



2019 DIDF RFO

DER Growth: Customer Data

Appendix E



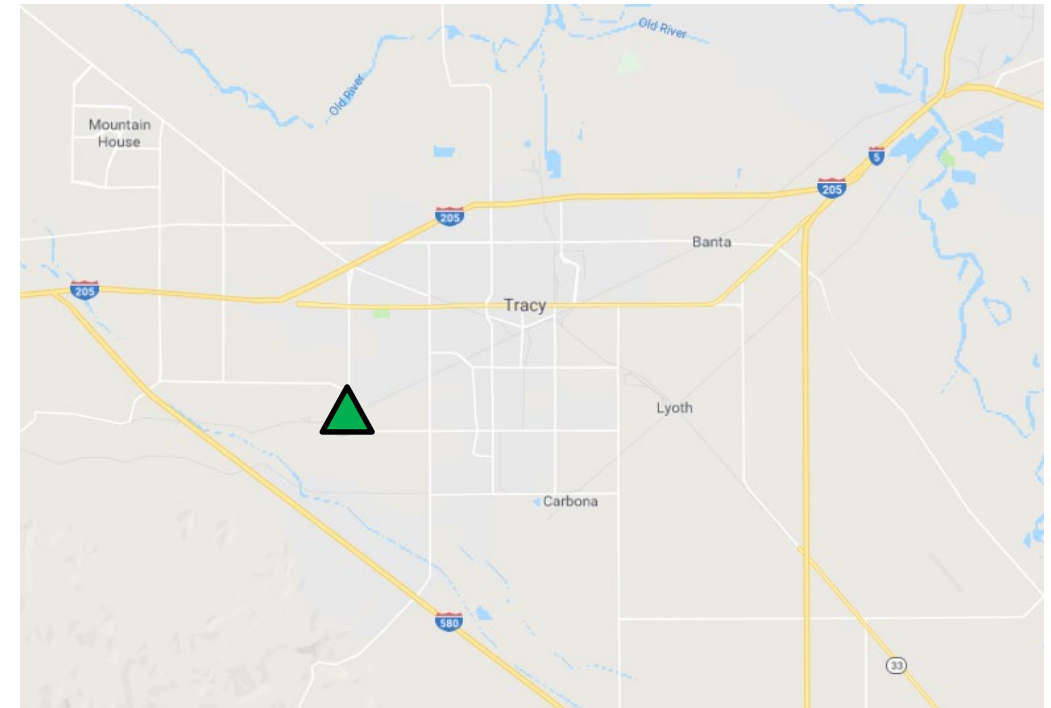
Lammers 1101

NEW LAMMERS FEEDER



Lammers 1101 Location Overview

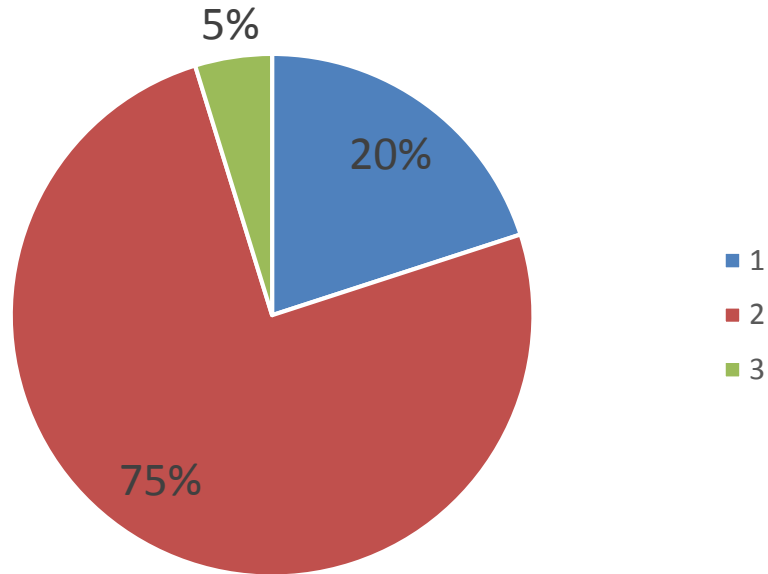
- Location: Lammers Substation Bank 1, San Joaquin County
- Electrical Service:
 - 12.47 kV feeder fed off of 3-phase, 45 MVA bank
 - Winter Normal operating capacity: 627 Amps
 - Summer Normal operating capacity: 578 Amps
- 105 electric service points. Customer base:
 - Residential (21 service points)
 - Commercial and Industrial (79 service points)
 - Agricultural (5 service points)



| Current 2017 | | | Forecast | | | | | |
|-------------------------|----------------|-----------|---------------------|-------------------------------|------------------------|---------|---------|---------|
| Observed Peak Load (MW) | Installed DERs | | Year (Need vs Peak) | Peak Load (1 in 10 Year) (MW) | Incremental DER Growth | | | |
| | PV (MW) | Wind (MW) | | | PV (MW) | ES (MW) | EE (MW) | DR (MW) |
| 12.3 | 1.6 | 0.5 | 2021 | 13.5 | 0.4 | 0 | 0.08 | 0 |
| | | | 2024 | 14.2 | 0.8 | 0 | 0.15 | 0 |

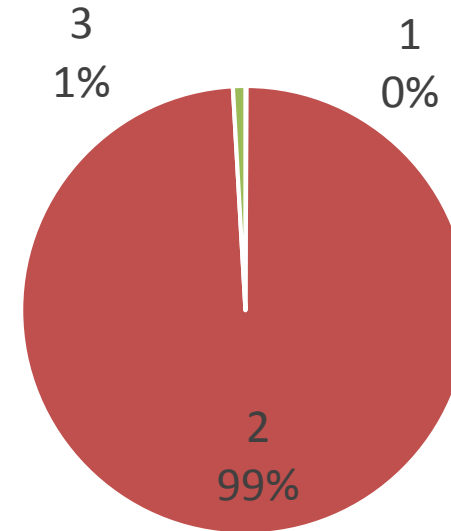


Customer Composition Served by Lammers 1101



| Customer Sector | Total Service Points* | Peak Day Demand (MW) |
|-------------------------|-----------------------|----------------------|
| Residential | 21 | 0.01 |
| Commercial / Industrial | 79 | 12.14 |
| Agricultural | 5 | 0.11 |

*As of December 18, 2018



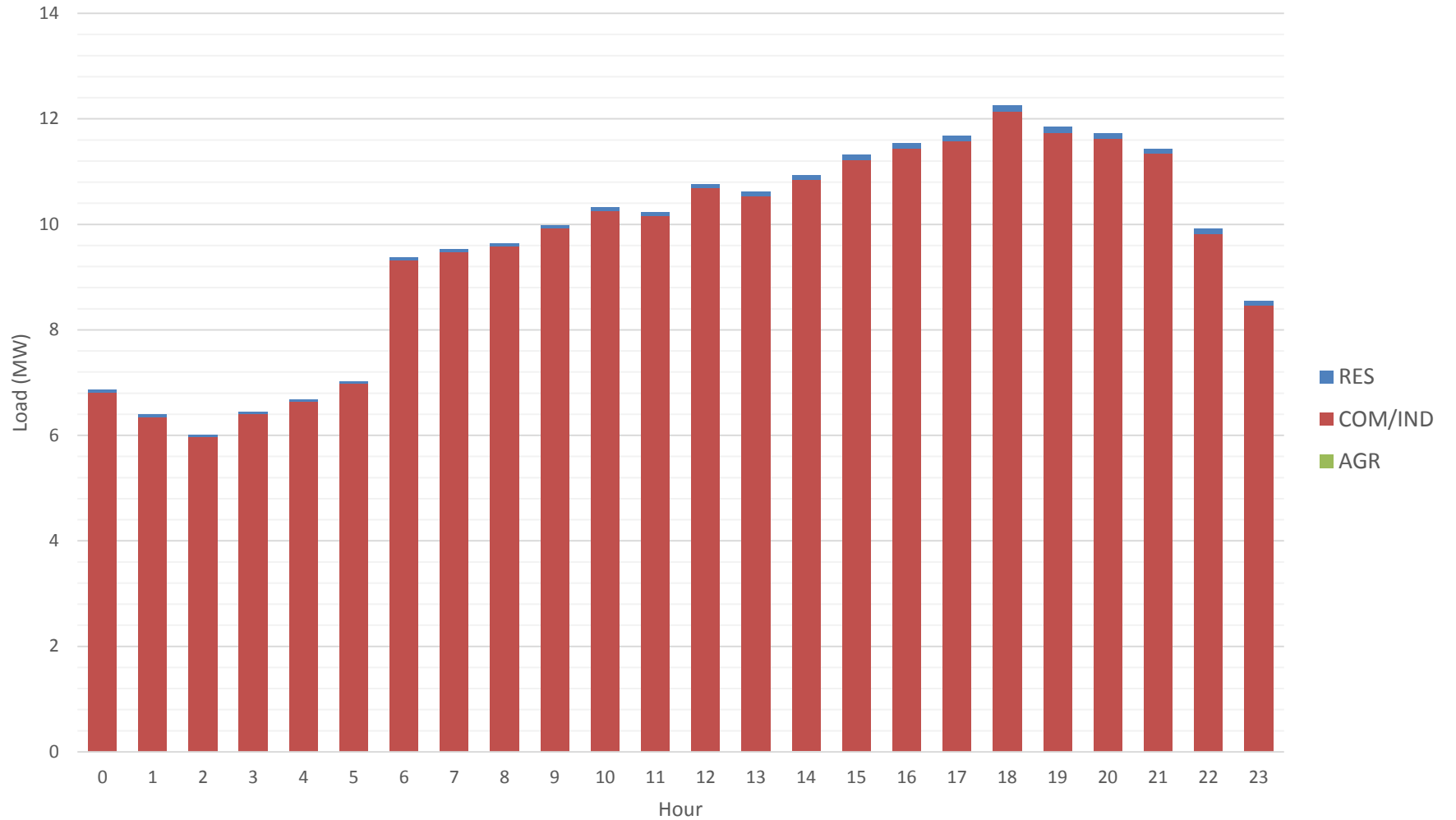
| Interconnection Type | # of Customer Installations* | Total Capacity (MW) |
|----------------------|------------------------------|---------------------|
| PV | 33 | 1.6 |
| Wind | 39 | 0.5 |

*As of December 18, 2018



Peak Load Day – June 2017: Load by Customer Type

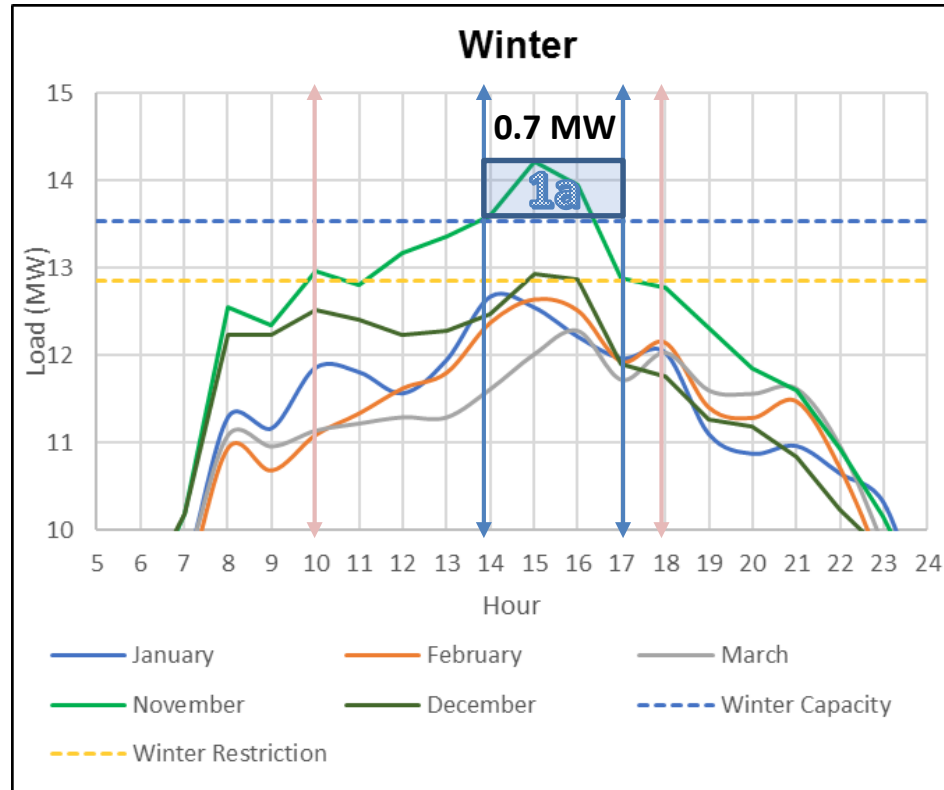
Peak Load: 12.25 MW
Time of Peak: 6 PM





Distribution Capacity Need: Lammers 1101

Loading Forecast: Winter

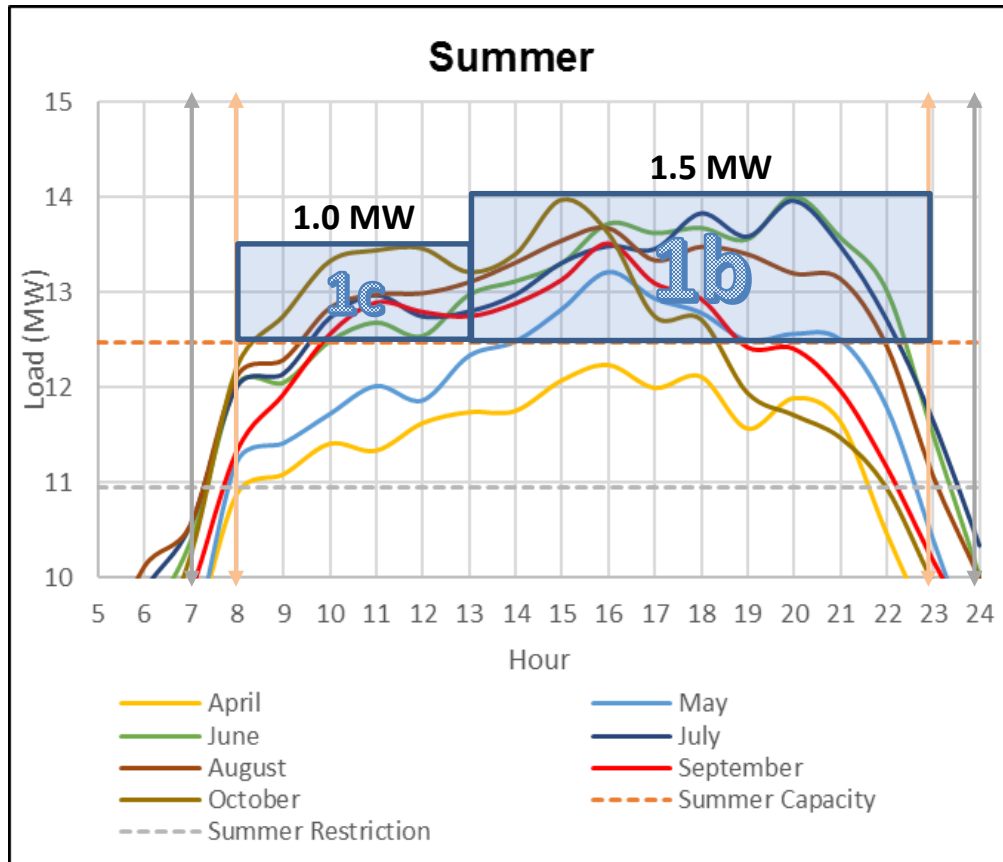


| Requirement | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|-------------|-----------------|-----------------|---------------|----------------|----------------|-----------------------------|
| 1a | 0.7 | Nov | Mon-Fri | 2:00PM-5:00PM | 3 | 21 |



Distribution Capacity Need: Lammers 1101

Loading Forecast: Summer



| Require- ment | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|------------------|--------------------|--------------------|------------------|--------------------|-------------------|-----------------------------------|
| 1b | 1.5 | May-Oct | Mon-Fri | 1:00PM- 6:00PM | 5 | 73 |
| 1b | 1.5 | May-Oct | Mon-Fri | 6:00PM- 11:00PM | 5 | 73 |
| 1b | 1.5 | May-Oct | Mon-Fri | 1:00PM- 11:00PM | 10 | 73 |
| 1c | 1 | Jun-Oct | Mon-Fri | 8:00AM- 1:00PM | 5 | 36 |



Huron Bank 1

HURON BANK 1



Huron Bank 1 Location Overview

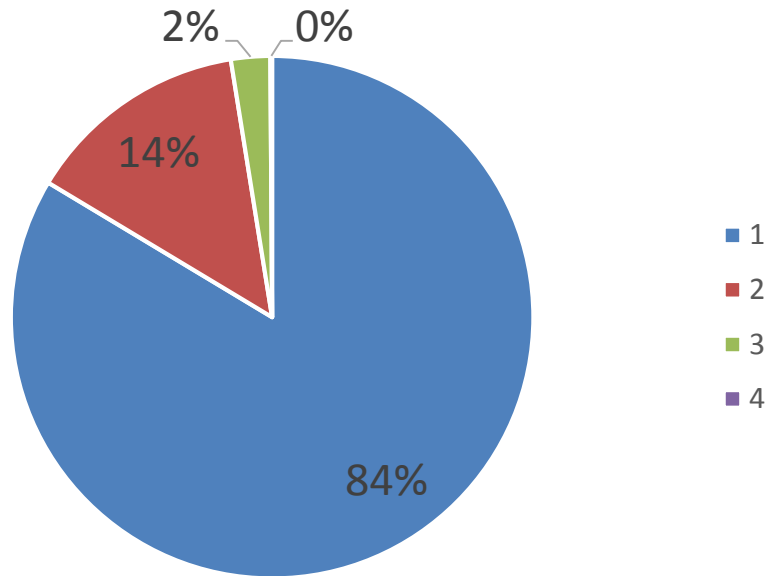
- Location: Huron Substation, Fresno County
- Summer peaking area
- Electrical Service:
 - 3-phase, 20 MVA bank with four 12 kV feeders (Huron 1106, Huron 1108, Huron 1112, and Huron 1116)
 - Normal operating capacity: 18.8 MW
- 1,855 electric service points. Customer base:
 - Residential (1,551 service points)
 - Commercial and Industrial (257 service points)
 - Agricultural (45 service points)
 - Other (2 service points)



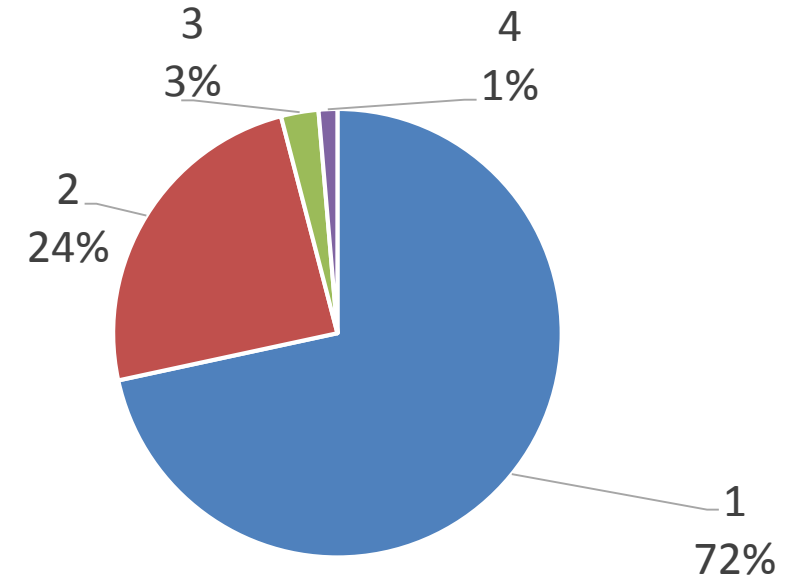
| Current 2017 | | Forecast | | | | | |
|-------------------------|----------------|---------------------|-------------------------------|------------------------|---------|---------|---------|
| Observed Peak Load (MW) | Installed DERs | Year (Need vs Peak) | Peak Load (1 in 10 Year) (MW) | Incremental DER Growth | | | |
| | PV (MW) | | | PV (MW) | ES (MW) | EE (MW) | DR (MW) |
| 7.3 | 1.1 | 2021 | 14.3 | 1.0 | 0 | 0 | 0 |
| | | 2027 | 22.5 | 2.4 | 0 | 0 | 0 |



Customer Composition Served by Huron Bank 1



| Customer Sector | Total Service Points* | Peak Day Demand (MW) |
|-----------------------|-----------------------|----------------------|
| Residential | 1,551 | 5.3 |
| Commercial/Industrial | 257 | 1.8 |
| Agricultural | 45 | 0.2 |
| Other | 2 | 0.1 |



| Interconnection Type | # of Customer Installations* | Total Capacity (MW) |
|----------------------|------------------------------|---------------------|
| PV | 96 | 1.1 |

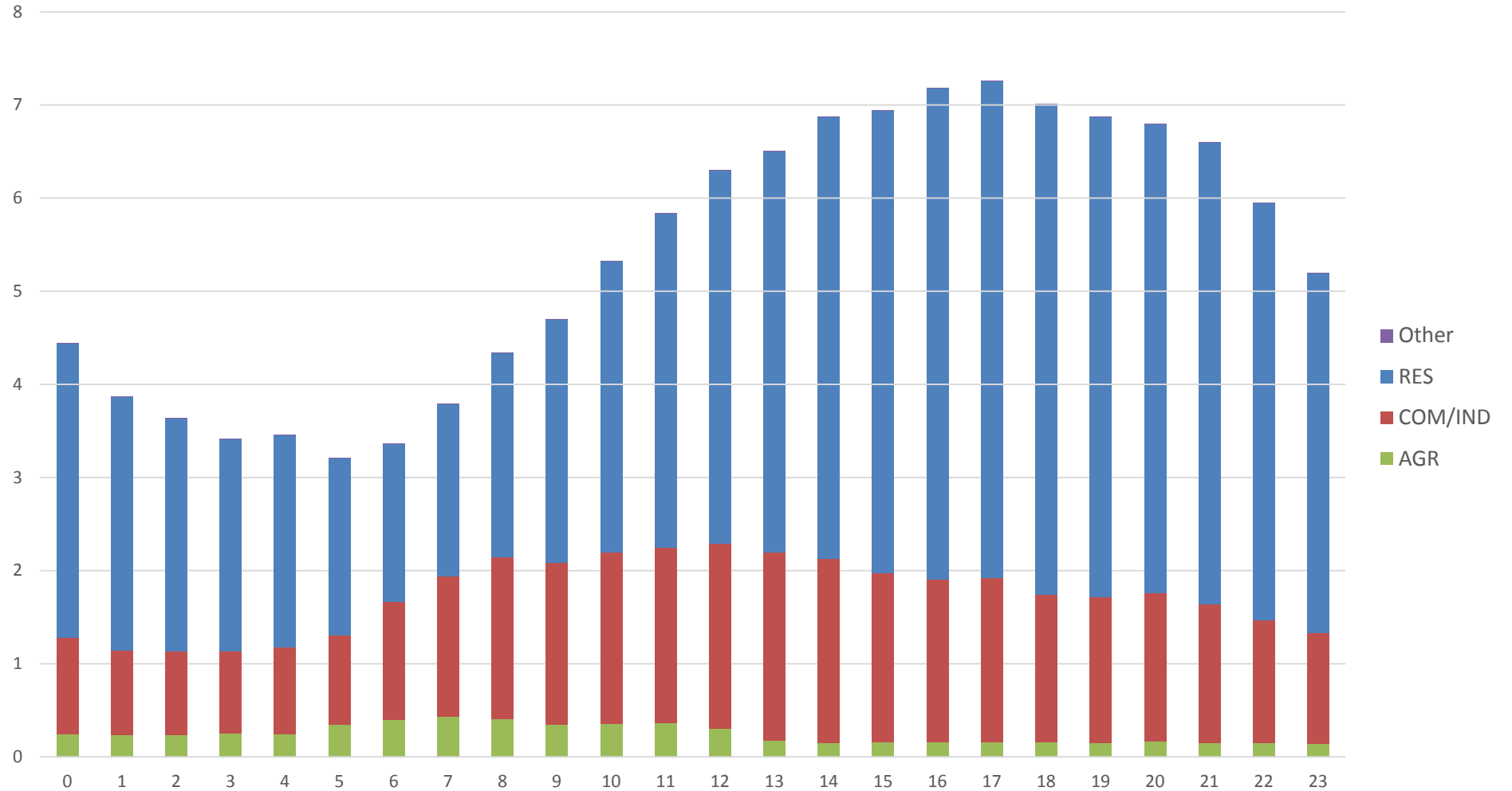
*As of December 18, 2018

*As of December 18, 2018



Peak Load Day – June 2017: Load by Customer Type

Peak Load: 7.3 MW
Time of Peak: 5 PM

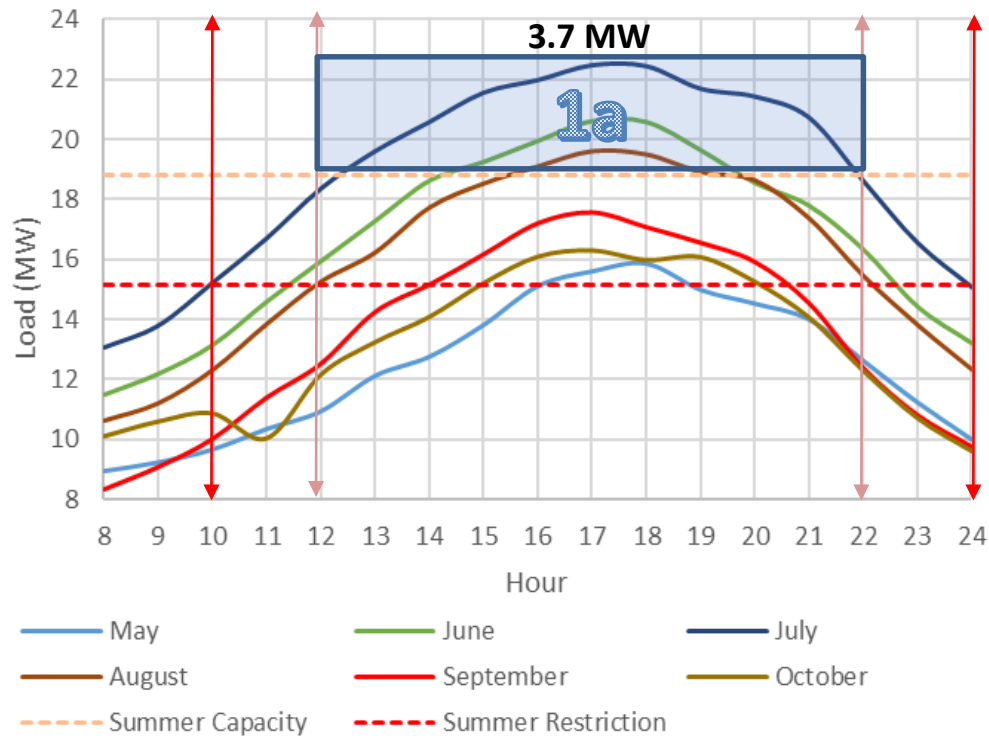




Distribution Capacity Need: Huron Bank 1

Loading Forecast: 1-in-10 Load Peak Day

1-in-10 Load Peak Day

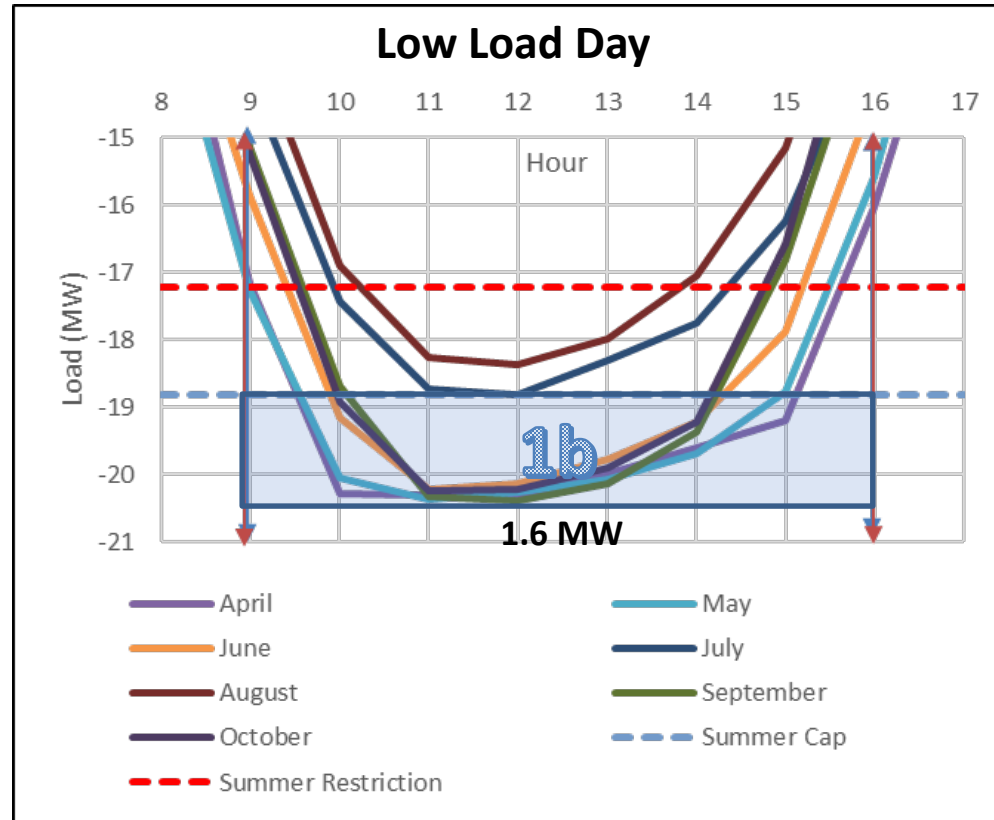


| Require- ment | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|------------------|--------------------|--------------------|------------------|---------------------|-------------------|-----------------------------------|
| 1a | 1, 2, or 3.7 | Jun-Aug | Mon-Sun | 12:00PM- 5:00PM | 5 | 33 |
| 1a | 1, 2, or 3.7 | Jun-Aug | Mon-Sun | 5:00PM- 10:00PM | 5 | 33 |
| 1a | 1, 2, or 3.7 | Jun-Aug | Mon-Sun | 12:00PM- 10:00PM | 10 | 33 |



Distribution Capacity Need: Huron Bank 1

Loading Forecast: Low Load Day



| Requirement | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|-------------|-----------------|--------------------|---------------|----------------|----------------|-----------------------------|
| 1B | -1.6 | Apr-Jun Sep-Oct | Mon-Sun | 9:00AM-4:00PM | 7 | 131 |



Canal 1102, Canal 1103, and Ortiga Bank 1

SANTA NELLA BANK 1 AND NEW FEEDER



Canal 1102 Location Overview

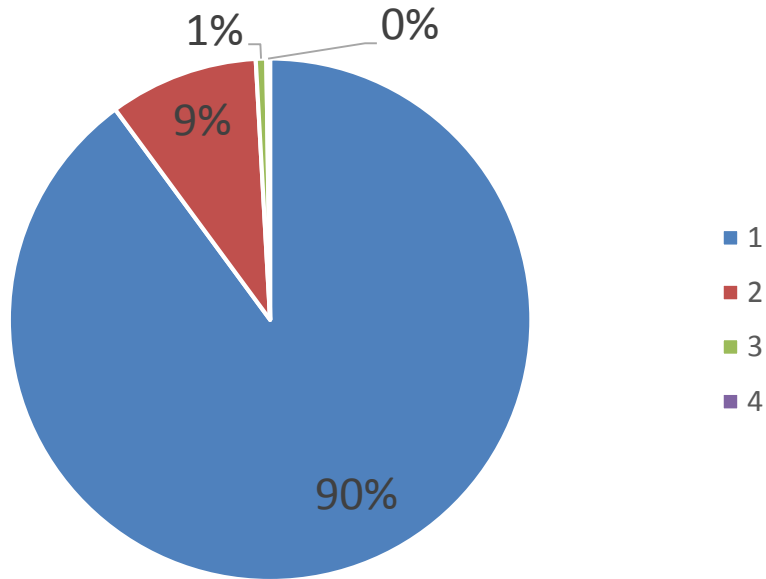
- Location: Canal Substation Bank 2, Merced County
- Summer peaking area
- Electrical Service:
 - 12.47 kV feeders fed off of 3-phase, 30 MVA bank
 - Normal operating capacity, Canal 1103: 570 Amps
- 2,158 electric service points. Customer base:
 - Residential (1,940 service points)
 - Commercial and Industrial (199 service points)
 - Agricultural (14 service points)
 - Other (5 service points)



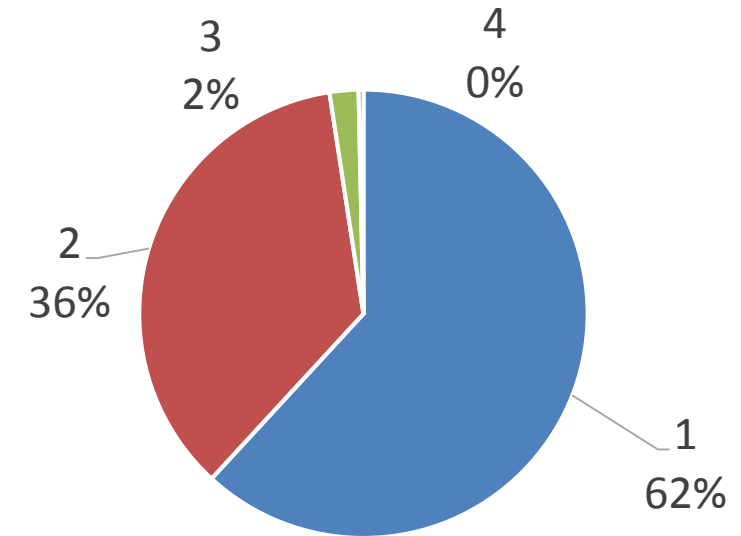
| Current 2017 | | Forecast | | | | | |
|-------------------------|----------------|---------------------|-------------------------------|------------------------|---------|---------|---------|
| Observed Peak Load (MW) | Installed DERs | Year (Need vs Peak) | Peak Load (1 in 10 Year) (MW) | Incremental DER Growth | | | |
| | PV (MW) | | | PV (MW) | ES (MW) | EE (MW) | DR (MW) |
| 8.6 | 2.3 | 2022 | 14.0 | 0.69 | 0 | 0.20 | 0.01 |
| | | 2018 | 14.3 | 0.04 | 0 | 0.13 | 0.01 |



Customer Composition Served by Canal 1102



| Customer Sector | Total Service Points* | Peak Day Demand (MW) |
|-----------------------|-----------------------|----------------------|
| Residential | 1,940 | 5.35 |
| Commercial/Industrial | 199 | 3.09 |
| Agricultural | 14 | 0.18 |
| Other | 5 | 0.03 |



| Interconnection Type | # of Customer Installations* | Total Capacity (MW) |
|----------------------|------------------------------|---------------------|
| PV | 247 | 2.3 |

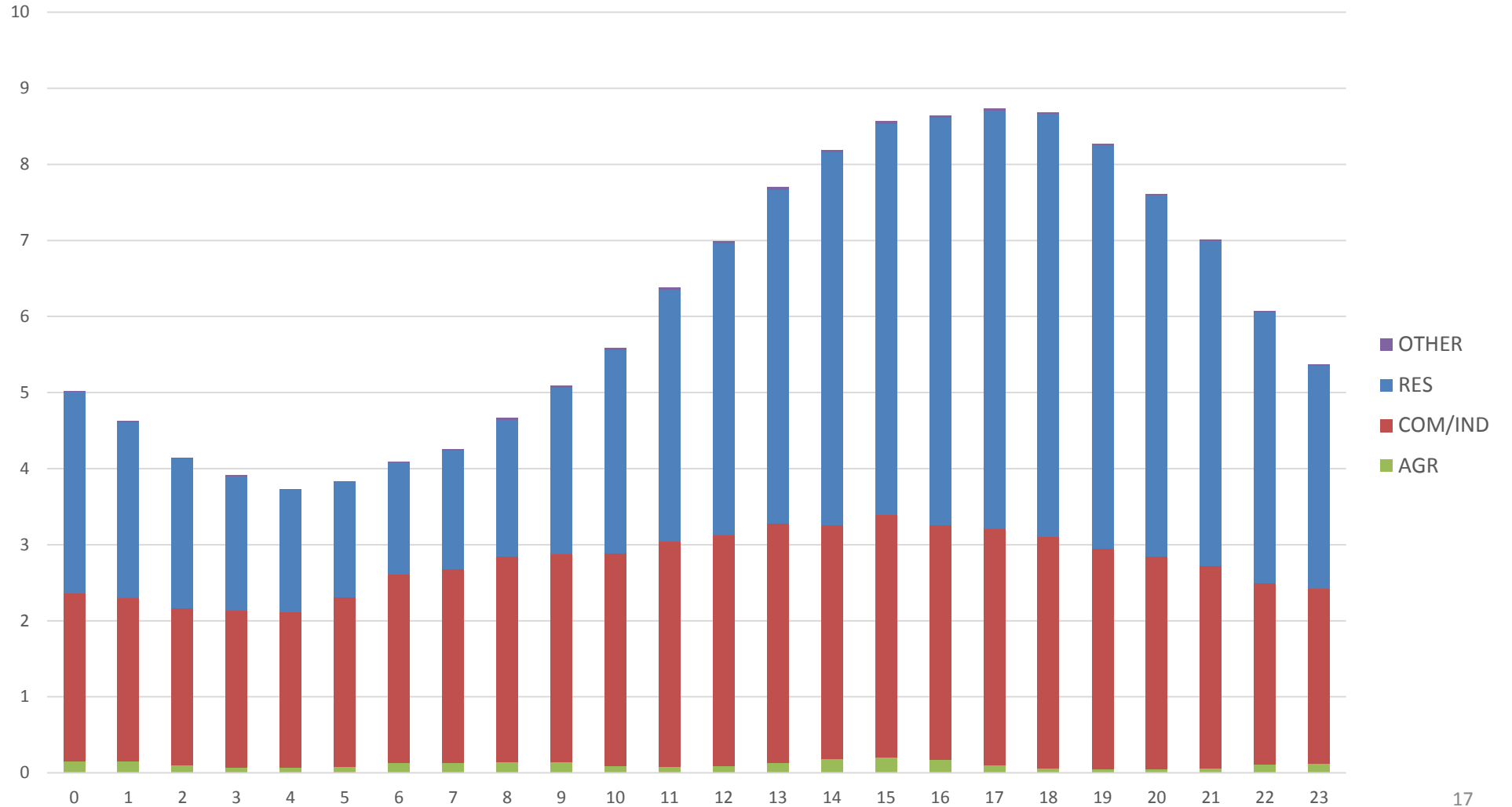
*As of December 18, 2018

*As of December 18, 2018



Peak Load Day – July 2017: Load by Customer Type

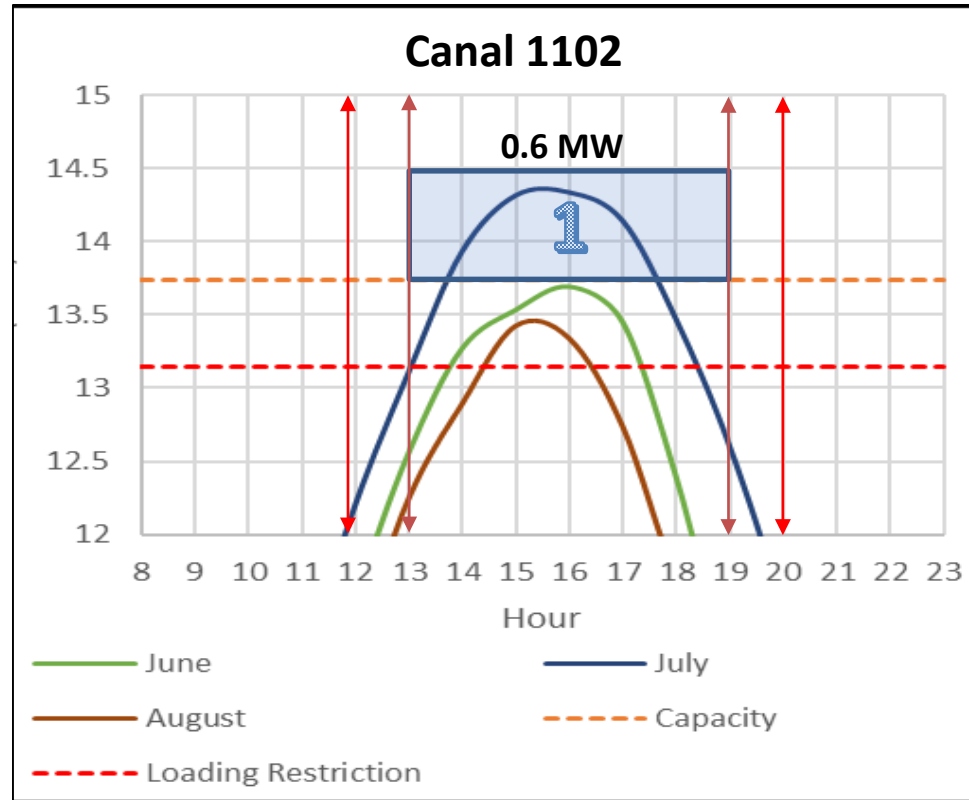
Peak Load: 8.6 MW
Time of Peak: 4 PM





Distribution Capacity Need: Canal 1102

Loading Forecast: Summer

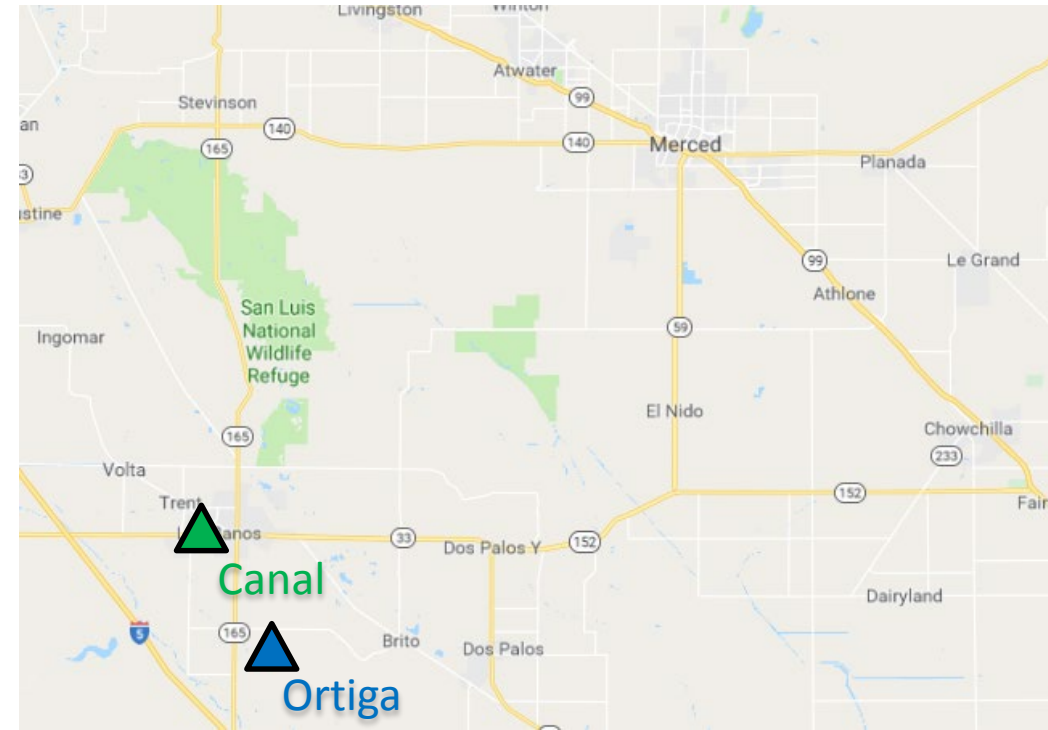


| Requirement | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|-------------|-----------------|-----------------|---------------|----------------|----------------|-----------------------------|
| 1 | 0.6 | Jun-Aug | Mon-Fri | 1:00PM-7:00PM | 6 | 82 |



Canal 1103 Location Overview

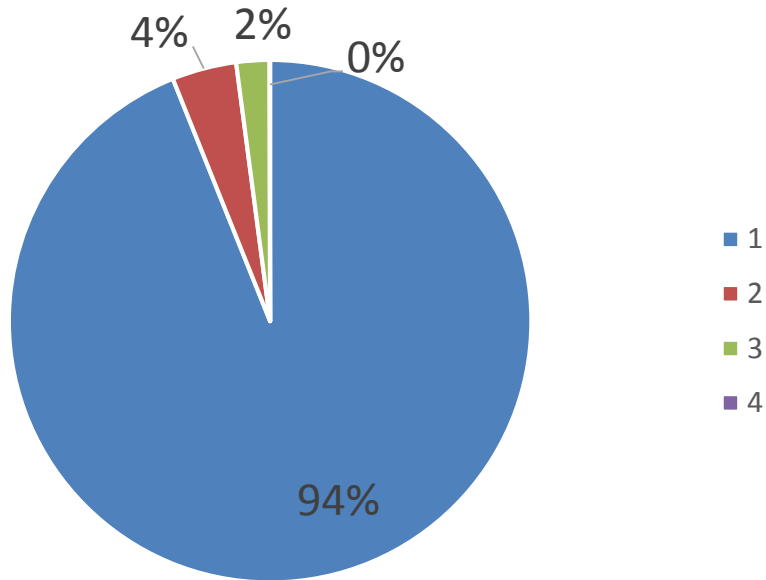
- Location: Canal Substation Bank 2, Merced County
- Summer peaking area
- Electrical Service:
 - 12.47 kV feeders fed off of 3-phase, 30 MVA bank
 - Normal operating capacity, Canal 1103: 570 Amps
- 2,881 electric service points. Customer base:
 - Residential (2,706 service points)
 - Commercial and Industrial (115 service points)
 - Agricultural (59 service points)
 - Other (1 service points)



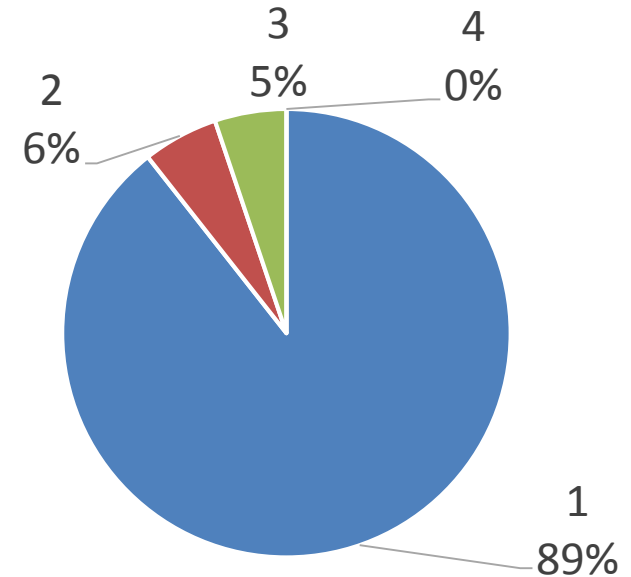
| Current 2017 | | Forecast | | | | | |
|-------------------------|----------------|---------------------|-------------------------------|------------------------|---------|---------|---------|
| Observed Peak Load (MW) | Installed DERs | Year (Need vs Peak) | Peak Load (1 in 10 Year) (MW) | Incremental DER Growth | | | |
| | PV (MW) | | | PV (MW) | ES (MW) | EE (MW) | DR (MW) |
| 10.8 | 1.8 | 2022 | 13.6 | 0.36 | 0 | 0.25 | 0.01 |
| | | 2027 | 14.9 | 0.87 | 0 | 0.48 | 0.01 |



Customer Composition Served by Canal 1103



| Customer Sector | Total Service Points* | Peak Day Demand (MW) |
|-----------------------|-----------------------|----------------------|
| Residential | 2,706 | 9.69 |
| Commercial/Industrial | 115 | 0.59 |
| Agricultural | 59 | 0.56 |
| Other | 1 | 0.00 |



| Interconnection Type | # of Customer Installations* | Total Capacity (MW) |
|----------------------|------------------------------|---------------------|
| PV | 356 | 1.8 |

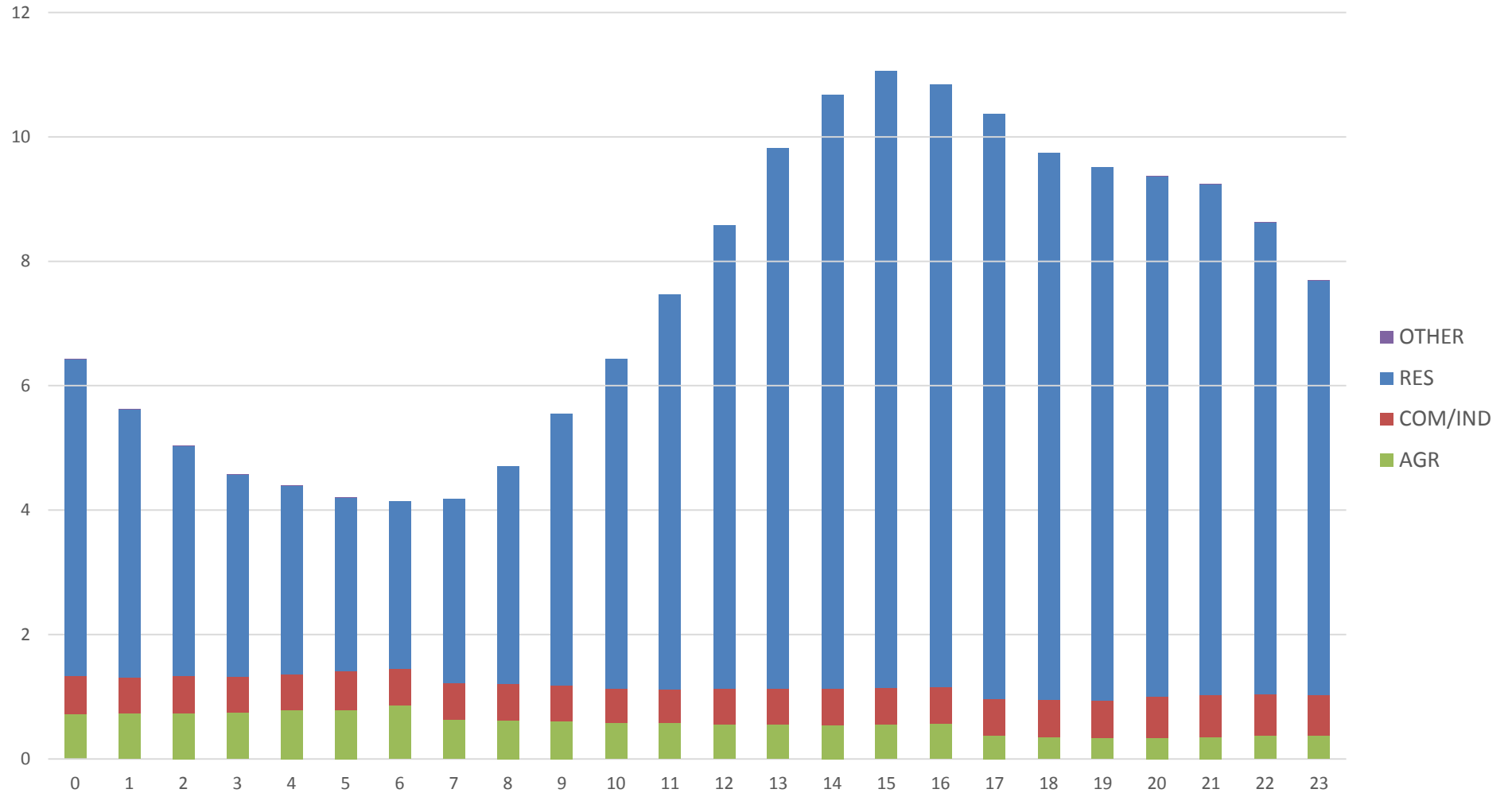
*As of December 18, 2018

*As of December 18, 2018



Peak Load Day – July 2017: Load by Customer Type

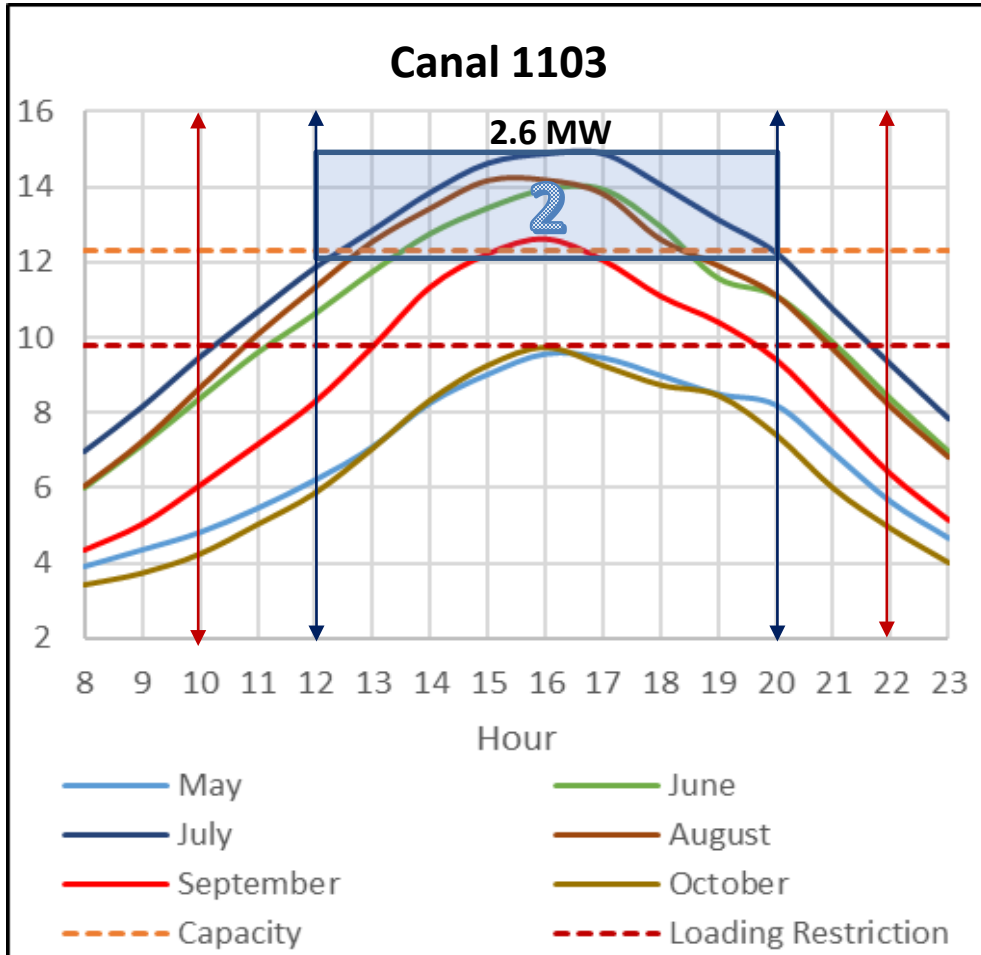
Peak Load: 10.8 MW
Time of Peak: 4 PM





Distribution Capacity Need: Canal 1103

Loading Forecast: Summer

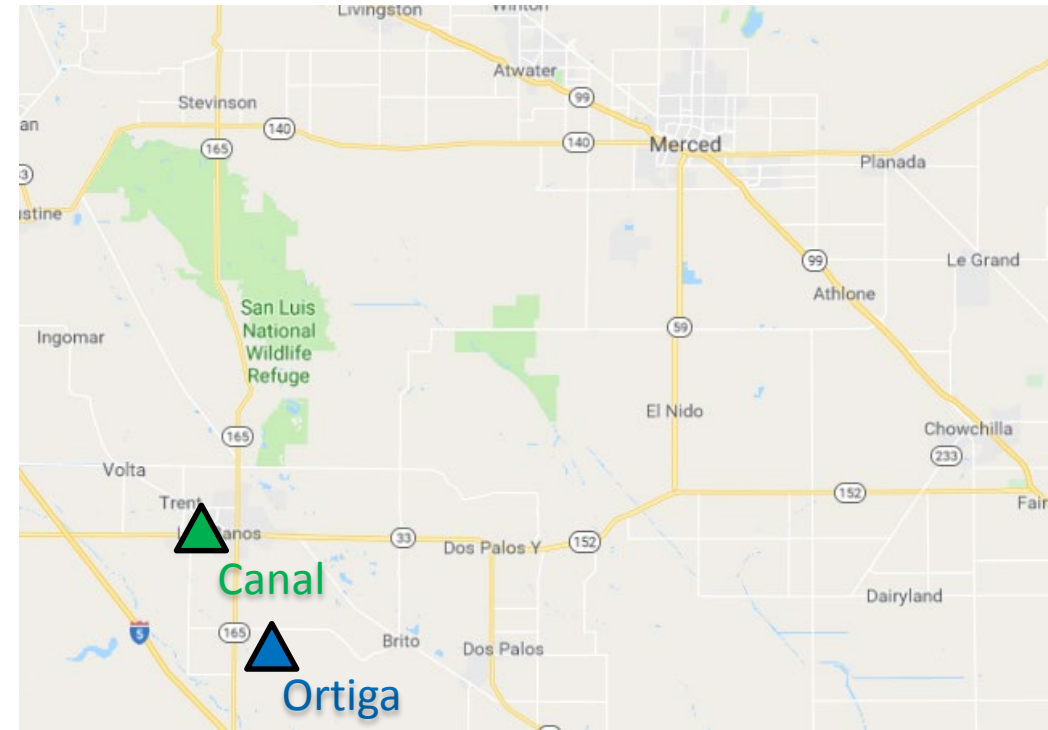


| Require-ment | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|--------------|-----------------|-----------------|---------------|----------------|----------------|-----------------------------|
| 2 | 1.3 or 2.6 | Jun-Sep | Mon-Sun | 12:00PM-4:00PM | 4 | 82 |
| 2 | 1.3 or 2.6 | Jun-Sep | Mon-Sun | 4:00PM-8:00PM | 4 | 82 |
| 2 | 1.3 or 2.6 | Jun-Sep | Mon-Sun | 12:00PM-8:00PM | 8 | 82 |



Ortiga Bank 1 Location Overview

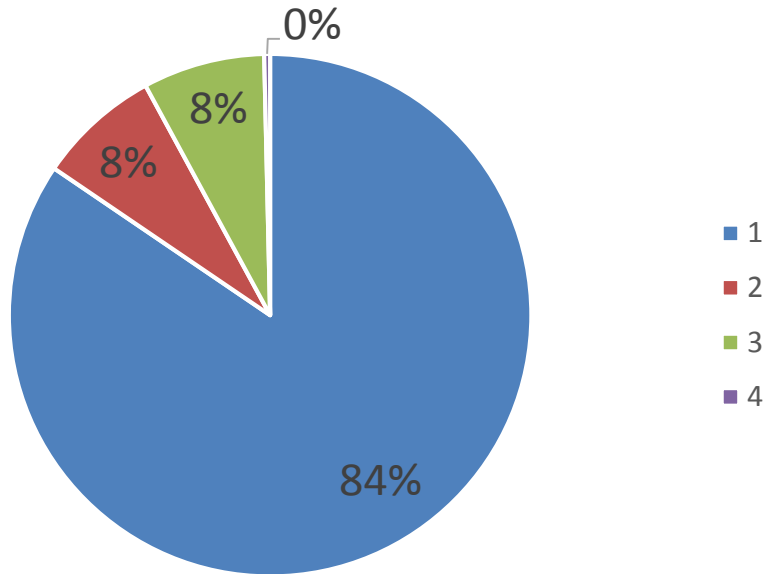
- Location: Ortiga Substation, Merced County
- Summer peaking area
- Electrical Service:
 - 3-phase, 16 MVA bank with two 12 kV feeders (Ortiga 1105 and Ortiga 1106)
 - Normal operating capacity: 15.8 MW
- 2,820 electric service points. Customer base:
 - Residential (2,328 service points)
 - Commercial and Industrial (264 service points)
 - Agricultural (208 service points)
 - Other (10 service points)



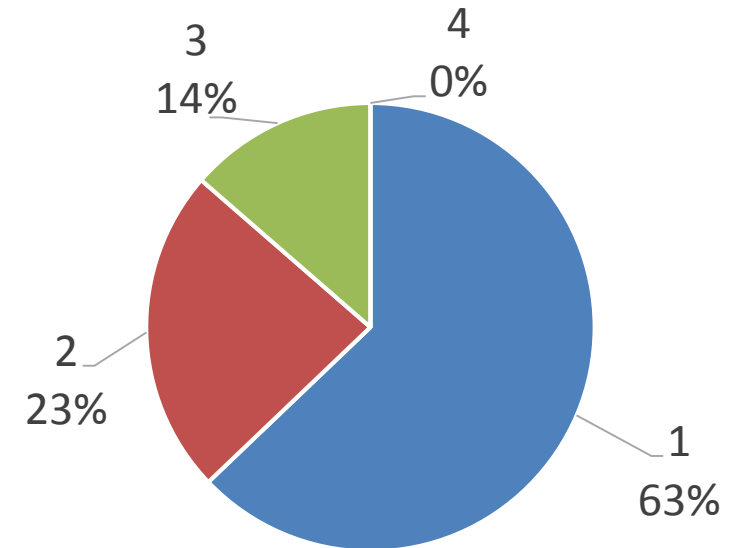
| Current 2017 | | | Forecast | | | | | |
|-------------------------|----------------|------------|---------------------|-------------------------------|------------------------|---------|---------|---------|
| Observed Peak Load (MW) | Installed DERs | | Year (Need vs Peak) | Peak Load (1 in 10 Year) (MW) | Incremental DER Growth | | | |
| | PV (MW) | Mixed (MW) | | | PV (MW) | ES (MW) | EE (MW) | DR (MW) |
| 15.4 | 4.2 | 0.04 | 2022 | 16.8 | 0.83 | 0 | 0.15 | 0.04 |
| | | | 2027 | 18.0 | 2.17 | 0 | 0.30 | 0.04 |



Customer Composition Served by Ortiga Bank 1



| Customer Sector | Total Service Points* | Peak Day Demand (MW) |
|-----------------------|-----------------------|----------------------|
| Residential | 2,328 | 9.70 |
| Commercial/Industrial | 209 | 3.63 |
| Agricultural | 208 | 2.10 |
| Other | 10 | 0.00 |



| Interconnection Type | # of Customer Installations* | Total Capacity (MW) |
|----------------------|------------------------------|---------------------|
| PV | 352 | 4.2 |
| Mixed | 4 | 0.04 |

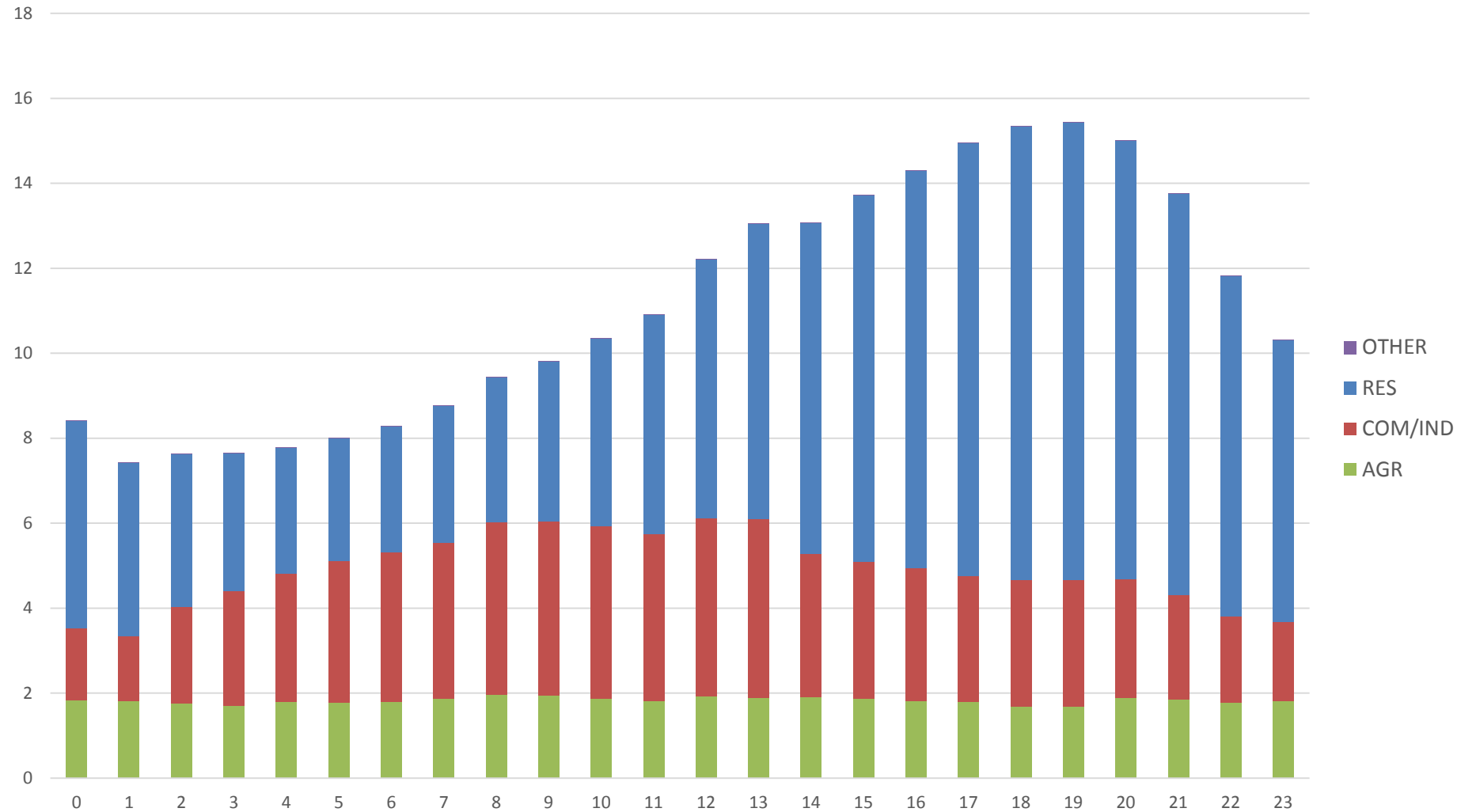
*As of December 18, 2018

*As of December 18, 2018



Peak Load Day – June 2017: Load by Customer Type

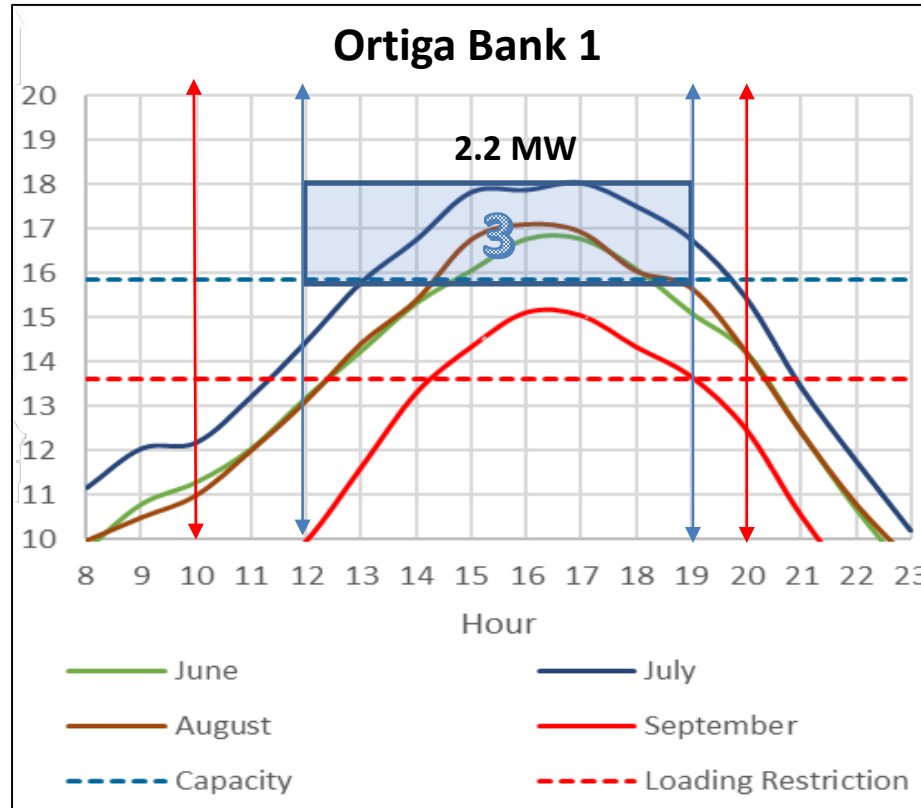
Peak Load: 15.4 MW
Time of Peak: 7 PM





Distribution Capacity Need: Ortiga Bank 1

Loading Forecast: Summer



| Requirement | Offer Size (MW) | Delivery Months | Delivery Days | Delivery Hours | Hours Duration | Maximum # of Calls per year |
|-------------|-----------------|-----------------|---------------|----------------|----------------|-----------------------------|
| 3 | 1.1 or 2.2 | Jun-Aug | Mon-Sun | 1:00PM-8:00PM | 7 | 31 |