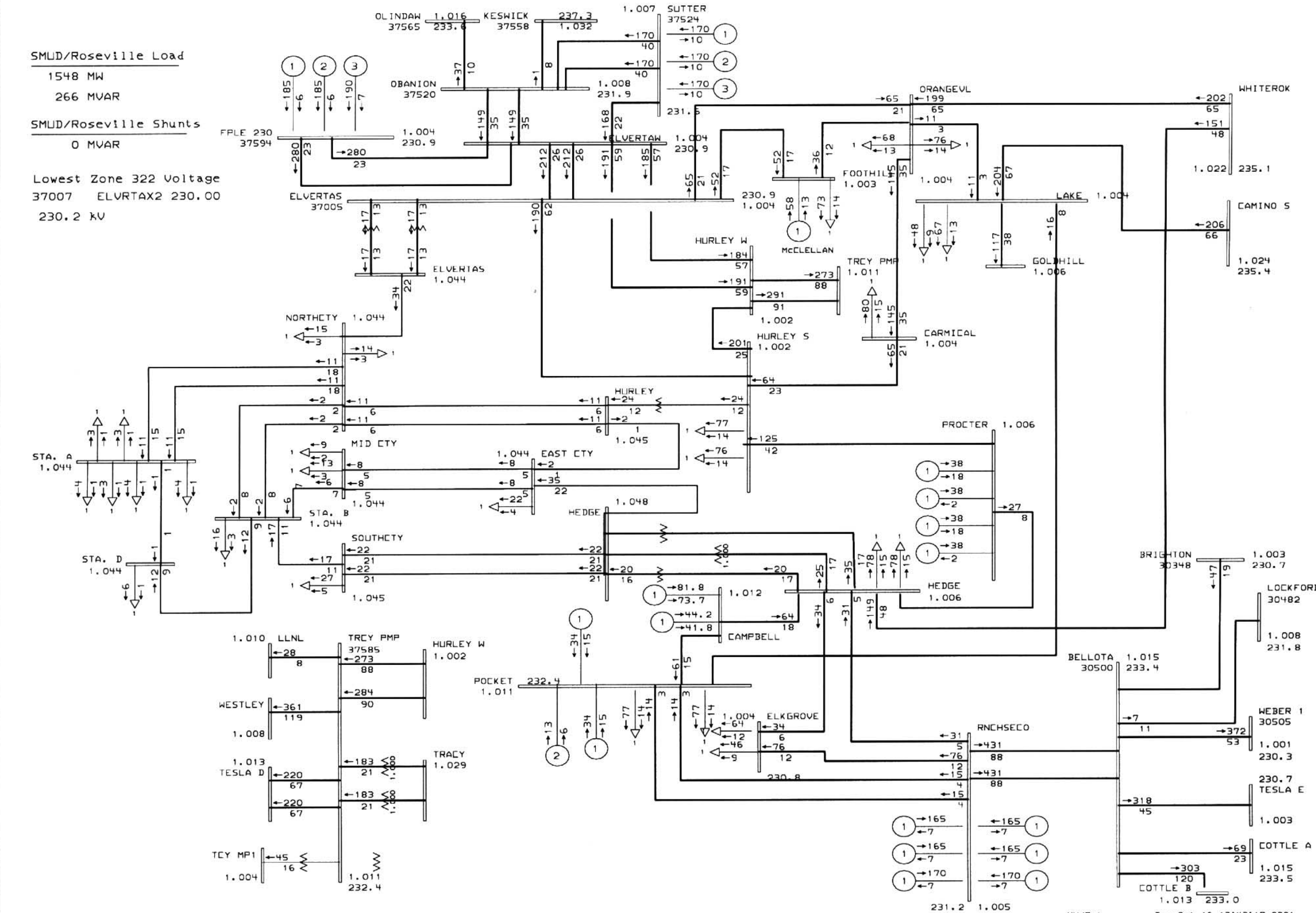
SMUD	rs04sp01, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	RNCHSECO 230.00 - BELLOTA 230.00 #1	sac-gb2.drw t.wrk Rating = 2

E102001008SAC 10/22/01 dfacile



General Electric International, Inc. PSLF Program — Tue Oct 16 13:36:26 2001

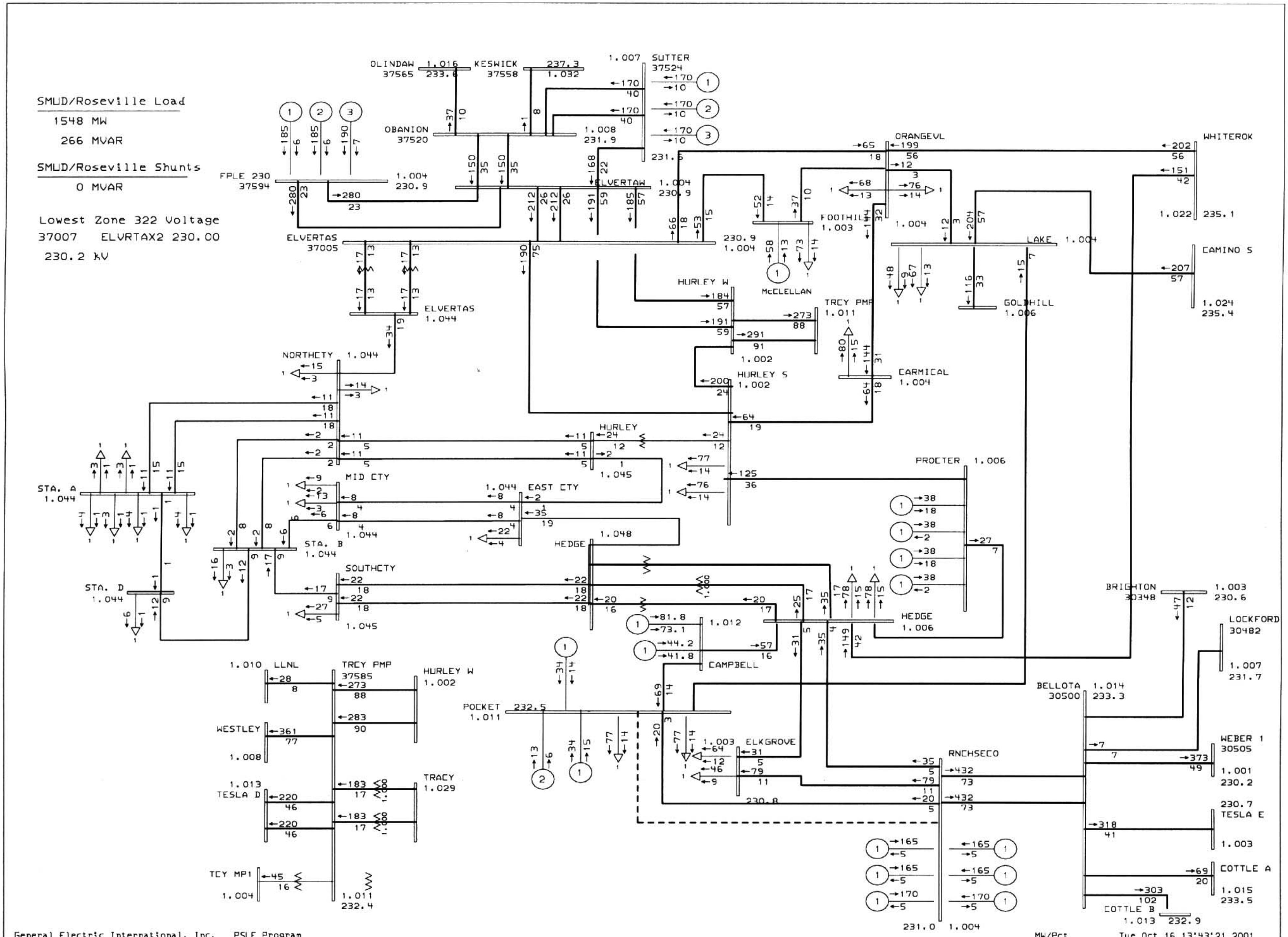
SMUD	rs04sp01, 2004 Spring Rancho Seco Generation Base Case No Rancho Seco Generation Plant, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	RNCHSECO 230.00 -BELLOTA 230.00 #1 RNCHSECO 230.00 -BELLOTA 230.00 #2	sac-gb2.drw t.wrk Rating = 2



General Electric International, Inc. PSLF Program

Tue Oct 16 13:43:17 2001

SMUD	rs04sp11, 2004 Spring Rancho Seco Generation Base Case 1000 MW Rancho Seco Generation, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	BASE CASE	sac-gb2.drw t.wrk Rating = 1



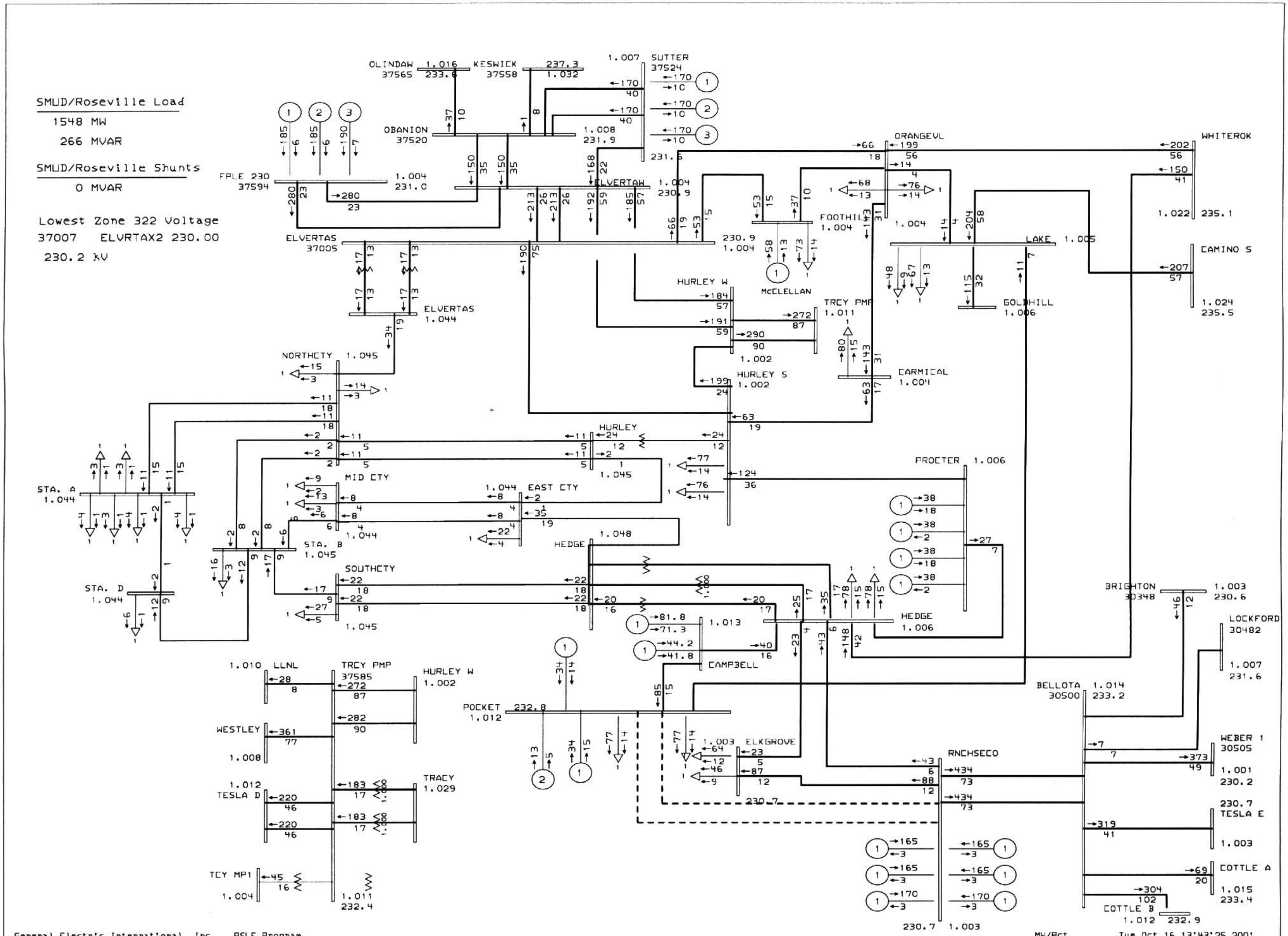
General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 13:43:21 2001

SMUD

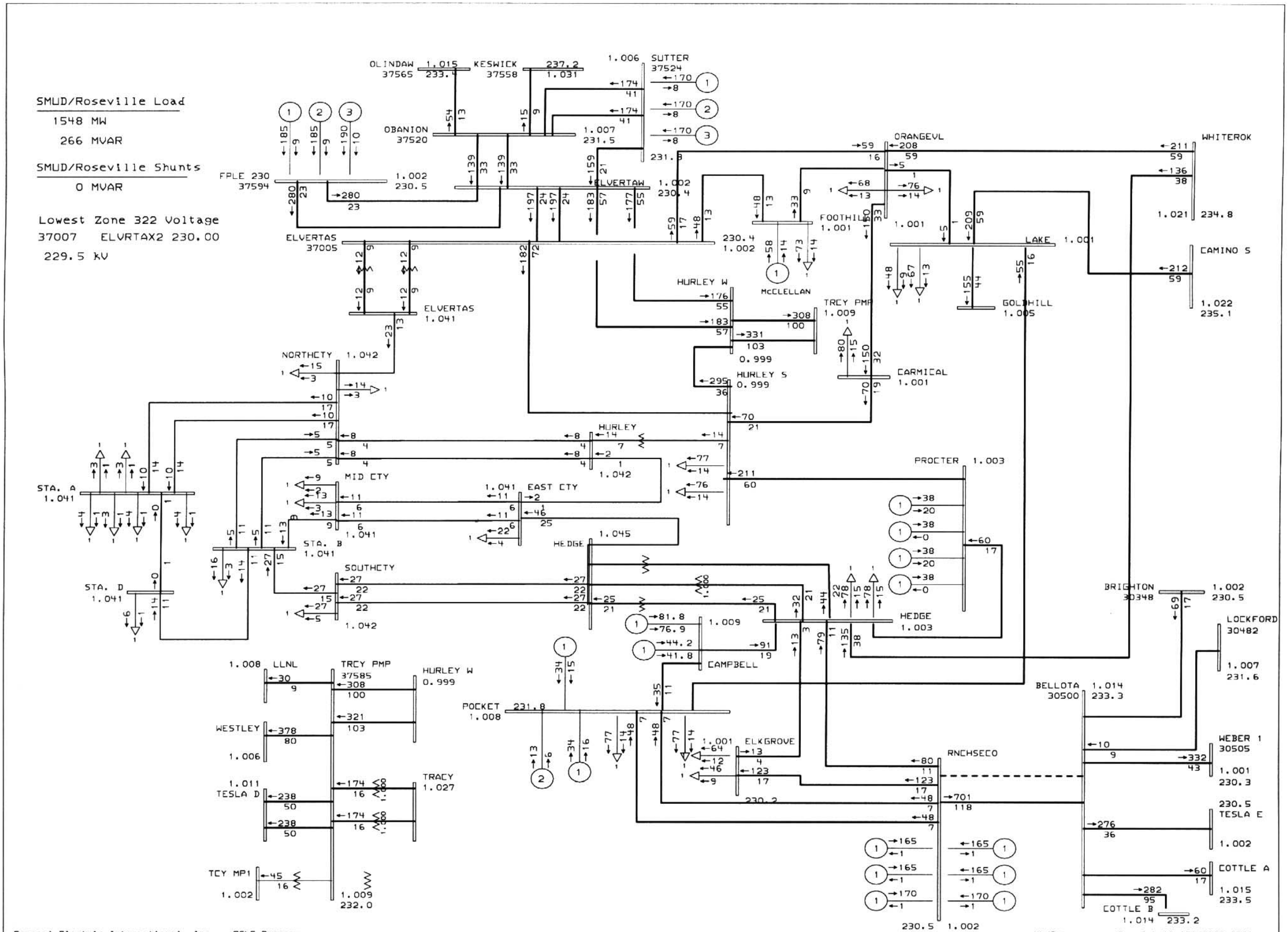
rs04sp11, 2004 Spring Rancho Seco Generation Base Case
1000 MW Rancho Seco Generation, FPLE Generation at 560 MW
From Western FPLE Study Case 04sp-fplesrev

POCKET 230.00 -RNCHSECO 230.00 #2

sac-gb2.drw
t.wrk
Rating = 2

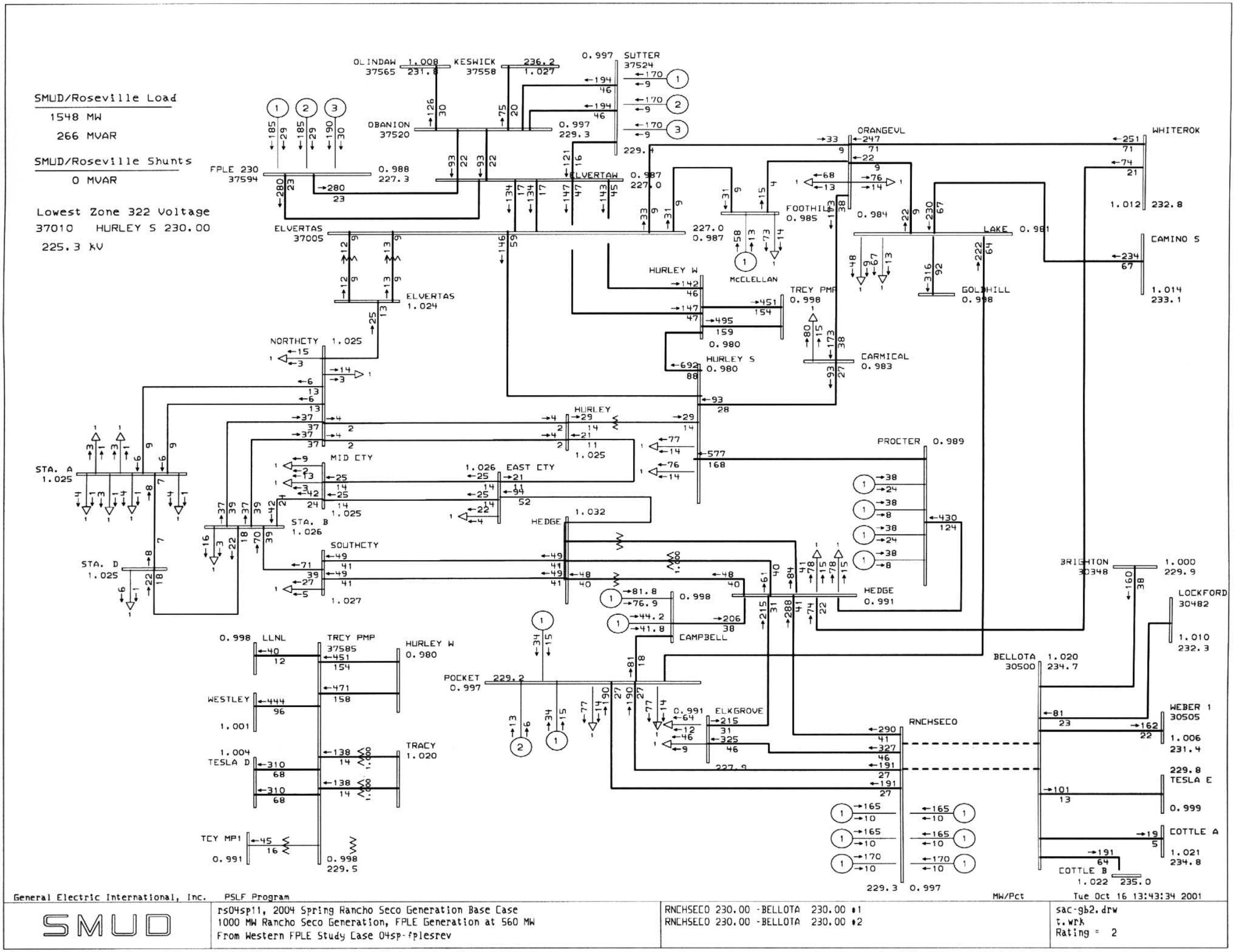


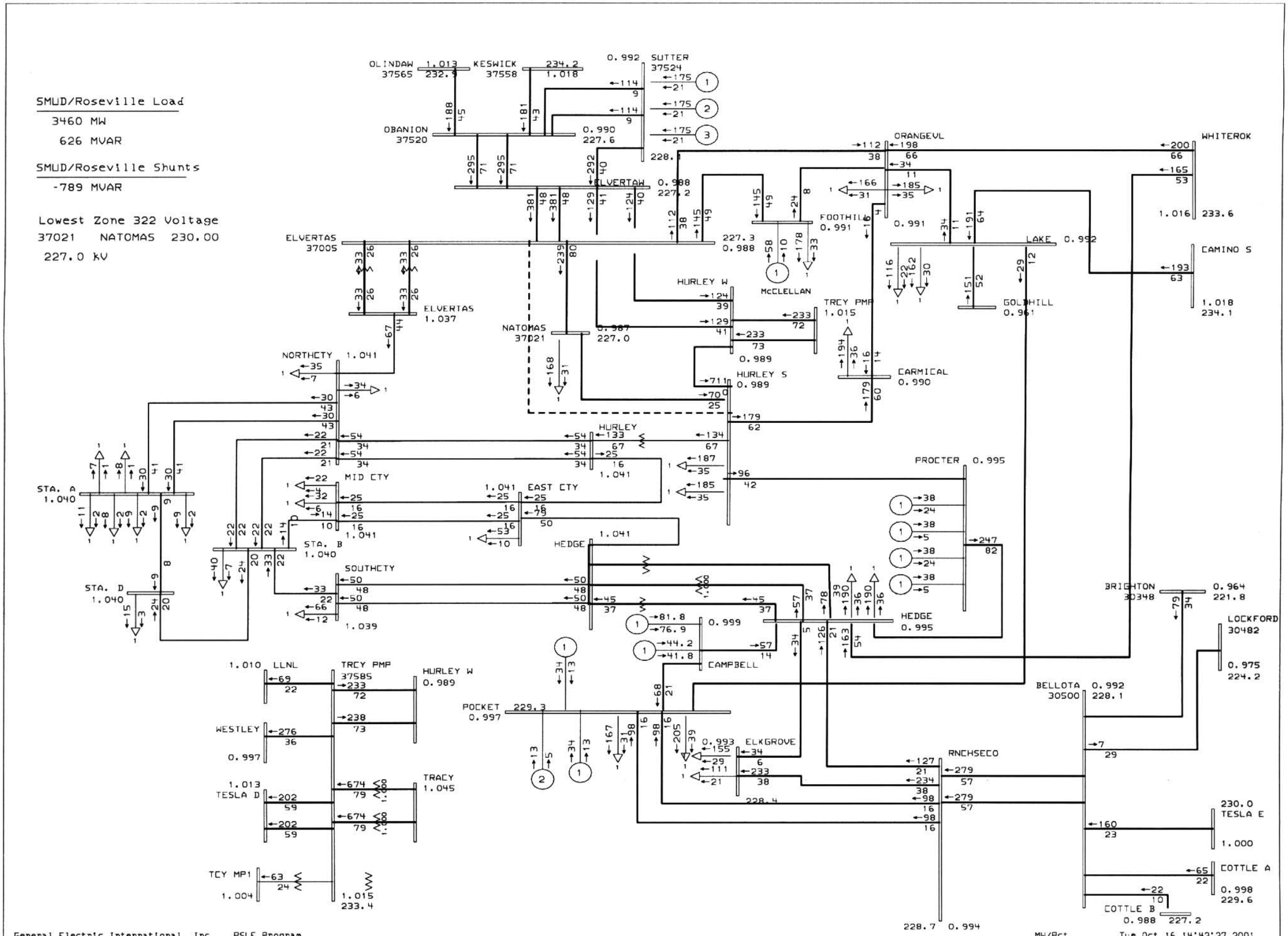
General Electric International, Inc. PSLF Program		Tue Oct 16 13:43:25 2001
SMUD	rs04sp11, 2004 Spring Rancho Seco Generation Base Case 1000 MW Rancho Seco Generation, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	POCKET 230.00 -RNCHSECO 230.00 #1 POCKET 230.00 -RNCHSECO 230.00 #2	sac-gb2.drw t.wrk Rating = 2



General Electric International, Inc.	PSLF Program		MW/Pct Tue Oct 16 13:43:29 2001
SMUD	rs04sp11, 2004 Spring Rancho Seco Generation Base Case 1000 MW Rancho Seco Generation, FPLE Generation at 560 MW From Western FPLE Study Case 04sp-fplesrev	RNCHSECO 230.00 -BELLOTA 230.00 #1	sac-gb2.drw t.wrk Rating = 2

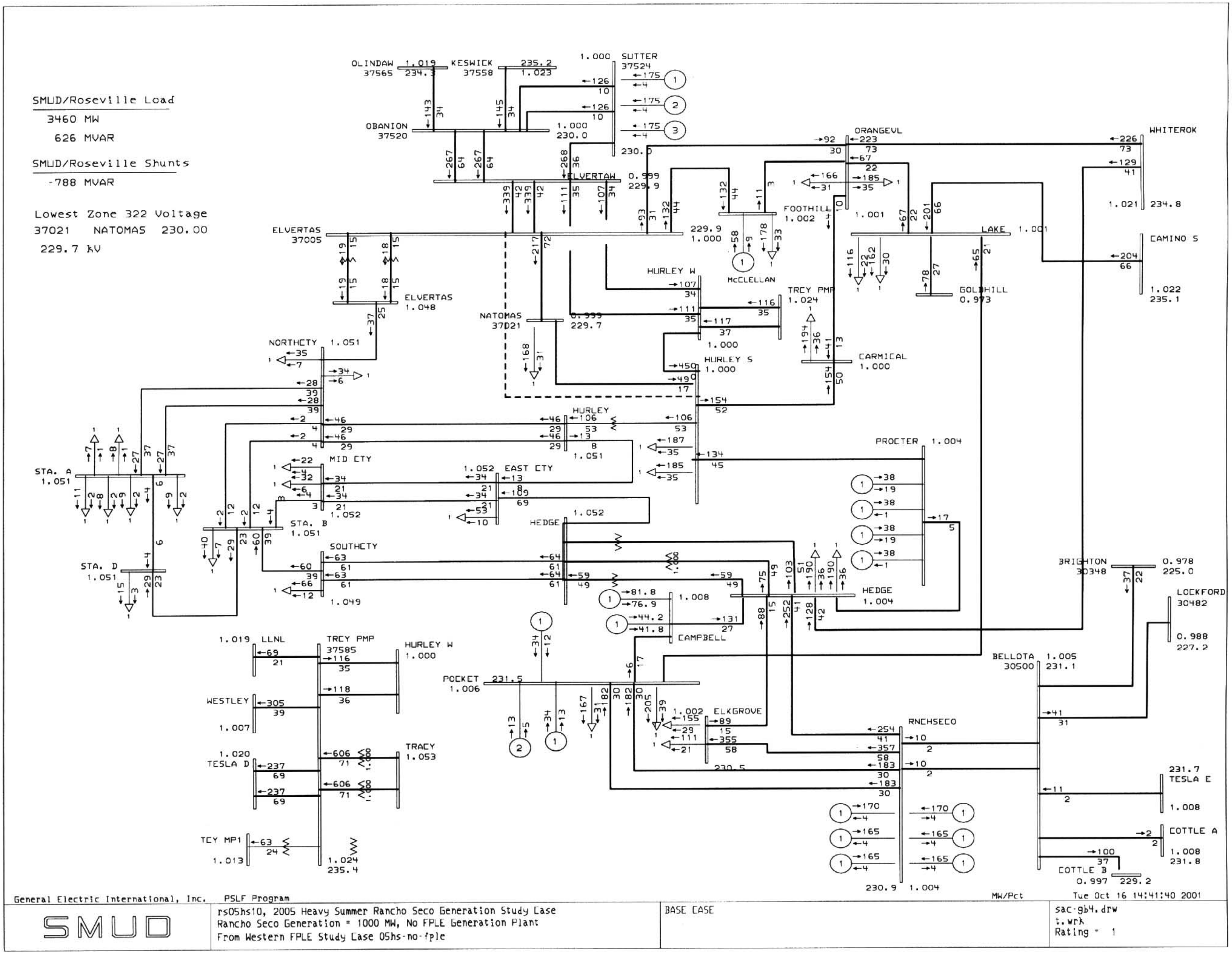
E102001008SAC 10/22/01 dfacile


SMUD/Roseville Load
1548 MW
266 MVAR
SMUD/Roseville Shunts
0 MVAR
Lowest Zone 322 Voltage
37010 HURLEY S 230.00
225.3 kV
General Electric International, Inc. PSLF Program
SMUD
rs04sp11, 2004 Spring Rancho Seco Generation Base Case
1000 MW Rancho Seco Generation, FPLE Generation at 560 MW
From Western FPLE Study Case 04sp-fplesrev
RNCHSECO 230.00 -BELLOTA 230.00 #1
RNCHSECO 230.00 -BELLOTA 230.00 #2
MW/Pct
Tue Oct 16 13:43:34 2001
sac-gb2.drw
t.wrk
Rating = 2

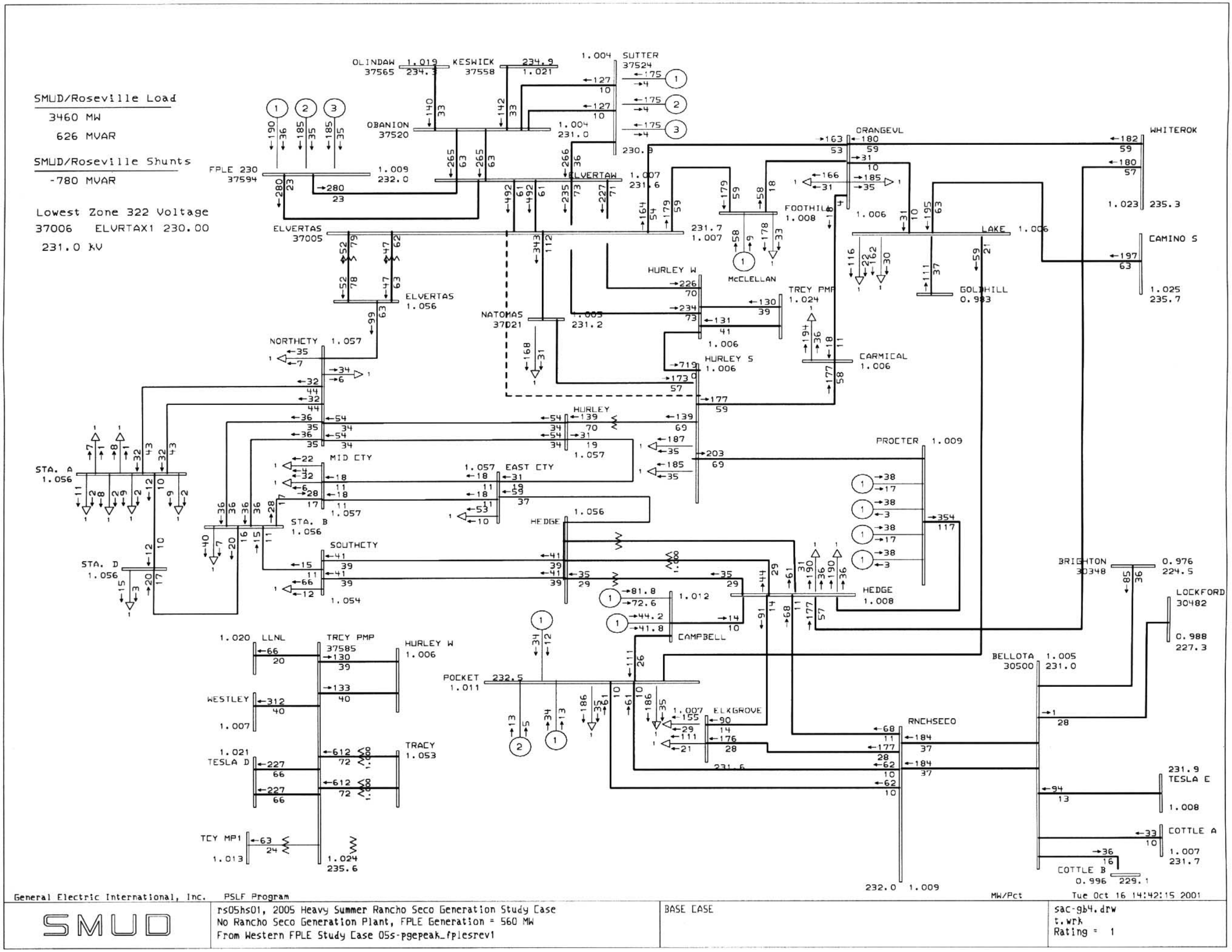


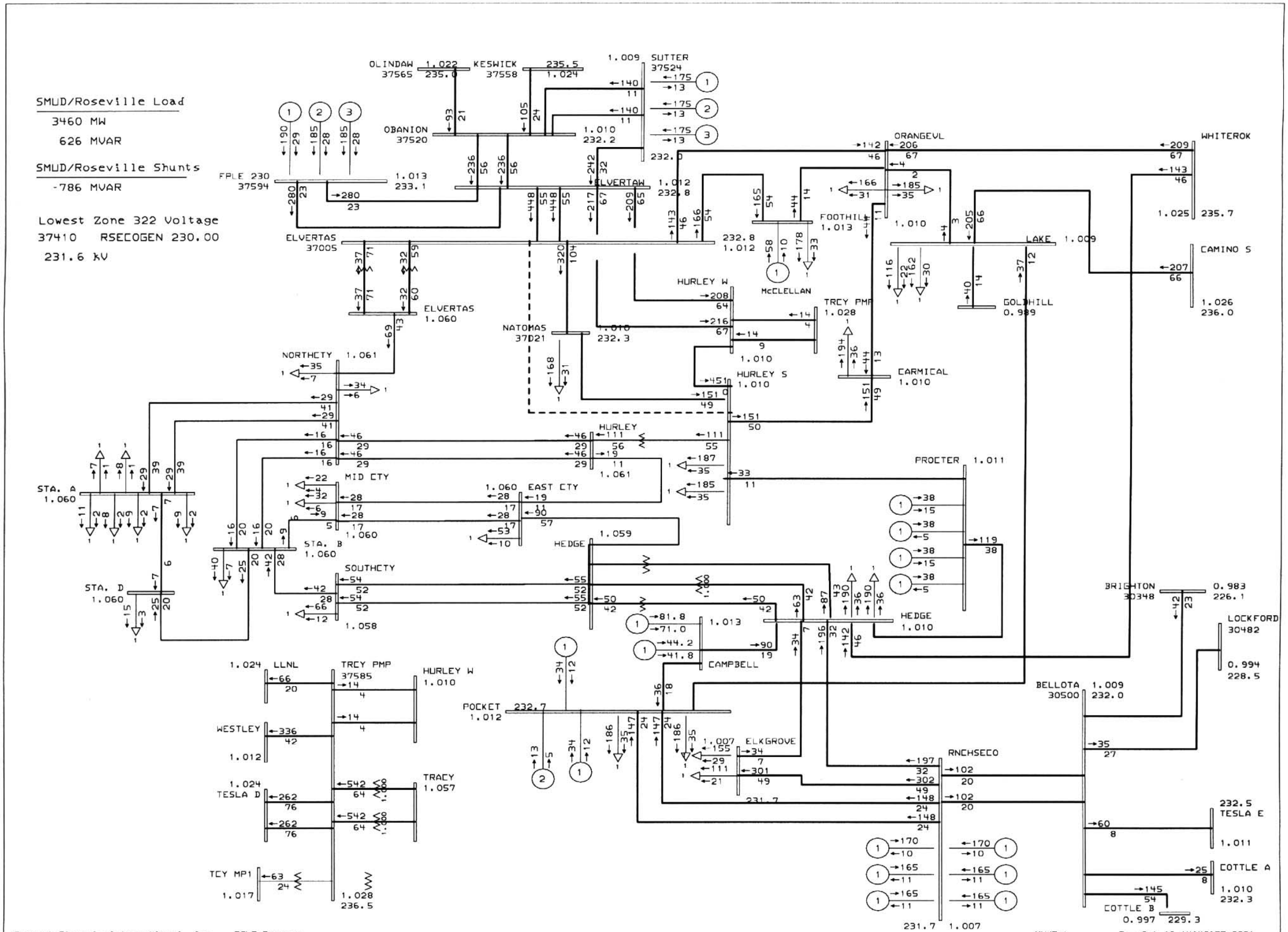
SMUD	rs05hs00, 2005 Heavy Summer Rancho Seco Generation Study Case No Rancho Seco Generation Plant, No FPLE Generation Plant From Western FPLE Study Case 05hs-no-fple	BASE CASE	sac-gb4.drw t.wrk Rating = 1

E102001008SAC 10/22/01 dfacile



E102001008SAC 10/22/01 dfacile


SMUD/Roseville Load
3460 MW
626 MVAR
SMUD/Roseville Shunts
-780 MVAR
Lowest Zone 322 Voltage
37006 ELVRTAX1 230.00
231.0 kV
General Electric International, Inc. PSLF Program
MW/Pct
Tue Oct 16 14:42:15 2001
SMUD
rs05hs01, 2005 Heavy Summer Rancho Seco Generation Study Case
No Rancho Seco Generation Plant, FPLE Generation = 560 MW
From Western FPLE Study Case 05s-pgepeak_fplesrev1
BASE CASE
sac-gb4.drw
t.wrk
Rating = 1



General Electric International, Inc. PSLF Program MW/Pct Tue Oct 16 14:40:57 2001

SMUD	rs05hs11, 2005 Heavy Summer Rancho Seco Generation Study Case Rancho Seco Generation = 1000 MW, FPLE Generation = 560 MW From Western FPLE Study Case 05s-pgepeak_fplesrev1	BASE CASE	sac-gb4.drw t.wrk Rating = 1