APPENDIX B:
Engineering Analysis Report



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Fairview Developmental Center

2501 Harbor Blvd

ENGINEERING ANALYSIS REPORT

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SOUTHERN CALIFORNIA
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BACKGROUND

Fairview Developmental Center submitted a request to analyze capacity for the proposed project and necessary upgrades (if any) required to serve the requested 40668 kVA of load by 1/1/2030. The project is located at 2501 Harbor Blvd in the city of Costa Mesa.

The customer provided electrical load projections shown in Table 1:

Table 1- Proposed Total Load Ramp – 40668 kVA

PROJECT: FUS022
LOCATION: COSTA MESA, CA

WITH EV																
	PHASE 1				PHASE 2				PHASE 3				PHASE 4			
	# OF UNITS	KW	KVA	AMPS	# OF UNITS	KW	KVA	AMPS	# OF UNITS	KW	KVA	AMPS	# OF UNITS	KW	KVA	AMPS
CONDOMINIUM / MULTI FAMILY APARTMENTS - 900 SQ.FT.	1060	9646.0	10717.8	29771.6	765	6961.5	7735.0	21486.1	500	4550.0	5055.6	14043.2	111	1010.1	1122.3	3117.6
SENIOR AFFORDABLE / PERMANENT SUPPORTIVE - 550 SQ. FT.	100	900.0	1000.0	2777.8	100	900.0	1000.0	2777.8	100	900.0	1000.0	2777.8	100	900.0	1000.0	2777.8
CONDOMINIUM / MULTI FAMILY APARTMENTS - 1200 SQ.FT.	135	1242.0	1380.0	3833.3	135	1242.0	1380.0	3833.3	135	1242.0	1380.0	3833.3	135	1242.0	1380.0	3833.3
TOWNHOMES - 1500 SQ.FT.	40	376.0	417.8	1160.5	80	752.0	835.6	2321.0	10	94.0	104.4	290.1	14	131.6	146.2	406.2
STATE HOUSING TOWNHOME / CONDOS - 1500 SQ.FT.	120	1128.0	1253.3	3481.5	120	1128.0	1253.3	3481.5	120	1128.0	1253.3	3481.5	120	1128.0	1253.3	3481.5
TOTAL DEMAND:	1455	13292.0	14768.9	41024.7	1200	10983.5	12203.9	33899.7	865	7914.0	8793.3	24425.9	480	4411.7	4901.9	13616.4
	# OF UNITS	KW	KVA	AMPS	# OF UNITS	KW	KVA	AMPS	# OF UNITS	KW	KVA	AMPS	# OF UNITS	KW	KVA	AMPS

Customer requested energization date(s) are shown in Table 2.

Table 2 - Energization Phases

Load Type	Requested Load Amount	Energization Date
Mixed Use	14768.9 kVA	Q1 2030
Mixed Use	12203.9 kVA	Q3 2030
Mixed Use	8793.3 kVA	Q1 2031
Mixed Use	4901.9 kVA	Q3 2031
Total	**40668 kVA**	

The project site is located approximately 1.39 miles from Bayside Substation.

At the time of this report the closest and most suitable circuit to the requested site is the Tarpon 12 kV Circuit.

SUMMARY

Engineering analysis has determined an upgrade to SCE's Distribution System is required to safely accommodate this request along with other load growth requests that SCE is experiencing in this area. The required upgrades will take approximately 48 months to complete from the time the project is initiated.

It has been determined that there is 1000 kVA of available capacity on Tarpon 12 kV Circuit for Fairview Developmental Center as of the day of this report.

This report does not guarantee any noted available capacity for Fairview Developmental Center. SCE Engineering will **re-study** this request upon Fairview Developmental Center submitting an approved and complete full design package[1] to the SCE Planning Department. Customers are encouraged to submit a complete full design package[1] as soon as possible to minimize the risk of other customer requests reducing any noted available capacity.

This study **did not include** other customer requests in the area with partial design package submittals. Approximate magnitude of growth in the area **not included** is as follows:

- 0 MVA on the Tarpon 12 kV Circuit
- 2.955 MVA on the Bayside Substation
- 15.029 MVA on the Ellis 'A' 220/66 kV Subtransmission system

If the request(s) stated above submit their full design package[1] before Fairview Developmental Center, an upgrade may be required, and timeframe is dependent on the upgrade needed.

SCE is supportive of working collaboratively, and in coordination with Fairview Developmental Center to achieve the completion of the project. Given the stated limitations in this report, if Fairview Developmental Center submits an approved and complete full design package[1] to SCE's Planning Department for this request, SCE can perform additional detailed analysis to determine if other options can provide full or partial capacity while the stated system upgrades are completed. However, if SCE is unable to accommodate full or partial capacity, SCE must wait until the grid upgrade(s) is completed to accommodate this request to prevent grid safety issues that would impact all the customers in the area. SCE will gladly schedule an optional results meeting to discuss any concerns or questions the customer may have about this report.

[1] The details of what a complete full design package includes can be provided by contacting SCE's Planning Department. Generally, the full design package includes, but is not limited to, a Customer Project Information Sheet (CPIS), Single Line Diagram (SLD), Detailed Load Scheduled outlining connected and demand load values, Plot Plan, CAD File, and Design Option Letter.

STUDY ASSUMPTIONS

SCE studies the impact to the system accounting for existing and forecasted load[2], system capacity limitations, and based on the load requested as shown in Table 1 provided by the customer in their study request. Capacity limitations include, but are not limited to, substation transformer ratings, conductor thermal ratings, system protection requirements, and system voltage requirements.

ANALYSIS

Distribution Analysis:

The most suitable distribution circuit in the area is the Tarpon 12 kV Circuit out of Bayside Substation.

Phase 1: 14768.9 kVA

Engineering analysis has determined that upgrades will be required to safely accommodate the requested capacity of 14768.9 kVA. The required upgrades will take approximately 48 months to complete from the time the project is initiated. The required upgrade(s) will be initiated upon submitting a full design package.
Upgrades include, but are not limited to, the following:

- New Transformers and Circuits Required to accommodate
  - 48 months to complete
  - 1000 kVA available on Tarpon 12 kV Circuit before upgrade is completed

Phase 2: 12203.9 kVA

Engineering analysis has determined that upgrades will be required to safely accommodate the requested capacity of 12203.9 kVA. The required upgrades will take approximately 48 months to complete from the time the project is initiated. The required upgrade(s) will be initiated upon submitting a full design package.
Upgrades include, but are not limited to, the following:

- New Transformers and Circuits Required to accommodate
  - 48 months to complete

[2] Forecasted load in this study only includes load requests with approved full design package submittals

Phase 3: 8793.3 kVA

At the time of this report, the Distribution System is expected to have sufficient capacity to serve the requested 8793.3 kVA for Fairview Developmental Center. Upgrades will be required to safely accommodate the requested capacity of 8793.3 kVA, and these upgrades are not expected to delay the requested energization date. However, if the necessary upgrades are delayed, the energization date for Fairview Developmental Center may also be postponed.

Phase 4: 4901.9 kVA

At the time of this report, the Distribution System is expected to have sufficient capacity to serve the requested 4901.9 kVA for Fairview Developmental Center. Upgrades will be required to safely accommodate the requested capacity of 4901.9 kVA, and these upgrades are not expected to delay the requested energization date. However, if the necessary upgrades are delayed, the energization date for Fairview Developmental Center may also be postponed.

Subtransmission/Transmission Analysis:

Engineering analysis has determined that there is sufficient capacity at the Sub transmission System level to serve the requested load.

This report does not guarantee any noted available capacity for Fairview Developmental Center. SCE Engineering will re-study this request upon Fairview Developmental Center submitting an approved and complete full design package[1] to the SCE Planning Department.

SCE is supportive of working collaboratively, and in coordination with Fairview Developmental Center to achieve the completion of the project. Given the stated limitations in this report, if Fairview Developmental Center submits an approved and complete full design package[1] to SCE's Planning Department for this request, SCE can perform additional detailed analysis to determine if other options to provide full or partial capacity are available while the stated system upgrades are completed. However, if SCE is unable to accommodate full or partial capacity, SCE must wait until the grid upgrade(s) is completed to accommodate this request to prevent grid safety issues that would impact all the customers in the area.

Note: Details about Added Facilities (Rule 2 Section H) or any Rule 15 Line Extensions are not included in this study. Customers are encouraged to work with SCE's Planning Department on interconnection requirements, including number and location of services, and any associated costs.

DISCLAIMERS, DISCLOSURE OF STUDY ASSUMPTIONS

- This study assumes that the developer's distribution infrastructure will be in place by the requested energization date.
- Any delays in the project by the developer could delay SCE's ability to meet the requested energization date
- The thermal rating of any conductor, connector, apparatus, and/or substation shall not exceed 100% of its rated capacity or loading limit.
- Circuit voltage profiles shall be maintained to comply with SCE's CPUC Jurisdictional Rule 2 tariff requirements.
- Operational flexibility and reliability of the Distribution System shall be maintained at all times.
- For all interconnection scope the customer will need to work with SCE's Planning Department, and in doing so will get the most accurate information on timeline and potential financial responsibilities. Details pertaining to cost are not included in this report as its intent is to provide the customer with SCE's method of service and approximate timelines for energization.
- The results outlined in this report are based on available information at the time of analysis which may change at any time after the analysis is performed.
- SCE does not guarantee that at the time of customer submitting an approved and complete full design package, the information provided in this report will be valid.
- Upon customer submitting the service request, SCE may elect to re-evaluate this study which will be used to determine the requirement for the service request. Additional information will be required when requesting electrical service to the facility. Customers are encouraged to contact the Planning office at outlined in SCE's Electrical Service Requirements or by using the General Service number (800) 655-4555.
- The distribution system is dynamic and may undergo changes from the time this study is performed to the time customer submits request for service which may require changes to the method of service from what is indicated in this report.
- The proposed manner of service in this report is subject to change based on final design and may be required to comply with SCE's distribution design standards.
- Changes to customer load values, schedules, or other requests may require restudies which may cause delays to ongoing SCE engineering, planning and construction activities and ultimately impact the customer energize date.
- This report does not include costs for which the customer may be responsible for. In addition to costs for the proposed scope, additional costs associated with environmental studies may be required for the licensing or permitting of the proposed SCE facilities.
- This study does not evaluate right-of-way or easements which may be needed to provide service to the project. This study assumes that all easements and rights-of-way required for the construction of Distribution Upgrades and/or Facilities will be secured in a timely manner to accommodate the requested in-service date.
- This report does not consider potential milestone setbacks that could result from the local jurisdiction requiring underground construction of distribution facilities. SCE encourages the Customer to consult with the local jurisdiction to identify existing underground ordinance to reduce the risk of complication associated with said ordinance.
- Applicable to projects requesting primary service: This study does not include analysis related to coordination of system protection equipment. A coordination study may be required during final engineering. The coordination study may identify additional requirements such as installing new protection equipment, reprogramming and/or relocating existing protection equipment. The additional scope of work may impact the Customer's requested in-service date.
- This report does not reference the applicable tariff(s) that may apply to this installation. As line routes and further construction details are defined, SCE will evaluate each individual project and identify the appropriate tariff. The choice of tariffs will better define the Customer's responsibilities as well as each party's potential financial responsibilities. Service requests must follow SCE's new service requirements and PUC approved tariff provisions.
- When applicable, SCE discounts customer connected load amount using diversification factors that align with SCE's planning protocols.