Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: JANUARY 26, 2022 TELECONFERENCE MEETING OF THE TRANSMISSION AGENCY OF NORTHERN CALIFORNIA

The Commission of the Transmission Agency of Northern California (TANC) will convene by teleconference at 10:00 a.m. on Wednesday, January 26, 2022. Please use the following dial in information.

You are invited to a Zoom meeting. Register in advance for this meeting:
https://us06web.zoom.us/meeting/register/tZAtduygrz8sHtEf1oJuKwjgy0YVgLzuRoUt

Dial in: 1 669 900 6833
Meeting ID: 840 1581 4645

In addition to the customary reports, enclosed are reports related to WestConnect activities, California-Oregon Transmission Project (COTP) matters, TANC technical matters, Federal Energy Regulatory Commission matters, Western Electricity Coordinating Council matters, Open Access Same-Time Information System matters, wildfire activities, a resolution proclaiming a local emergency and ratifying the proclamation of a state of emergency by the governor and authorizing remote teleconference meetings, TANC's Reliability Standards Compliance Program, a report on California Independent System Operator matters, the COTP and TANC Fiscal Year 2023 budget development schedule, the Interim General Manager report and a report on TANC Strategic Planning Efforts. The Commission may also take action on a resolution approving the Thirteenth Collection Agreement with the United States Forest Service and on a Letter of Agreement for radio replacement activities. Additionally, the Commission will consider several matters in Closed Session. The Commission will also discuss administrative matters and will also schedule its next meeting.

TAB 1

CALL TO ORDER

The TANC Chair will call the meeting to order.

TAB 2

ROLL CALL

The Interim General Manager will conduct a roll call of the TANC Commission members in attendance.

AGENDA
TANC COMMISSION MEETING
VIA TELECONFERENCE
JANUARY 26, 2022
10:00 AM

Any member of the public who desires to address the Commission on any item considered by the Commission at this meeting, before, or during the Commission's consideration of that item shall so advise the Interim General Manager and shall thereupon be given an opportunity to do so.

As permitted by California Assembly Bill 361, the TANC Commission meeting will be conducted via teleconference. TANC Commission members will participate in the meeting from individual remote locations. Please use the following log in information to access the meeting:

You are invited to a Zoom meeting. Register in advance for this meeting:
https://us06web.zoom.us/meeting/register/tZAtduygrz8sHtEf1oJuKwjgy0YVgLzuRoUt

Dial in: 1 669 900 6833
Meeting ID: 840 1581 4645

Any person with a disability may submit a request for reasonable modification or accommodation to the above described means for accessing and offering comment at the meeting to Larry Riegle at lriegle@tanc.us who will resolve such request.

1. Call to Order

   The TANC Chair will call the meeting to order.

2. Roll Call

   The Interim General Manager will conduct a roll call of TANC Commission members in attendance.

3. Approval of Agenda

   The Commission will review the proposed agenda and approve it with any necessary corrections or deletions.

PUBLIC COMMENT

4. The Commission will consider comments from the public at this time.

CONSENT CALENDAR

ALL MATTERS LISTED UNDER THE CONSENT CALENDAR ARE CONSIDERED BY THE COMMISSION TO BE ROUTINE AND WILL ALL BE ENACTED BY ONE MOTION. THERE WILL BE NO SEPARATE DISCUSSION OF THESE ITEMS UNLESS A COMMISSIONER REQUESTS THAT AN ITEM BE SEPARATELY CONSIDERED PRIOR TO THE TIME THE COMMISSION VOTES ON THE MOTION TO ADOPT.

5. Approval of the Draft Minutes from the December 22, 2021 TANC Commission Meeting.

   Enclosed are the draft minutes from the December 22, 2021 TANC Commission meeting, for approval, subject to any necessary corrections or clarifications.

6. Report on TANC's Investment Purchases

   Enclosed are reports on TANC's investment purchases.

7. Report on TANC Committees

   Enclosed are reports on the activities of the following TANC Committees:

   a. Engineering and Operations Committee

8. Report on WestConnect Activities

   Enclosed is a report regarding activities related to WestConnect.

9. Report on COTP Matters

   Enclosed is a report regarding California-Oregon Transmission Project matters.

10. Report on TANC Technical Matters

    Enclosed is a report on TANC technical matters.

11. Report on FERC Matters

    Enclosed is a report regarding the Federal Energy Regulatory Commission and related policy matters.

12. Report on WECC Matters

    Enclosed is a report regarding Western Electricity Coordinating Council matters.

13. Report on TANC OASIS Matters

    Enclosed is a report regarding usage on the Open Access Same-Time Information System and related matters.

14. Report on Wildfire Activities

    Enclosed in a report regarding recent wildfire related initiatives.

15. Resolution Proclaiming a Local Emergency, Ratifying the Proclamation of a State of Emergency by the Governor and Authorizing Remote Teleconference Meetings

    Enclosed is a resolution proclaiming a local emergency, ratifying the proclamation of a state of emergency by the Governor and authorizing remote teleconference meetings of The TANC Commission and associated TANC Committees.

16. Report and Potential Action Regarding TANC's Reliability Standards Compliance Program

    Enclosed is a report regarding TANC's Reliability Standards Compliance Program.

17. Report on CAISO Matters

    Enclosed is a report regarding California Independent System Operator related matters.

18. Report on COTP and TANC FY2023 Budget Development Schedule

    Enclosed is a report regarding the Fiscal Year 2023 COTP Operations and Maintenance Budget and Work Plan and TANC Budget development schedules.

INFORMATION ITEMS

19. Report from the TANC Interim General Manager

    The Commission will receive a report from TANC's Interim General Manager.

20. Report on TANC Strategic Planning Efforts

    The Commission will receive a report on the status of workplans associated with ongoing strategic planning efforts.

ACTION ITEMS

21. Resolution Approving the Thirteenth Collection Agreement with the United States Forest Service

    The Commission will consider a resolution approving the Thirteenth Collection Agreement with the United States Forest Service.

22. Report and Potential Action Regarding a Letter of Agreement for Radio Replacement Activities

    The Commission will receive a report and may take action on a Letter of Agreement for radio replacement activities.

CLOSED SESSION

23. Closed Session Conference with Legal Counsel

a. Existing Litigation:
Pursuant to subsections (a) and (b) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss existing litigation at: the Federal Energy Regulatory Commission (FERC): Pacific Gas and Electric Company (PG&E)-RY 2022 Informal Challenge [ER19-13]; 2022 Transmission Revenue Requirement Annual Update posting [ER21- LM]; TO-20 - 2021 Transmission Rate Annual Update – Order on Informational Filing [ER19-13-000, *et. al.]*; TO-19 [ER17-2154]; TO-18 [ER16-2320]; Appeal of TO-18 [9th Circuit 21-70306 (TANC)] and [DC. Circuit 21-1061] (PG&E) and PG&E Depreciation Filing [ER 21-1219]; PG&E Abandoned Plant Cost Recovery – [ER21-2882] LM ; PG&E Accounting Request for Tower Coating Program - Update [AC21 153] LM+; Southern California Edison (SCE) – SCE RY 2022 Informal Challenge [ER19-1553]; [ER21-1280]; 2022 Transmission Annual Update posting [ER19-1553]; ER19-1553; San Diego Gas and Electric Company (SDG&E) - 2021 Transmission Revenue Requirement Update (ER21-526); Third Amendment to the California-Oregon Intertie Path Operating Agreement (ER21-649); Morongo Transmission Formula Rate Offer of Settlement - Update [ER21-669; ER21-1280 (SCE)]; Duke American Transmission Company Path 15 [ER20-1006]; FERC Rulemaking Proceedings: FERC Advanced Notice of Proposed Rulemaking on Regional Transmission Planning, Cost Allocation, Generator Interconnection [RM21-17]; Notice of Proposed Rulemaking on Cybersecurity Incentives [RM21-3]; Supplemental Notice of Proposed Rulemaking on Transmission Incentives [RM20-10]; FERC Notice of Proposed Rulemaking on Regional Transmission Organization Adders-Update [RM20-20]; WestConnect (Order 1000 Implementation)-Update [18-60575]; PG&E and SCE Regional Transmission Organization Adder Appeal – Update [20-71335]; PG&E, SCE, SDG&E Retail Return on Equity Request [A.21.08-015]; California Independent System Operator-Western Area Power Administration Amendment 2 to the Market Enhancement Efficiency Agreement [ER21-2735] and existing litigation at the California Public Utilities Commission: PG&E- Safety Culture [I.15-08-019, A.19-04-015] , and PG&E Regionalization Proposal [A.20-06-011].

b. Potential Litigation:
   i. Pursuant to paragraph (2) of subdivision (d) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss potential litigation that may be initiated.

      Balancing Authority/Open Access Same-Time Information System Service Provider

ii. Pursuant to paragraph (2) of subdivision (d) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss potential litigation that may be initiated. One Case.

c. Public Employment:
Closed Session Pursuant to Government Code Section 54957.6: Conference with Labor Negotiators: Agency Representatives: M. Gill and A. Hatcher; Unrepresented Employees: General Manager and Other Independent Contractors Who Function as Employees.

END OF CLOSED SESSION

24. Report and Potential Action on Administrative Items

25. Meeting Calendar

The Commission will confirm the date of its next scheduled meeting is February 23, 2022.

TAB 4

PUBLIC COMMENT

The Commission will consider comments from the public at this time.

TAB 5

DRAFT MINUTES AND ATTACHMENTS

DRAFT MINUTES
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
COMMISSION
TELECONFERENCE MEETING
December 22, 2021

Chair Gill (Turlock Irrigation District (TID)) called the December 22, 2021 Transmission Agency of Northern California (TANC) Commission teleconference meeting to order at 10:00 a.m. Mr. Roukema (Interim General Manager) took a roll call of Commissioners in attendance. Meeting attendees are listed in Attachment 1.

Approval of Agenda

Chair Gill inquired as to any recommended additions, deletions or modifications to the agenda. With no changes proposed, Ms. Bertolinio (City of Roseville) made a motion to approve the agenda. Mr. McFall (Modesto Irrigation District) seconded the motion, which was approved by the Commission. The approved agenda for the December 22, 2021 Commission meeting is included as Attachment 2.

PUBLIC COMMENT

Chair Gill asked if there were any members of the public that wished to address the TANC Commission. There were no requests.

CONSENT CALENDAR

Chair Gill asked if any Commissioner would like discussion or removal of any item under the Consent Calendar. After hearing no requests, Ms. Lewis (Sacramento Municipal Utility District) made a motion to approve the Consent Calendar. Ms. Hatcher (City of Santa Clara) seconded the motion, which was approved by the Commission. The approved minutes from the November 17, 2021 TANC Commission meeting are included as Attachment 3. Resolution 2021-21 is included as Attachment 4.

INFORMATION ITEMS

Report from the TANC Interim General Manager

Mr. Roukema provided an update regarding the TANC Strategic Plan which was approved by the Commission in 2020 with particularly focus on Year 1 calendar year 2021) priorities and plans for Year 2 (calendar year 2022) goals. Mr. Roukema also reported that a Letter of Agreement between TANC and the Western Area Power Administration (WAPA) was executed concerning WAPA's role as TANC's Open Access Same-Time Information System Administrator; and that a Letter of Agreement was being developed between TANC, WAPA, and the Bonneville Power Administration regarding the radio replacement project at the Captain-Jack Substation. Lastly Mr. Roukema noted that the determination of the Pacific Gas and Electric Company abandoned plant request at the Federal Energy Regulatory Commission was denied.

ACTION ITEMS

Resolution Approving Change Order Number 1 to the Contract with Wright Tree Service for Hazard Tree Abatement Services and Approving an Increase in the Contract Funding Authorization

Mr. Roukema provided an update on the removal of hazard trees adjacent to the COTP right-of-way in the Shasta-Trinity National Forest noting that in October 2021, TANC authorized a not-to-exceed contract to Wright Tree Service for $260,000. Mr. Roukema stated that on November 30, 2021, TANC issued a Notice to Proceed with a December 24, 2021 completion date for hazard tree removals. Mr. Roukema further noted that TANC's Registered Professional Forester estimated up to 150 additional trees identified adjacent to the COTP right-of-way with a total estimated cost of $180,000 for removal and merchantable value of these trees. Mr. Roukema recommended approval of Change Order Number 1 to the Wright Tree Service Contract to extend the completion date for hazard tree removal activities from December 24, 2021 to February 28, 2022 and increase the Wright Tree Service contract authorization amount to $400,000. After discussion by the TANC Commission, Mr. Zettel (City of Redding) moved to approve the

resolution for Change Order Number 1 to the Wright Tree Service contract for hazard tree abatement services and to increase in the contract funding authorization. Ms. Lewis (Sacramento Municipal Utility District) seconded the motion which was approved by the TANC Commission. Resolution 2021-22 is included as Attachment 5.

CLOSED SESSION

Pursuant to subsections (a), (b), and (d) of California Code Section 54956.9, and California Code Section 54957(b)(1), TANC's General Counsel Mr. Gross placed the Commission into closed session.

END OF CLOSED SESSION

Mr. Gross reported no action has been taken by the Commission.

Administrative Items

The TANC Commission discussed the proposed rate increase for TANC Special Counsel-Duncan, Weinberg, Genzer and Pembroke, P.C to be effective for work performed on and after January 1, 2022. After discussion by the TANC Commission, Mr. McFall (Modesto Irrigation District) moved to approve the proposed rate increase. The motion was seconded by Ms. Bertolino (City of Roseville) and approved by the TANC Commission.

Meeting Calendar

The next regular TANC Commission meeting was scheduled for January 26, 2022. There being no further business, Chair Gill adjourned the meeting.

Attachment 1

ATTENDANCE LIST

TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
COMMISSION
TELECONFERENCE MEETING

December 22, 2021

10:00 AM

NAME	ORGANIZATION
Manjot Gill	Turlock Irrigation District
Ann Hatcher	City of Santa Clara
Laura Lewis	Sacramento Municipal Utility District
Mark Willis	Sacramento Municipal Utility District
Nick Zettel	City of Redding
James McFall	Modesto Irrigation District
Martin Caballero	Modesto Irrigation District
Michelle Bertolino	City of Roseville
Randy Howard	Northern California Power Agency
Anish Nand	Northern California Power Agency
Steve Gross	TANC General Counsel
John Roukema	TANC Interim General Manager
Larry Riegle	TANC Staff

AGENDA
TANC COMMISSION MEETING
VIA TELECONFERENCE
DECEMBER 22, 2021
10:00 AM

Any member of the public who desires to address the Commission on any item considered by the Commission at this meeting, before, or during the Commission's consideration of that item shall so advise the Interim General Manager and shall thereupon be given an opportunity to do so.

As permitted by California Assembly Bill 361, the TANC Commission meeting will be conducted via teleconference. TANC Commission members will participate in the meeting from individual remote locations. Please use the following log in information to access the meeting:

You are invited to a Zoom meeting. Register in advance for this meeting:
https://us06web.zoom.us/meeting/register/tZItdOCurzgqHNAAGoZylRJpdqyE7XYPtZBn

Dial in: +1 669 900 6833 US
Meeting ID: 860 3961 3064

Any person with a disability may submit a request for reasonable modification or accommodation to the above described means for accessing and offering comment at the meeting to Larry Riegle at lriegle@tanc.us who will resolve such request.

1. Call to Order

   The TANC Chair will call the meeting to order.

2. Roll Call

   The Interim General Manager will conduct a roll call of TANC Commission members in attendance.

3. Approval of Agenda

   The Commission will review the proposed agenda and approve it with any necessary corrections or deletions.

PUBLIC COMMENT

4. The Commission will consider comments from the public at this time.

CONSENT CALENDAR

ALL MATTERS LISTED UNDER THE CONSENT CALENDAR ARE CONSIDERED BY THE COMMISSION TO BE ROUTINE AND WILL ALL BE ENACTED BY ONE MOTION. THERE WILL BE NO SEPARATE DISCUSSION OF THESE ITEMS UNLESS A COMMISSIONER REQUESTS THAT AN ITEM BE SEPARATELY CONSIDERED PRIOR TO THE TIME THE COMMISSION VOTES ON THE MOTION TO ADOPT.

5. Approval of the Draft Minutes from the November 17, 2021 TANC Commission Meeting.

   Enclosed are the draft minutes from the November 17, 2021 TANC Commission meeting, for approval, subject to any necessary corrections or clarifications.

6. Report on TANC's Investment Purchases

   Enclosed are reports on TANC's investment purchases.

7. Report on TANC Committees

   Enclosed are reports on the activities of the following TANC Committees:

   a. Contracts Committee
   b. Open Access Transmission Tariff Committee

8. Resolution Proclaiming a Local Emergency, Ratifying the Proclamation of a State of Emergency by the Governor and Authorizing Remote Teleconference Meetings

   The Commission will consider a resolution proclaiming a local emergency, ratifying the proclamation of a state of emergency by the Governor and authorizing remote teleconference meetings of The TANC Commission and associated TANC Committees.

INFORMATION ITEMS

9. Report from the TANC Interim General Manager

   The Commission will receive a report from TANC's Interim General Manager.

ACTION ITEMS

10. Resolution Approving Change Order Number 1 to the Contract with Wright Tree Service for Hazard Tree Abatement Services and Approving an Increase in The Contract Funding Authorization

    The Commission will consider a resolution approving change order Number 1 to the Contract with Wright Tree Service for Hazard Tree Abatement Services and Approving an Increase in the Contract Funding Authorization.

CLOSED SESSION

11. Closed Session Conference with Legal Counsel

a. Existing Litigation:
Pursuant to subsections (a) and (b) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss existing litigation at: the Federal Energy Regulatory Commission (FERC): Pacific Gas and Electric Company (PG&E)-RY 2022 Annual Update Filing [ER19-13]; Wildfire Right of Way Expansion Program request [EL22-16]; 2022 Transmission Revenue Requirement Annual Update posting [ER21- LM]; TO-20 - 2021 Transmission Rate Annual Update – Order on Informational Filing [ER19-13-000, *et. al.]*; TO-19 [ER17-2154]; TO-18 [ER16-2320]; Appeal of TO-18 [9th Circuit 21-70306 (TANC)] and [DC. Circuit 21-1061] (PG&E) and PG&E Depreciation Filing [ER 21-1219]; PG&E Abandoned Plant Cost Recovery – [ER21-2882] LM ; PG&E Accounting Request for Tower Coating Program - Update [AC21 153] LM+; Southern California Edison (SCE) – SCE RY 2022 Annual Update Filing [ER19-1553]; [ER21-1280]; 2022 Transmission Annual Update posting [ER19-1553]; ER19-1553; San Diego Gas and Electric Company (SDG&E) - 2022 Annual Update Filing; 2021 Transmission Revenue Requirement Update (ER21-526); Third Amendment to the California-Oregon Intertie Path Operating Agreement (ER21-649); Morongo Transmission Formula Rate Offer of Settlement - Update [ER21-669; ER21-1280 (SCE)]; Duke American Transmission Company Path 15 [ER20-1006]; FERC Rulemaking Proceedings: FERC Advanced Notice of Proposed Rulemaking on Regional Transmission Planning, Cost Allocation, Generator Interconnection [RM21-17]; Notice of Proposed Rulemaking on Cybersecurity Incentives [RM21-3]; Supplemental Notice of Proposed Rulemaking on Transmission Incentives [RM20-10]; FERC Notice of Proposed Rulemaking on Regional Transmission Organization Adders-Update [RM20-20]; WestConnect (Order 1000 Implementation)-Update [18-60575]; PG&E and SCE Regional Transmission Organization Adder Appeal – Update [20-71335]; PG&E, SCE, SDG&E Retail Return on Equity Request [A.21.08-015]; California Independent System Operator-Western Area Power Administration Amendment 2 to the Market Enhancement Efficiency Agreement [ER21-2735] and existing litigation at the California Public Utilities Commission: PG&E- Safety Culture [I.15-08-019, A.19-04-015] , and PG&E Regionalization Proposal [A.20-06-011].

b. Potential Litigation:
   i. Pursuant to paragraph (2) of subdivision (d) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss potential litigation that may be initiated.

      Balancing Authority/Open Access Same-Time Information System Service Provider

ii. Pursuant to paragraph (2) of subdivision (d) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss potential litigation that may be initiated. One Case.

c. Public Employment:
Closed Session Pursuant to Government Code Section 54957.6: Conference with Labor Negotiators: Agency Representatives: M. Gill and A. Hatcher; Unrepresented Employees: General Manager and Other Independent Contractors Who Function as Employees.

END OF CLOSED SESSION

12. Report and Potential Action on Administrative Items

a. Proposed rate increase for TANC Special Counsel-Duncan, Weinberg, Genzer & Pembroke, P.C to be effective for work performed on and after January 1, 2022

13. Meeting Calendar

The Commission will confirm the date of its next scheduled meeting is January 26, 2022.

Approved December 22, 2021
Attachment 3

MINUTES
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
COMMISSION
TELECONFERENCE MEETING
November 17, 2021

Chair Gill (Turlock Irrigation District (TID)) called the November 17, 2021 Transmission Agency of Northern California (TANC) Commission teleconference meeting to order at 10:00 a.m. Mr. Roukema (Interim General Manager) took a roll call of Commissioners in attendance. Meeting attendees are listed in Attachment 1.

Approval of Agenda
Chair Gill inquired as to any recommended additions, deletions or modifications to the agenda. With no changes proposed, Mr. McFall (Modesto Irrigation District) made a motion to approve the agenda. Ms. Bertolino (City of Roseville) seconded the motion, which was approved by the Commission. The approved agenda for the November 17, 2021 Commission meeting is included as Attachment 2.

PUBLIC COMMENT
Chair Gill asked if there were any members of the public that wished to address the TANC Commission. There were no requests.

CONSENT CALENDAR
Chair Gill asked if any Commissioner would like discussion or removal of any item under the Consent Calendar. Mr. Howard (Northern California Power Agency) requested to move agenda Item 13 - Report on TANC Open Access Same-Time Information System (OASIS) Matters out of the Consent Calendar for further discussion. The TANC Commission agreed. The TANC Commission also discussed and agreed to move several Information Items and Action Items to the Consent Calendar – unless the matter warrants additional discussion. Specific items that will now be considered under the Consent Calendar include: Wildfire Activities, California Independent System Operator (CAISO) Matters (except for updates from the Balancing Authority of Northern California), the report on TANC's Reliability Standards Compliance Program and the resolution proclaiming a Local Emergency, authorizing Remote Teleconference Meetings. After Commission discussion, Ms. Bertolino (City of Roseville) made a motion to approve the revised Consent Calendar. Ms. Hatcher (City of Santa Clara) seconded the motion, which was approved by the Commission. The approved minutes from the October 20, 2021 TANC Commission meeting are included as Attachment 3.

INFORMATION ITEMS
Report from the TANC Interim General Manager
Mr. Roukema provide an update on the annual Fair Political Practices Commission (FPPC) Form 700 Annual Statement of Economic Interests process noting that in accordance with TANC's Conflict of Interest Code, that TANC Commissioners and Alternates are required to file the form

annually. Mr. Roukema indicated that TANC was trying to update the current list of FPPC filers for TANC and would be asking Members to confirm their information. The TANC Commission also discussed the Report on OASIS Matters which was moved out of the Consent Calendar and discussed potential ideas to optimize TANC OASIS sales.

Report on CAISO Matters

Mr. Riegle (TANC) provided an update on CAISO matters noting that TANC continues to follow the CAISO Transmission Planning Process. Mr. Riegle noted that in October, TANC submitted comments on the CAISO's preliminary reliability study results and proposed mitigations. Mr. Riegle also noted that preliminary policy and economic study results are scheduled to be posted on November 18, 2021, followed by a stakeholder meeting in late November with stakeholder comments due on December 6, 2021.

Report on Wildfire Activities

Mr. Roukema provided an update on wildfire-related activities and noted that recommendations from the California Wildfire Safety Advisory Board on the TANC Wildfire Mitigation Plan (WMP) are expected at the end of 2021. Mr. Roukema noted that after recommendations have been received that the California-Oregon Transmission Project (COTP) Wildfire Planning Committee will reconvene to discuss the 2022 WMP update.

Report on TANC Strategic Planning Efforts

Mr. Roukema provided an update on the TANC Strategic Plan 2021-2025 and discussed the progress of the key items in the workplan highlighted in the Gantt chart that has been developed to track the status of key items.

Report on a Letter Agreement with WAPA and the CAISO associated with implementation of COTP losses

Mr. Roukema provided an update on the new letter agreement for the new Western Area Power Administration (WAPA) losses program for COTP schedules between WAPA and the CAISO. Mr. Roukema noted that the final implementation and related issues continue to evolve as the CAISO constructs system modifications to accommodate financial payback of losses on their COTP schedules.

Report on TANC Financial and Cash Matters

Mr. Kruse (Sacramento Municipal Utility District) presented the TANC Commission with a report on the status of available cash balances through June 30, 2021 and a preliminary report associated with Long-Term Layoff Agreement impacts related to capital improvements on the COTP.

ACTION ITEMS

Resolution Proclaiming a Local Emergency, Re-Ratifying the Proclamation of a State of Emergency by the Governor and Re-Authorizing Remote Teleconference Meetings

Mr. Roukema reported that TANC Commission and its Committees that are subject to the Ralph M. Brown Act have been operating remotely since March 2020 due to the COVID-19 pandemic and state of emergency. Mr. Roukema further reported that pursuant to Assembly Bill 361, the TANC Commission will continue to adopt a resolution every 30 days to operate remotely while there is a proclamation of emergency in effect. After discussion by the TANC Commission, Mr. McFall (Modesto Irrigation District) moved to approve the resolution re-ratifying the proclamation of emergency. This motion was seconded by Ms. Lewis (Sacramento Municipal Utility District) and approved by the TANC Commission. Resolution 2021-18 is included as Attachment 4.

Report and Potential Action Regarding the Audit of TANC's Financial Statements for FY21

Mr. O'Donnell (Baker Tilly LLP) presented a draft report on Financial Statements for TANC Fiscal Year 2021 (FY21). After discussion by the TANC Commission, Ms. Lewis (Sacramento Municipal Utility District) moved to approve the audit of TANC's FY21 financial statements. This motion was seconded by Mr. Beans (City of Redding) and approved by the TANC Commission.

Resolution on Approval of a COTP Capital Replacement Plan

Mr. Roukema provided an update on the proposed 20-year COTP Capital Replacement Plan that has been discussed by the TANC Commission at multiple previous meetings and noting the COTP/TANC Engineering and Operations (E&O) Committee had recommended approval of the 20-year COTP Capital Replacement Plan at their meeting in September 2021. Mr. Roukema and Ms. Anderson (WAPA) discussed that WAPA operates under a different Fiscal Year budgeting calendar than TANC, and to better plan for COTP capital replacements and to secure funding from the Federal government, WAPA needs a two-year lead time ahead of TANC's fiscal year budget process. It was also noted that the COTP Capital Replacement Plan includes a rolling five-year schedule and budget, which will allow WAPA to better plan and budget for COTP capital replacements anticipated over the next 20 plus years. The TANC Commission proposed a change to the wording of the resolution approving the 20-year COTP Capital Replacement Plan. After discussion by the TANC Commission, Mr. McFall (Modesto Irrigation District) moved to approve the COTP Capital Replacement Plan and the revised resolution. This motion was seconded by Ms. Lewis (Sacramento Municipal Utility District) and approved by the TANC Commission. Resolution 2021-19 is included as Attachment 5.

Report and Potential Action on TANC's Financing Options

Mr. Mills (Sacramento Municipal Utility District) discussed some initial financing options associated with the 20-Year COTP Capital Replacement Plan. The TANC Commission discussed potential paths for financing and agreed that a more detailed review of financing options should include reconvening the TANC Finance Committee in Quarter 1 of 2022 with the goal of

presenting the 20-Year COTP Capital Replacement Plan financing options to the TANC Commission in Quarter 2 of 2022.

Resolution Approving a Communication Site Sublease Agreement for the Mount Oso Communication Site

Mr. Roukema reported that TANC has been working with COTP Counsel over the last year to negotiate a new Communication Site Sublease Agreement for the Mount Oso Communication Site. Mr. Roukema reported that the COTP/TANC E&O Committee had recommended approval of the Communication Site Sublease Agreement for the Mount Oso Communication Site at their meeting on November 10, 2021. After discussion by the TANC Commission, Mr. McFall (Modesto Irrigation District) moved to approve the Mount Oso Communication Site Sublease Agreement. This motion was seconded by Ms. Bertolino (City of Roseville) and approved by the TANC Commission. Resolution 2021-20 is included as Attachment 6.

Report and Potential Action Concerning the Phase 1 – COI Path Rating Study

Mr. Roukema provided a status update on Phase 1 of the California-Oregon Intertie (COI) Study between TANC and COI owners. Mr. Roukema noted that this study was developed due to updates to the Western Electricity Coordinating Council (WECC) Path Rating Process and changes in corridor outage criteria. Mr. Roukema indicated that the Phase 1 study has concluded and requests that the Phase 1 report be submitted to WECC before the end of the year. After discussion by the TANC Commission, Ms. Hatcher (City of Santa Clara) moved to approve Phase 1 of the COI Path Rating Study. This motion was seconded by Ms. Bertolino (City of Roseville) and approved by the TANC Commission.

Report and Potential Action Regarding TANC's Reliability Standards Compliance Program

Mr. Roukema provided an update on recent TANC reliability standards compliance issues and noted that TANC will make the annual requests for 2021 compliance evidence to both SMUD and WAPA later this month. Mr. Roukema also reported that the WECC annual self-certification request is expected on December 15, 2021. After discussion by the TANC Commission, Mr. McFall (Modesto Irrigation District) moved to approve the TANC Reliability Standards Compliance report. This motion was seconded by Ms. Hatcher (City of Santa Clara) and approved by the TANC Commission.

CLOSED SESSION

Pursuant to subsections (a), (b), and (d) of California Code Section 54956.9, and California Code Section 54957(b)(1), TANC's General Counsel Mr. Gross placed the Commission into closed session.

END OF CLOSED SESSION

Mr. Gross reported no action has been taken by the Commission.

Administrative Items

The TANC Commission discussed the status of both the TANC Commission Chair and Vice-Chair positions and the slate of officers for Calendar Year 2022. After discussion by the TANC Commission, Mr. McFall (Modesto Irrigation District) moved to approve the slate of officers for Calendar Year 2022 and the extension of the term of both the TANC Commission Chair and Vice-Chair positions for an additional year. The motion was seconded by Ms. Lewis (Sacramento Municipal Utility District) and approved by the TANC Commission. The TANC Commission also discussed the proposed 2022 TANC Commission Meeting Schedule. After discussion by the TANC Commission, Ms. Hatcher (City of Santa Clara) moved to approve the 2022 TANC Commission Meeting Schedule. The motion was seconded by Ms. Bertolino (City of Roseville) and approved by the TANC Commission.

Meeting Calendar

The next regular TANC Commission meeting was scheduled for December 22, 2021. There being no further business, Chair Gill adjourned the meeting.

Respectfully Submitted,

DocuSigned by:
John Roukema
1133480BB1EB4E3...

John Roukema
TANC Interim General Manager

Attachment 4

RESOLUTION 2021-21

A RESOLUTION OF THE
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
PROCLAIMING A LOCAL EMERGENCY, RATIFYING THE PROCLAMATION OF A STATE OF EMERGENCY BY THE GOVERNOR AND AUTHORIZING REMOTE TELECONFERENCE MEETINGS FOR THE PERIOD OF DECEMBER 22, 2021 TO JANUARY 22, 2022 PURSUANT TO RALPH M. BROWN ACT PROVISIONS.

WHEREAS, the Transmission Agency of Northern California (TANC) is a joint exercise of powers agency organized under the laws of the State of California and is committed to preserving and nurturing public access and participation in its public meetings; and

WHEREAS, the TANC Commission and certain TANC Committee meetings (specifically Audit/Budget, Contracts, Engineering and Operations, Finance and Open Access Transmission Tariff committees, herein after referred to as the TANC Committees) are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate, and watch TANC conduct their business; and

WHEREAS, the Ralph M. Brown Act, Government Code section 54953(e), makes provisions for remote teleconferencing participation in meetings by members of a legislative body, without compliance with the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions; and

WHEREAS, a required condition is that a state of emergency is declared by the Governor pursuant to Government Code section 8625, proclaiming the existence of conditions of disaster or of extreme peril to the safety of persons and property within the state caused by conditions as described in Government Code section 8558; and

WHEREAS, a proclamation is made when there is an actual incident, threat of disaster, or extreme peril to the safety of persons and property within TANC Member jurisdictions caused by natural, technological, or human-caused disasters; and

WHEREAS, such conditions now exist within certain TANC Member jurisdictions, as some Members reside in counties with higher COVID-19 transmission rates, in counties with additional safety requirements in place including masking of all parties indoors regardless of vaccination status and requirements to show proof of vaccination to access certain indoor locations and the TANC Members convening in a central location to attend an in person meeting would present imminent risk to the health and safety of attendees; and

WHEREAS, TANC does hereby find that in person meeting of the TANC Commission and the TANC Committees would present imminent risk to the health and safety of attendees, and will continue to cause, conditions of peril to the safety of meeting participants that are likely to be beyond the control of services, personnel, equipment, and facilities of TANC, and therefore TANC desires to proclaim a local emergency and ratify the proclamation of state of emergency

by the Governor of the State of California for its TANC Commission meetings and the TANC Committee meetings; and

WHEREAS, as a consequence of the local emergency, TANC does hereby find that the TANC Commission and TANC Committee meetings shall conduct their meetings without compliance with paragraph (3) of subdivision (b) of Government Code section 54953, as authorized by subdivision (e) of section 54953, and that such legislative bodies shall comply with the requirements to provide the public with access to the meetings as prescribed in paragraph (2) of subdivision (e) of section 54953; and

WHEREAS, TANC will continue to post the agendas and meeting contact information for TANC Commission and the TANC Committee meetings to the TANC website at www.tanc.us which is publicly available at least 72 hours prior to each scheduled regular meeting.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Commission of the Transmission Agency of Northern California that:

Section 1. Recitals. The Recitals set forth above are true and correct and are incorporated into this Resolution by this reference.

Section 2. Proclamation of Local Emergency. That TANC hereby proclaims that a local emergency now exists throughout its Member jurisdictions and the District, and as some Members reside in counties with higher COVID-19 transmission rates and additional safety requirements in place including masking of all parties indoors regardless of vaccination status and requirements to show proof of vaccination to access certain indoor locations and the Members convening in a central location to attend an in person meeting would present imminent risk to the health and safety of attendees.

Section 3. Ratification of Governor's Proclamation of a State of Emergency. TANC hereby ratifies the Governor of the State of California's Proclamation of State of Emergency, effective as of its issuance date of March 2020.

Section 4. Remote Teleconference Meetings. TANC and TANC Interim General Manager are hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution including, conducting open and public meetings in accordance with Government Code section 54953(e) and other applicable provisions of the Brown Act.

Section 5. Effective Date of Resolution. This Resolution shall take effect immediately upon its adoption and shall be effective until the earlier of (i) January 22, 2022 or such time that TANC adopts a subsequent resolution in accordance with Government Code section 54953(e)(3) to extend the time during which the TANC Commission and the TANC Committees may continue to teleconference without compliance with paragraph (3) of subdivision (b) of section 54953.

PASSED AND ADOPTED this 22nd day of December 2021 on a motion by Ms. Lewis (Sacramento Municipal Utility District), seconded by Ms. Hatcher (City of Santa Clara).

	AYES	NOES	ABSTAIN	ABSENT
City of Alameda	X			
City of Biggs	X			
City of Gridley	X			
City of Healdsburg	X			
City of Lodi	X			
City of Lompoc	X			
Modesto Irrigation District	X			
City of Palo Alto	X			
Plumas-Sierra Rural Electric Cooperative	X			
City of Redding	X			
City of Roseville	X			
Sacramento Municipal Utility District	X			
City of Santa Clara	X			
Turlock Irrigation District	X			
City of Ukiah	X			

RESOLUTION 2021-22

A RESOLUTION OF THE
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
MAKING SUPPORTING FINDINGS AND APPROVING CHANGE ORDER NO. 1
TO THE CONTRACT WITH
WRIGHT TREE SERVICE TO ABATE HAZARD TREES ADJACENT TO THE RIGHT-OF-WAY
OF THE CALIFORNIA-OREGON TRANSMISSION PROJECT

WHEREAS the Transmission Agency of Northern California (TANC) is a joint exercise of powers agency organized under the laws of the State of California; and

WHEREAS TANC's contract Registered Professional Forester surveyed the entire 58 linear miles of the California-Oregon Transmission Project (COTP) right of way (ROW) that passes through the Modoc and Shasta-Trinity National Forests in 2020 and identified approximately 250 dead, dying, diseased, and/or defective trees immediately adjacent to the ROW that are within the Shasta-Trinity National Forest and that pose a fall-in hazard to COTP facilities within the next five years; and

WHEREAS, TANC applied for and has received authorization from the Shasta-Trinity National Forest to abate the identified hazard trees consistent with certain tree removal and slash treatment requirements; and

WHEREAS, A contract for Hazard Tree Abatement Services based upon a technical and cost proposals from Wright Tree Service was approved by the TANC Commission in October 2021 and:

WHEREAS the Wright Tree Service contract was awarded in the amount of $240,452 to provide the requested hazard tree abatement services for the first 250 hazard trees identified in 2020. The contract provides for additional per-tree costs for hazard trees that may be newly identified during abatement activities. The costs for abating additional trees were estimated to be approximately $19,000; and

WHEREAS the TANC Commission authorized the Interim General Manager to approve expenditures not exceeding $260,000 on the removal of hazard trees encountered during tree removal activities; and

WHEREAS, Wright Tree Service has mobilized and has begun removing hazard trees consistent with the contract so awarded; and

WHEREAS tree mortality in the Shasta-Trinity National Forest has accelerated since the 2020 hazard tree surveys were completed by TANC's Registered Professional Forester. Increased tree mortality is due to warm drought conditions, increased levels of bark, mountain pine, and western pine beetles in over-dense forest lands that has resulted in excessive tree die-offs; and

WHEREAS, TANC's Registered Professional Forester has and continues to identify additional hazard trees adjacent to the COTP ROW in the Shasta-Trinity National Forest that may total 150 more trees than were initially identified during the 2020 surveys; and

WHERAS, the District Ranger for the McCloud Ranger District of the Shasta-Trinity National Forest has verbally authorized TANC to continue identifying and removing newly identified hazard trees and tracking their merchantable timber values in a manner that facilitates the generation of an invoice from the U.S. Forest Service to TANC for the merchantable value of all additional trees; and

WHEREAS TANC's Registered Professional Forester, based on the per-tree contract rates for additional hazard tree removals, that the costs for abating these 150 additional trees is estimated to be approximately $135,000: and

WHEREAS TANC's Registered Professional Forester, based on current merchantable timber valuation practices accepted by the Shasta-Trinity National Forest, that the costs for compensating the Shasta-Trinity National Forest for the merchantable value of the 150 additional trees is estimated to be approximately $45,000; and

WHEREAS the COTP Operation and Maintenance Budget for Fiscal Year 2022 includes adequate budget to pay for these additional hazard tree abatement services by redirecting $60,000 from the Engineering Services budget item to the Mitigation Payments budget item;

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Commission of the Transmission Agency of Northern California:

(1) The above Recitals are true and correct.
(2) The TANC Interim General Manager and TANC General Counsel are authorized to finalize and execute Change Order No. 1 with Wright Tree Service on behalf of TANC subject to the approval of the COTP Management Committee that will: (a) extend the time for completion to February 28, 2022; (b) increase the number of hazard trees to be abated from approximately 250 to approximately 400 trees with a cost per tree based on the costs per additional trees as set forth in the contract, resulting in a contract amount not to exceed $400,000.
(3) The TANC Interim General Manager is authorized to execute additional Change Orders for extensions of the time for completion of the work as needed to account for weather, site conditions, and other unforeseen events; and
(4) The Commission authorizes that the not-to-exceed funding for the contract for hazard tree abatement services with Wright Tree Service be increased from $260,000 to $400,000.

PASSED AND ADOPTED this 22nd day of December 2021 on a motion by Mr. Zettel (City of Redding), seconded by Ms. Lewis (Sacramento Municipal Utility District).

	AYES	NOES	ABSTAIN	ABSENT
City of Alameda	X			
City of Biggs	X			
City of Gridley	X			
City of Healdsburg	X			
City of Lodi	X			
City of Lompoc	X			
Modesto Irrigation District	X			
City of Palo Alto	X			
Plumas-Sierra Rural Electric Cooperative	X			
City of Redding	X			
City of Roseville	X			
Sacramento Municipal Utility District	X			
City of Santa Clara	X			
Turlock Irrigation District	X			
City of Ukiah	X			

TAB 6

REPORT ON TANC'S INVESTMENT PURCHASES

Enclosed is a report on TANC's investment purchases.

TANC

Transmission Agency of Northern California

Dear Commissioners,

RE: MANDATED REPORTS

Attached are the Investment Purchases Reports for the months of October, November and December and the Portfolio Summary as of December 31, 2021. California Government Code Sections 53607 and 53646, respectively, mandate the reports. The investment portfolio complies with TANC's investment policy and the applicable bond indentures.

TANC expects to meet expenditure requirements for the next six months as detailed in the approved and proposed budgets.

Should you have any questions, please let me know.

Sincerely,

Jon Anderson

TANC Assistant Treasurer

Attachments

Transmission Agency of Northern California

Portfolio Summary
As of
December 31, 2021

Security Description	Issuer Description	Coupon	Yield	Maturity Date	Par Value	Original Cost	Market Value	Settlement Date
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Money Market Funds								
Local Agency Investment Fund	Local Agency Investment Fund	-	0.22%	N/A	43,113,256	43,113,256	43,113,256	
Fidelity Inst MM Gov't Portfolio-Class I	Fidelity Investments	-	0.01%	N/A	493,203	493,203	493,203	
Federated Government Obligations	Federated Investors Funds	-	0.01%	N/A	2,806,048	2,806,048	2,806,048	
First American Government Obligations	First American Investments	-	0.01%	N/A	3,795,750	3,795,750	3,795,750	
TOTAL					**50,208,256**	**50,208,256**	**50,208,256**	

Transmission Agency of Northern California

Investment Purchases Report
For Month Ended
December 31, 2021

Settlement Date	Maturity Date	Portfolio	Investment Type	Issuer	Par Value

No purchases in December 2021

Transmission Agency of Northern California

Investment Purchases Report
For Month Ended
November 30, 2021

Settlement Date	Maturity Date	Portfolio	Investment Type	Issuer	Par Value

No purchases in November 2021

Transmission Agency of Northern California

Investment Purchases Report
For Month Ended
October 31, 2021

Settlement Date	Maturity Date	Portfolio	Investment Type	Issuer	Par Value

No purchases in October 2021

TAB 7

TRANSMISSION AGENCY OF NORTHERN CALIFORNIA (TANC)
SCHEDULE OF COMMITTEE MEETINGS[1]

Audit/Budget Committee	February 10, 2022
Contracts Committee	February 1, 2022
Engineering and Operations Committee	March 9, 2022
Open Access Transmission Tariff Committee	February 1, 2022

[1] Currently scheduled meetings will be held by teleconference due to COVID-19 pandemic.

TRANSMISSION AGENCY OF NORTHERN CALIFORNIA

DRAFT MINUTES

Engineering and Operations Committee November 10, 2021

APPROVED MINUTES

Engineering and Operations Committee September 8, 2021

DRAFT MINUTES OF THE
CALIFORNIA-OREGON TRANSMISSION PROJECT AND
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
ENGINEERING AND OPERATIONS E&O COMMITTEES'S
TELECONFERENCE MEETING
FOLSOM, CALIFORNIA
NOVEMBER 10, 2021

The California-Oregon Transmission Project (COTP) Engineering and Operations (E&O) Committee met jointly with the Transmission Agency of Northern California (TANC) E&O Committee (i.e. E&O Committees) by teleconference on November 10, 2021. The Agenda and Attendance list for the meeting are provided as Attachment 1 and Attachment 2, respectively.

COTP/TANC E&O COMMITTEES MEETING

AGENDA ITEM 1, 2, 3 AND 4: CALL TO ORDER, ROLL CALL, PUBLIC COMMENT AND ADMINISTRATION

a. *Approval of Agenda*

The meeting was called to order by Mr. Costalupes (Modesto Irrigation District). Mr. Costalupes asked if there were any members of the public that wished to address the E&O Committees. There were no requests. Mr. Costalupes then asked if there were any changes to the agenda. With no changes noted, Mr. Costalupes (Modesto Irrigation District) called for approval of and then moved to approve the agenda. Mr. Tuggle (Western Area Power Administration (WAPA)) seconded the motion, and the agenda was approved by the E&O Committees. The approved agenda is included as Attachment 1.

b. *Minutes of the September 8, 2021 E&O Committees Meeting*

Mr. Costalupes asked if there were any changes to the draft minutes from the September 8, 2021 E&O Committees meeting. With no changes proposed, Mr. Porter (City of Roseville) moved to approve the draft minutes from the September 8, 2021 E&O Committees meeting. Mr. Buckingham (Sacramento Municipal Utility District) seconded the motion. The E&O

Committees then approved the minutes from the September 8, 2021 E&O Committees meeting. The approved minutes are included as Attachment 3.

c. *Next Meeting*

The next E&O Committees meeting was scheduled for Wednesday, January 12, 2022.

AGENDA ITEM 5: OPERATIONS AND MAINTENANCE ISSUES

a. *COTP Operations Update*

Ms. Cuellar (TANC) provided the E&O Committees with a report on COTP operations and noted that the California-Oregon Intertie (COI) North-to-South rating was generally 3,200 megawatts (MW's) and increased to 4,600 MW's in the end of October, and the COI rating South-to-North was generally 0 MW's and fluctuated from 1,075 MW to 881 MWs for the last few days of the month. Ms. Cuellar reported that there was also one remedial action scheme (RAS) event which occurred on September 4, 2021 and that on October 14, 2021, a fire was reported near the Olinda-Tracy segment of the COTP and that no damage occurred.

b. *Line and Substation Outages – Occurred and Scheduled*

Mr. Underwood (WAPA) provided the E&O Committees an update on recent and planned outages of COTP facilities noting that the Tracy Substation steel replacement work continues, and the Olinda Substation ring bus work has been rescheduled and is expected to begin soon.

c. *Update on Environmental and Land Activities*

Mr. Wagenet (TANC) provided the E&O Committees an update on environmental and land activities that have occurred since the last meeting and noted that a contract for hazard tree abatement services in the Shasta-Trinity National Forest was approved by the TANC Commission and the COTP Management Committee. Mr. Wagenet noted that TANC is expected to issue a notice to proceed with field activities in early November. Mr. Wagenet also noted that TANC had recently executed a non-disclosure agreement with the California

Department of Water Resources (DWR) for the Delta Conveyance Project (DCP) and continues to collaborate with WAPA to better respond to DWR service and information requests. Mr. Wagenet also reported that TANC continues to discuss with Modoc National Forest representatives the replacement of the Eleventh Collection Agreement which will expire on June 30, 2022. Mr. Wagenet indicated that TANC will provide a final draft of the Thirteenth Collection Agreement for the E&O Committees consideration at the January 2022 meeting. Lastly, Mr. Wagenet noted that TANC expects to hear from the California Wildfire Safety Advisory Board on their review of the 2021 TANC Wildfire Mitigation Plan (WMP) by the end of 2021 and the COTP Wildfire Planning Committee would then reconvene to discuss the 2022 WMP update.

d. *Other Operation and Maintenance Issues*

Mr. Tuggle provided the E&O Committees an update on Operation and Maintenance (O&M) activities which have been completed since the last meeting as well as several potential capital replacement development projects including: (1) Olinda-Tracy insulators inspection; (2) status update on the Tracy Steel Replacement Project; (3) potential Tracy Steel recycling; (4) dead-end tower composite insulator replacements and (5) potential COTP Spacer project. The E&O Committee discussed the potential COTP Spacer project noting that this would be a five-to-10-year project and that while some of the COTP spacers have been replaced– some are the originals. Mr. Tuggle indicated that this project would be presented at the upcoming COTP budget workshop.

e. *Transmission Planning and Technical Study Activities Update*

Mr. Schiermeyer (TANC) provided an update on recent transmission planning and technical study activities and noted that both the 2021-2022 Winter California-Oregon Intertie (COI) Report and COI versus Northern California Hydroelectric Study plan for Spring and Summer 2022 have been completed. Mr. Schiermeyer reported that the COI Path Rating Study is also nearing completion. The E&O Committee discussed the recent Pacific Gas and Electric

Company request to initiate the Path Rating Process for the Round Mountain and Table Mountain Series Capacitor RAS project which will follow the on-going COI Path Rating Study process. Lastly, Mr. Schiermeyer reported that in late September, the final version of the TANC 2021 Annual Assessment Study Plan was sent out to E&O committee members with the powerflow models expected to be available by November 12, 2021.

AGENDA ITEM 6: OTHER ITEMS FOR DISCUSSION

a. *California-Oregon Intertie Real-Time Operations Update*

Mr. Buckingham (SMUD) provided the highlights on recent COI real-time operations updates and provided the COTP/TANC E&O Committee with September and October 2021 Balancing Authority of Northern California reports which include reports of COI flows both South to North and North to South as well as unscheduled flows.

b. *Update on COTP Capital Replacements Plan*

Mr. Roukema (TANC) gave an update on the status of the COTP Capital Replacement Plan noting that it was approved by the TANC Commission and COTP Management Committee in November and that the financing part of the plan would be considered as a separate item. WAPA then provided additional updates on the COTP Capital Replacement Plan and the associated planning activities.

c. *Update on Assembly Bill 361 – Authorizing Remote Teleconference Meetings*

Ms. Cuellar reported that the E&O Committees have been operating remotely since May 2020, and under Assembly Bill 361, the committee could continue operating remotely as long as there was still a proclamation of emergency in California. Ms. Cuellar noted that once the proclamation of emergency ended, the E&O Committee would need to operate as it did pre-COVID and resume in person meetings in accordance with the Ralph M. Brown Act requirements.

d. *Fiscal Year 2023 COTP Operation and Maintenance Budget Development Schedule*

Mr. Laporte (TANC) provided the status of the COTP Fiscal Year 2023 Operations and Maintenance budget development process and noted that the budget workshop had been scheduled for February 9, 2022.

e. *2022 Proposed Joint COTP/TANC E&O Meeting Dates*

The COTP/TANC E&O Committee discussed and approved the meetings dates for the 2022 calendar year. Ms. Cuellar noted that "save the date" emails for 2022 would be sent out soon.

f. *Letter Agreement with the Western Area Power Administration and the California Independent System Operation associated with implementation of COTP losses*

Mr. Roukema (TANC) provided an update on the letter agreement for the new WAPA losses program for COTP schedules between WAPA and the California Independent System Operator.

AGENDA ITEM 7: APPROVALS AND RECOMMENDATIONS

a. *Communication Site Sublease Agreement for the Mount Oso Communication Site*

Ms. Cuellar (TANC) presented the draft Communication Site Sublease Agreement for the Mount Oso Communication Site to the COTP/TANC E&O Committee noting that: (1) 10-year term starting on January 18, 2023; (2) proposed annual rent amount expected to be 30 percent higher than current rent; (3) advance noticing requirements to equipment alterations would be required in certain cases; (4) emergency helicopter access was allowable with one-hour notice and (5) an additional key would be provided to the locked gate. After discussion by the E&O Committee, Mr. Buckingham (Sacramento Municipal Utility District) moved to approve the Communication Site Sublease Agreement. Mr. Porter (City of Roseville) seconded this motion.

AGENDA ITEM 8: PROJECT COST

a. and b. *Status of Fiscal Year 2021 O&M Costs*

Ms. DiLoreto (WAPA) provided a detailed status of WAPA's Fiscal Year 2021 budget and expenditures and an update on the WAPA end of fiscal year budget and expenditures.

AGENDA ITEM 9: COTP/TANC MEETING E&O ADJOURNMENT

There being no further business, Mr. Costalupes adjourned the E&O Committees meeting.

Attachment 3

MINUTES OF THE CALIFORNIA-OREGON TRANSMISSION PROJECT AND TRANSMISSION AGENCY OF NORTHERN CALIFORNIA ENGINEERING AND OPERATIONS E&O COMMITTEES'S TELECONFERENCE MEETING FOLSOM, CALIFORNIA SEPTEMBER 8, 2021

The California-Oregon Transmission Project (COTP) Engineering and Operations (E&O) Committee met jointly with the Transmission Agency of Northern California (TANC) E&O Committee (i.e. E&O Committees) by teleconference on September 8, 2021. The Agenda and Attendance list for the meeting are provided as Attachment 1 and Attachment 2, respectively.

COTP/TANC E&O COMMITTEES MEETING

AGENDA ITEM 1, 2, 3 AND 4: CALL TO ORDER, ROLL CALL, PUBLIC COMMENT AND ADMINISTRATION

a. *Approval of Agenda*

The meeting was called to order by Mr. Costalupes (Modesto Irrigation District). Mr. Costalupes asked if there were any members of the public that wished to address the E&O Committees. There were no requests. Mr. Costalupes then asked if there were any changes to the agenda. With no changes noted, Mr. Costalupes (Modesto Irrigation District) called for approval of and then moved to approve the agenda. Mr. Tuggle (Western Area Power Administration (WAPA)) seconded the motion, and the agenda was approved by the E&O Committees. The approved agenda is included as Attachment 1.

b. *Minutes of the July 14, 2021 E&O Committees Meeting*

Mr. Costalupes asked if there were any changes to the draft minutes from the July 14, 2021 E&O Committees meeting. With no changes proposed, Mr. Costalupes called for approval of and then moved to approve the draft minutes from the July 14, 2021 E&O Committees meeting. Mr. Tuggle (Western Area Power Administration) seconded the motion. The E&O Committees then approved the minutes from the July 14, 2021 E&O Committees meeting. The approved minutes are included as Attachment 3.

c. *Next Meeting*

The next E&O Committees meeting was scheduled for Wednesday, November 10, 2021.

AGENDA ITEM 5: OPERATIONS AND MAINTENANCE ISSUES

a. *COTP Operations Update*

Mr. Sanchez provided the E&O Committees with a report on COTP operations and noted that since the last meeting, the California-Oregon Intertie (COI) rating was generally 4,600 MW's

North-to-South and 881 MW's South-to-North. Mr. Sanchez also noted that, during this time, WAPA voltage control operated appropriately.

b. *Line and Substation Outages – Occurred and Scheduled*

Mr. Sanchez provided the E&O Committees an update on recent and planned outages of COTP facilities. Mr. Blanding (WAPA) noted that outages will be taken in October and November for the completion of several projects including, the Olinda Substation series capacitor work, Olinda Substation shunt capacitor replacement, and the Tracy Substation steel replacement project. It was also noted that on August 3, 2021, there was a 20-minute outage at Captain-Jack Substation due to a wildfire.

c. *Update on Environmental and Land Activities*

Mr. Wagenet (TANC) provided the E&O Committees an update on environmental and land activities that have occurred since the last meeting and noted that the California Wildfire Safety Advisory Board (Board) continues to discuss the approach they will be taking to review the 50 publicly-owned utility (POU) wildfire mitigation plans that were submitted in 2021. Mr. Wagenet also noted that on August 27, 2021, the Board sent an email to the POU representatives requesting that each POU provide a summary of changes in the 2021 WMP update compared to the prior year's WMP. Mr. Wagenet indicated that TANC would be responding accordingly. Mr. Wagenet also reported that the removal of 41 hazard trees in the Modoc National Forest was completed on August 13, 2021. Mr. Wagenet further reported that a Request for Proposals was released on August 27, 2021 for the removal of hazard trees in the Shasta-Trinity National Forest and that a preliminary bid meeting was held on September 7, 2021. Mr. Wagenet indicated that TANC will continue to monitor the proposed Delta Conveyance Project (DCP), as there is currently a proposed alternative that would locate a pumping plant on TANC owned property near Tracy. Mr. Wagenet noted that TANC had recently executed both a temporary permit to enter and a non-disclosure agreement for the DCP. Mr. Miller (WAPA) reported that WAPA had been approached about supplying power to the DCP. After a discussion, TANC and WAPA agreed to schedule a conference call to discuss coordination of efforts relating to the DCP. Lastly, Mr. Wagenet noted that the trees in the vicinity of the Manzanita Lake Communication Site which had been impacting the radio signal had been removed and requested that WAPA confirm that the signal was now sufficient.

d. *Other Operation and Maintenance Issues*

Mr. Tuggle provided the E&O Committees an update on Operation and Maintenance (O&M) activities which have been completed since the last meeting. Mr. Head (WAPA) provided an update on engineering projects including a status of the communication site radio replacement project and noting that all equipment has been received, field visits are expected to be completed in October and a procurement award is expected to be made in late September. Mr. Buckingham (Sacramento Municipal Utility District (SMUD)) asked if the

recent wildfire activity had resulted in any staffing issues for WAPA. Mr. Tuggle (WAPA) indicated there had been none to date.

Ms. Cuellar (TANC) provided an update on the status of TANC Communication site negotiations and noted that the draft Communication Site Sublease Agreement for the Mt. Oso Communication Site is still under review by counsel and will potentially be ready for consideration in November.

e. *Transmission Planning and Technical Study Activities Update*

Mr. Schiermeyer (TANC) provided an update on recent transmission planning and technical study activities and noted that the 2021-2022 Winter California-Oregon Intertie (COI) Nomogram study has been completed. Mr. Schiermeyer also reported that based on previous discussions on the COI South-to-North Nomogram and local issues that were driving thermal concerns, the California Independent System Operator (CAISO) modified the study process to exclude transformers, resulting in a two percent to five percent increase in COI South-to-North flows. Mr. Schiermeyer further noted that regarding the CAISO Cluster Studies, the CAISO filed a proposal to extend the timeline for the Cluster 14 study process to the Federal Energy Regulatory Commission on July 27, 2021. Lastly, Mr. Schiermeyer reported that the COI Path Rating Study is still in the Phase 1 studies process.

AGENDA ITEM 6: OTHER ITEMS FOR DISCUSSION

a. *California-Oregon Intertie Real-Time Operations Update*

Mr. Buckingham (SMUD) provided the highlights on recent COI real-time operations updates including the July and August 2021 Balancing Authority of Northern California reports on COI flows South-to-North and North-to-South and unscheduled flows. Mr. Buckingham noted that there were no voltage related outages identified since the last E&O Committee meeting.

b. *Salvage of Surplus Communication Site Equipment*

Mr. Sanchez reported that, as previously discussed by the E&O Committees, TANC explored the options to retain a salvage company to remove surplus communication site equipment (includes generators, concrete buildings, radio antennas, and two steel communication towers) that was stored at WAPA's Elverta and Olinda substation yards. Mr. Sanchez further noted that TANC selected NorthState Recycling Inc. to remove the equipment and that equipment removal is scheduled for September 9, 2021.

c. *Proposal to Utilize a Nomogram to Manage Unscheduled Flow on the California-Oregon Intertie*

Mr. Sanchez reported that TANC had recently updated their contacts in the current Owner's Coordinated Operation Agreement (OCOA) which governs the coordinated operation of the COTP and the Pacific Alternating Current Intertie. At their August 18, 2021 meeting, the TANC Commission appointed Joint Roukema (Interim General Manager) and Mark Willis (Sacramento Municipal Utility District) to the OCOA Administrative Committee and OCOA

E&O Committee, respectively. Mr. Sanchez also noted that the appointment updates were made in response to a recent request that the CAISO made to the COI owners requesting permission to expand an existing nomogram that was utilized on the Pacific Alternating Current Intertie lines during recent fires.

AGENDA ITEM 7: APPROVALS AND RECOMMENDATIONS

a. *COTP Capital Replacements Plan*

Mr. Tuggle, Mr. Icenhower, and Ms. Tansy (WAPA) each presented on aspects of the COTP Capital Replacement Plan. The E&O Committee discussed the proposed COTP Capital Replacement plan, the overall capital work direction, potential near and long-term financing options and the WAPA five-by-five plan which is the vehicle which WAPA would use to implement the plan. After discussion by the E&O Committee, Mr. Buckingham (Sacramento Municipal Utility District) moved to approve the COTP Capital Replacements Plan. Mr. Costalupes (Modesto Irrigation District) seconded this motion.

AGENDA ITEM 8: PROJECT COST

a. and b. *Status of Fiscal Year 2021 O&M Costs–O&M and Olinda-Tracy Right of Way Improvement Program Costs*

Ms. DiLoreto (WAPA) provided a detailed status of WAPA's Fiscal Year 2021 budget and expenditures and an update on the WAPA end of fiscal year budget and expenditures.

AGENDA ITEM 9: COTP/TANC MEETING E&O ADJOURNMENT

There being no further business, Mr. Costalupes adjourned the E&O Committees meeting.

Respectfully Submitted,

DocuSigned by:
John Roukema
1133480BB1EB4E3...

John Roukema
TANC Interim General Manager

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON WESTCONNECT ACTIVITIES

This memo provides a summary of recent WestConnect activities. The Transmission Agency of Northern California (TANC) continues to participate in activities conducted by WestConnect (to comply with the requirements of Federal Energy Regulatory Commission Order 890), which is tasked with coordination of regional and interregional transmission planning. The most recent Planning Subcommittee (PS) meetings were held by webinar on November 16, 2021 and December 14, 2021. The most recent Planning Management Committee (PMC) meetings were held by webinar on November 17, 2021 and December 15, 2021.

Planning Subcommittee

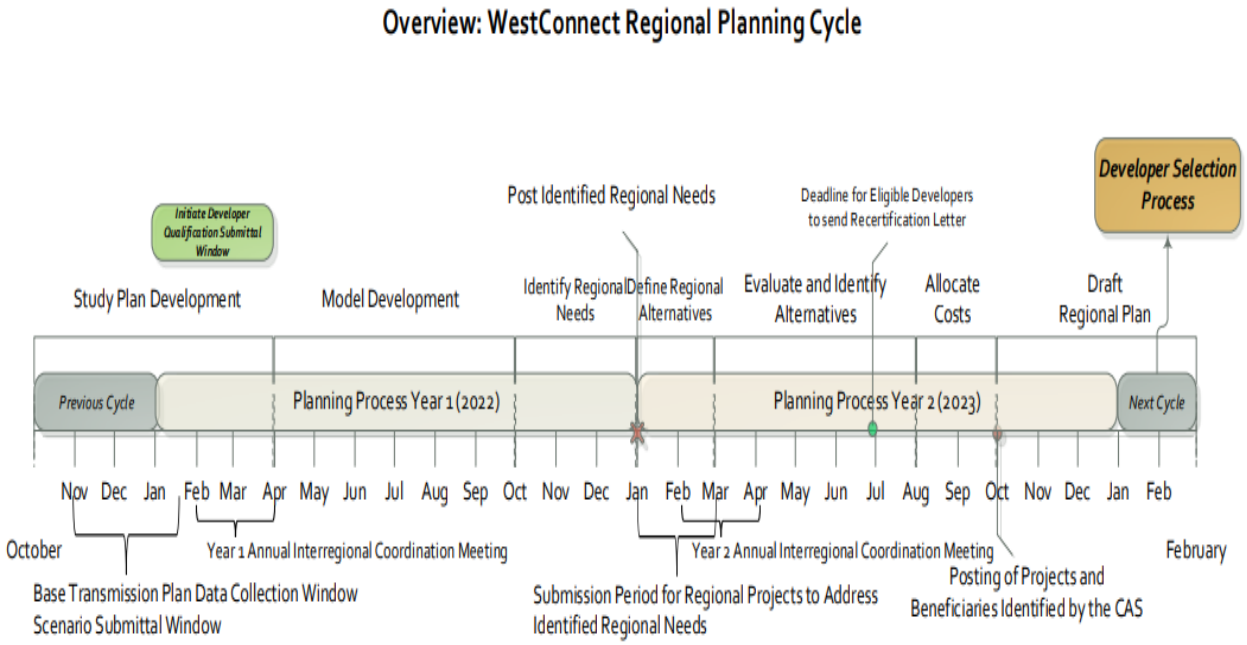
At their November 16, 2021 meeting, the PS discussed the PMC comments on the draft 2020-2021 Regional Transmission Plan. Only Salt River Project and El Paso Electric submitted comments and they mostly involved minor edits. The PS also discussed the upcoming 2022-2023 planning cycle and many of the comments concerned the minor changes to the previous cycle's plan. There was a discussion of the Regional versus Local Matrix as well as the potential for mitigation during the study process. Most seams issues are well-defined already and there is only potential for regional issues where two or more entities own a single voltage bus.

At their December 14, 2021 meeting, the PS presented the final draft 2020-2021 Regional Transmission Plan report. There were several clarifying comments that were addressed before the meeting, but no outstanding comments at the end. A proposed schedule for the 2022-2023 Regional Planning Process was presented. This closely followed previous years' timelines. A draft of the Study Plan was also presented which included only minor changes compared to the previous plan.

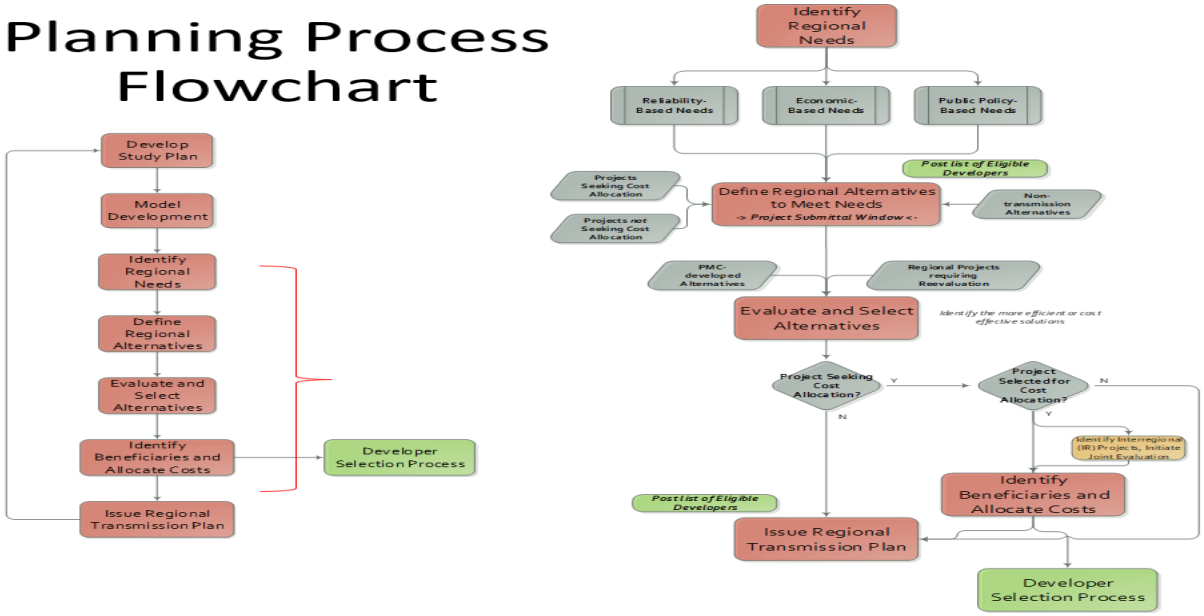
Planning Management Committee

At their November 16, 2021 meeting, the PMC moved to approve Nathan Powell from Deseret Power as Vice Chair of the PS for the 2022-2023 Planning Cycle. The PMC also moved to approve Liam Noailles from Xcel Energy as the Vice Chair for the Contract and Compliance Subcommittee (CCS) for the 2022-2023 Planning Cycle. Both were approved with no opposition. Both Chair positions are still open and have not received any nominations. Discussions were held that considered a random selection process to ensure that the positions do not remain vacant. A list of eligible entities was created, and TANC is eligible for random selection to both the PS and CCS Chair positions. Incumbents would be ineligible for the next cycle to prevent an entity from serving during two consecutive planning cycles. Other entities may still submit nominations as the random process is not intended to replace nominations.

An overview of the 2022-2023 Planning Cycle was also presented for comments. This has not changed much from previous cycles. The overview is presented below.



The PMC also presented the following flowchart that shows the steps of the Planning Process.



At their December 15, 2021 meeting, the PMC presented for approval Chair nominees for the PS and the CCS. The nominees are Michael Korhonen from the Western Area Power Administration for the PS and Matthew Loftus from El Paso Electric Company for the CCS. The PS also presented the final 2020-2021 Regional Transmission Plan to the PMC. The WestConnect 2020-2021 Regional Transmission Plan was then approved by the PMC.

The PMC also reviewed and discussed the 2022-2023 Regional Transmission Planning Process Timeline and Planning Cycle and discussed the two windows which are being used to collect information used to develop the 2022-2023 Regional Study Plan. These windows include the Scenario Submittal Window which was open until January 3, 2022; and the Transmission Plan Project List (TPPL) Project Submittal Window, which is open until January 28, 2022. The TPPL submittals will inform the transmission assumptions (i.e., Base Transmission Plan) for the next WestConnect FERC Order 1000 regional needs assessment.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON COTP MATTERS

Operations Update

In November 2021, the California-Oregon Intertie (COI) rating generally remained at or near 4,300 megawatts (MWs). For about a week in late November, the COI was rated at full capacity of 4,800 MWs. In December 2021, the COI rating generally ranged between 3,300 MW and 4,800 MWs for the first half of the month. There were intermittent maintenance outages derating the line to between 2,600 and 3,300 MWs, including a planned outage between December 10 and December 12 which derated the COI to 3,300 MWs in the North to South direction. The COI also remained operational, with all substation generators applied as intended, during the severe wind and rain conditions on December 13 and 14, 2021. The COI rating then remained at full capacity of 4,800 MWs for the second half of December.

There were two recent break-ins at the Olinda Substation – the first on November 26, 2021 and the second on December 24, 2021. In both instances, the individuals cut the substation fence to enter the yard. The Western Area Power Administration (WAPA) reported that multiple reels of cable and wire were stolen. Local law enforcement was contacted, WAPA completed an inventory and is reviewing data and procedures and continues to coordinate with local law enforcement. Fence repairs at the Olinda Substation have been completed.

Maintenance Update

WAPA continues to complete operations and maintenance (O&M) activities in support of the California-Oregon Transmission Project (COTP). Recent O&M activities include:

- Vegetation management including the on-going removal of off-right of way hazard trees, tower brushing, and spraying with post- and pre-emergent herbicides.
- Continued capital replacement projects at the Tracy and Olinda substations and Maxwell Compensation Station including the recently completed steel repair projects, station

service upgrades, series capacitor replacement projects, shunt reactor circuit breaker replacements projects and the COTP microwave radio replacement project.

- Ongoing routine O&M activities which include protection and communication maintenance, substation maintenance, line and aerial patrols of Tier 2 and Tier 3 High Fire Threat area are scheduled to begin in February.

Environmental and Land Update

TANC Request for Public Assistance from the Federal Emergency Management Agency

In 2017, TANC submitted a Request for Public Assistance (RPA) to the Federal Emergency Management Agency (FEMA) for severe winter-storm damage to several COTP access roads, and to the integral ground supporting COTP Tower 416. The California Office of Emergency Services (Cal OES) acts as the state administering agency on behalf of FEMA that works directly with those entities requesting such assistance (i.e. Applicants).

TANC as the Applicant – has been coordinating intermittently with Cal OES for the past few years regarding several "projects" where TANC has been requesting assistance as reimbursement for eligible costs to restore damaged roads and slopes to their pre-disaster function and capacity, and in some instances, to improve road drainage and travel conditions beyond their pre-disaster conditions. Over $1million in cost reimbursements have been received by TANC from FEMA and Cal OES since 2017.

In March of 2021, staff submitted a formal closeout claim that requested reimbursement for additional costs incurred that were beyond those initially scoped in 2017 with Cal OES and FEMA. Over the past two months, TANC has been working with Cal OES to formally close out all those projects. In October 2021, TANC received a letter noting that over $189,000 of additional costs associated with repairs needed to the access road leading to Tower 416 and related activities had been approved. The Cal OES informed TANC that they may expect reimbursement payment in the first quarter of 2022.

TANC continues to work with Cal OES and FEMA on closing out all the projects and additional costs incurred and formally claimed as part of the closeout process. Once the closeout process is complete, a comprehensive accounting of all repair costs incurred, claimed, and reimbursed under TANC's RPA will be prepared.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON TECHNICAL MATTERS

Transmission planning and technical study activities for the Transmission Agency of Northern California (TANC) have focused on the following:

Operating Studies Subcommittee
The 2022 Summer Seasonal Nomogram study process continues, and studies are underway. It is anticipated that the 2022 Summer season California-Oregon Intertie (COI) Nomogram results should be available by the end of January 2022.

California-Oregon Intertie Path Rating Study Processes
The COI owners recently completed the Path 66 Comprehensive Progress Report. The report and cover letter, signed by representative COI owners, was submitted to the Western Electricity Coordinating Council (WECC) on December 29, 2021. The COI owners who participated in the study included: TANC, Western Area Power Administration (WAPA), Pacific Gas and Electric Company (PG&E), Bonneville Power Administration (BPA), Portland General Electric and PacifiCorp. The COI path is designated as WECC Path 66 in the WECC Path Rating Catalog and currently has a North to South Existing Rating of 4,800 megawatts (MW) that was implemented in 1992. The COI owners performed a study of Path 66 to determine a new North to South Path Rating for Path 66. The report demonstrates that under the conditions studied, Path 66 can achieve a non-simultaneous rating of 5,100 MW North to South.

In accordance with requirements of the WECC Path Rating Process, the report will now undergo a 60-day review by the WECC Studies Subcommittee. Upon completion of the 60-day review process, the COI owners requested that Path 66 be granted Phase 2a status. The Phase 2 study will examine the simultaneous impacts with the COI rated at 5,100 MWs.

On October 21, 2021, PG&E initiated the Path Rating Process for the Round Mountain and Table Mountain Series Capacitor Remedial Action Scheme (RAS) Project. PG&E will progress through the standard (and not expedited) Path Rating Process and would follow the on-going COI Path Rating Study process.

On November 18, 2021 and pursuant to Section 12.2 of the Owners Coordinated Operation Agreement (OCOA), PG&E sent the attached letter to the OCOA Administrative Committee noting that PG&E plans to implement the Round Mountain and Table Mountain Series Capacitor RAS Project as an addition to the existing Path 66 RAS process discussed above, and to potentially enable additional transfer capability on Path 66 into California. PG&E requested that any parties who are interested in evaluating the potential impacts from the RAS to their systems participate in the RAS Path Rating Study by signing up to be part of the Project Advisory Group. TANC submitted the required forms to be a part of the Advisory Group on this project in late November 2021.

TANC Ten-Year Transmission Plan

The TANC 2021 Annual Planning Assessment was finalized on December 31, 2021. TANC incorporated comments received on the December 27, 2021 review draft which was sent to the TANC Engineering and Operations Committee and the WAPA Planning Coordinator. In late January, the TANC 2020 Annual Planning Assessment will be distributed in accordance with applicable North American Electric Reliability Corporation standards – TPL-0015-5 and IRO-017-1. A copy of TANC 2021 Annual Planning Assessment is attached.

Enclosure

Lane Lewis
Electric Transmission
Contracts Management
Asset Planning

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November 18, 2021

John Roukema
General Manager
Transmission Agency of Northern California
P.O. Box 15129, Sacramento, CA 95851 916/852-1673

Mr. Carl Dobbs
Power System Dispatch Manager
Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

Ms. Amy McCluskey
Director of Asset Management, T&D Operations
PacifiCorp
825 NW Multnomah Street, Suite 1600
Portland, OR 97232

Re: Notification of Proposed Modifications

Dear Mr. Roukema, Mr. Dobbs, and Ms. McCluskey:

Pursuant to Section 12.2 of the Owners Coordinated Operation Agreement (“OCOA”), Pacific Gas and Electric Company ("PG&E") herein provides additional notice to the OCOA Administrative Committee that in accordance with CAISO’s recommendation, PG&E plans to implement Round Mountain and Table Mountain Series Capacitor RAS Project (the RAS) as an addition to the existing Path 66 RAS that will potentially enable additional transfer capability on Path 66 into California. The RAS will consist of the following scheme:

Upon tripping of one of the Round Mountain to Table Mountain 500 kV lines (either #1 or #2), if an overload is observed on the remaining 500kV line, the RAS will bypass one or more of the series capacitors on the remaining line to relieve the observed overload.

The anticipated in-service date for the RAS is the second quarter of 2024.

Attached to this notification is a letter from WECC initiating Phase 1 of its Path Rating Process for the project. PG&E requests that any parties who are interested in evaluating the potential impacts from the RAS to their

systems participate in the RAS Path Rating Study by completing and submitting the attached Project Advisory Group (AG) sign-up form by December 15, 2021. The sign-up form should be e-mailed to sophie.xu@pge.com with a copy to peter.mackin@GridBright.com.

Please contact me if you have any questions regarding this notice or Sophie Xu, sophie.xu@pge.com or Bill Wang, bill.wang@pge.com regarding any technical questions.

Pursuant to Section 12.4 and 12.6 of the Owners Coordinated Operation Agreement ("OCOA"), in the event that a modification enables an increase in RSTC (Rated System Transfer Capability- The Non-Simultaneous Transfer Capability of the System across COI as determined by the Administrative Committee) a new RSTC Share shall be calculated. The increase in RSTC shall be added to each party's RSTC share in proportion to that party's financial participation in the modification unless otherwise agreed by the parties participating in the modification.

We appreciate your consideration and look forward to hearing from you regarding your plans to participate. A response by December 31, 2021 is appreciated.

Sincerely,

DocuSigned by:
Lane Lewis
AD519E4234C9409...

Lane Lewis

CC:

Jeff Billinton (CAISO)

Binaya Shrestha (CAISO)

Ebrahim Rahimi (CAISO)

Satvir Nagra

Marco Rios

2021 TRANSMISSION PLANNING ASSESSMENT

December 31, 2021

1. TABLE OF CONTENTS

2. GLOSSARY

The following table contains information regarding the various acronyms that are utilized this report.

TANC	Transmission Agency of Northern California
BES	Bulk Electric System
NERC	North American Electric Reliability Corporation
WECC	Western Electricity Coordinating Council
WASN	Western Area Power Administration – Sierra Nevada Region
COTP	California-Oregon Transmission Project
CAISO	California Independent System Operator
TP	Transmission Planner
PC	Planning Coordinator
NCH	Northern California Hydroelectric Generation
CEC	California Energy Commission
GE	General Electric
PSLF	Positive Sequence Load Flow
PACI	Pacific Alternating Current Intertie
PDCI	Pacific Direct Current Intertie

3. EXECUTIVE SUMMARY

The Transmission Agency of Northern California (TANC) is a joint exercise of powers agency that was established in 1984 by public utilities in northern California and under the laws of the State of California. TANC is the Project Manager and largest participant for the jointly owned 500-kV California-Oregon Transmission Project (COTP) which is a 340-mile long, 500-kilovolt (kV) alternating current (AC) transmission line between the California-Oregon border and Central California.

TANC is the registered Transmission Planner (TP) with the North American Electric Reliability Corporation (NERC) for the COTP facilities and provides the engineering support required for the reliable operation of the COTP in the near-term and long-term planning horizons. To this end and in accordance with the requirements of the NERC Transmission Planning Reliability Standard TPL-001-4 (NERC Standard), TANC performs a Planning Assessment annually for its portion of the Bulk Electric System (BES). The TANC 2021 Planning Assessment is the fifteenth such document prepared by TANC.

This Study Report documents the analyses, methodologies, and assumptions used in performing the TANC 2021 Annual Assessment and documents the results of these efforts. The studies used in preparing the TANC 2021 Annual Assessment were based on the latest available data and were performed in accordance with the requirements of the NERC Standard and the Western Electricity Coordinating Council (WECC) Criterion TPL-001-CRT-3 (WECC Criterion).

Study Cases

TANC's transmission planning assessment evaluated the BES in the near-term (2023), mid-term (2026), and long-term (2031) planning horizons. The starting base cases utilized in the study (from the WECC approved base cases) were updated as necessary to accurately represent the existing and expected northern California system for the appropriate study year.

For the 2023, 2026, and 2031 summer peak cases, the northern California BES was stressed by increasing the load to a forecasted 1-in-5 peak conditions, maximizing N-S transfers on COI to 4,800 MW, and maximizing N-S transfers on the Pacific DC Intertie (PDCI) to 3,220 MW.

The 2023 summer off-peak load case was stressed by maximizing the COI N-S flows to 4,800 MW and maximizing the N-S transfers on the Pacific DC Intertie (PDCI) to 3,220 MW. The northern California load was not increased from the off-peak load represented in the WECC case.

Further details on the base cases used in the study are listed in Table 3.1

Table 3.1 TANC's Planning Assessment Study Cases

Study Cases	Northern CA Load	Planning Horizon	Years Out	Path Transfers N-S	
				COI	PDCI
2023 Summer	Peak (1 in 5)	Near-Term	1	4,800	3,220
2023 Summer	Off-Peak	Near-Term	1	4,800	3,220
2026 Summer	Peak (1 in 5)	Mid-Term	5	4,800	3,220
2031 Summer	Peak (1 in 5)	Long-Term	10	4,800	3,220

Reference and Sensitivity Cases

The planning assessment included two sets of cases for each of the study cases listed in Table 3.1; the difference between these two cases is the assumed levels of NCH generation dispatched. The first set of cases were created to establish a benchmark or Reference Case with adverse load conditions, high path flows and the NCH Hydro plants dispatched to a level that would create stressed conditions in northern California but that would be within the limits identified in the 2022 Spring/Summer COI Nomograms for Normal operating conditions. A second set of cases (Sensitivity Cases) were created to assess the system performance of a higher NCH dispatch scenario while maintaining the basic assumptions for load, path flows, and regional generation dispatch consistent to that used in the corresponding Reference Case. With the high COI transfers and higher NCH generation output, the Sensitivity Cases model conditions that are slightly higher than the limits identified in the 2022 COI Nomograms for Normal operating conditions.

Summer Peak and Summer Off-Peak Cases

The Reference Cases developed for the summer peak and off-peak studies model the total NCH Hydro dispatch at a level equal to approximately 70% of the overall NCH capacity. The NCH generation dispatch was then increased to 90% in the Sensitivity Cases. The NCH generation dispatch pattern used in both study cases was based on the dispatch patterns used in the 2022 Summer COI N-S Nomogram study 70% and 90% NCH dispatch scenarios.

Table 3.2 summarizes the dispatch of the NCH generation used in the summer peak and summer off-peak study cases.

Table 3.2: NCH Dispatch Pattern in the Summer Peak and Summer Off-Peak Cases

River System	MW Dispatch	
	Reference Case	Sensitivity Case
Northern CVP	739	952
Pit River	482	617.5
Lake Oroville CDWR	579	604
Feather River	466	744
North Yuba River	331	425
Total MW	**2,597**	**3,342.5**
% Total (Based on 4,096 MW)	**63%**	**80%**

Summary of Findings

The results of the studies, which are discussed in greater detail in subsequent sections of this report, are summarized as follows:

Steady State Analysis

An overview of the results of the steady state analysis is summarized below which includes the most significant thermal violations that were identified in the study and the related contingency. The system voltage performance resulting in the peak and off-peak load studies complied with the System

Performance Criteria requirements NERC Standards, WECC Criterion, and Western Area Power Administration Sierra Nevada Region (WASN) SOL Methodology. Additional details for the results of all the outages screened in this study are presented in Section 9 of this report.

Basecase Overloads (P0)
There are no pre-contingency thermal loadings that exceeds the normal rating. In both the Reference and Sensitivity cases.

Single Facility Contingency (P1)
Outage of one Round Mountain –Table Mountain 500-kV Line: This outage results in high thermal loading on the Round Mountain –Table Mountain 500-kV Line in most study cases with COI flows at 4,800 MW N-S. The resulting overloads occurred in all sensitivity cases as well as the 2023 summer peak studies reference case. In previous years the resulting overloads in the cases representing 2025 and beyond would observe and increase in flow due to the addition of the Round Mountain 500-kV Dynamic Voltage Support Project. The project will connect at the new 500 kV station approximately about 10 miles south of Round Mountain called Fern Road, looping into the Round Mountain – Table Mountain 500kV #1 and #2 Lines.

- 2023 Summer Peak and Off-Peak Load Studies
  - Reference Cases: The resulting thermal loading on the Round Mountain –Table Mountain 500-kV Line was between 100% and 101% for On-Peak Load studies.
  - Sensitivity Cases: The resulting thermal loading on the Round Mountain –Table Mountain 500-kV Line was between 103% and 104% for both cases.
- 2026 and 2031 Summer Peak Load Studies
  - Reference Cases: The resulting thermal loading on the Round Mountain –Fern Road 500-kV Line was between 107% and 108% for 2026, 112% and 113% for 2031.
  - Sensitivity Cases: The resulting thermal loading on the Round Mountain –Fern Road 500-kV Line was between 111% and 112% for 2026, 112% and 113% for 2031.

Outage of one Captain Jack - Olinda 500-kV Line This outage results in high thermal loading on the Delta-Cascade 115kV Line in the 2023 summer off-peak and the Peak study cases. These high loading were as follows:

- Reference Case
  - Delta – Cascade 115 kV line overload in the 2023 Summer off-peak study at 103% and 107% for the peak study.
- Sensitivity Case
  - Delta – Cascade 115 kV line overload in the 2023 Summer off-peak study was at 101%

Outage of the Olinda – Tracy 500 kV line: This outage results in high thermal loading on the Vaca Dixon – Tesla 500 kV line and the Delevan – Cortina 230 kV line in the 2023 and 2031 summer peak studies. These high loading were as follows:

- Reference Cases
  - Delevan – Cortina 230 kV line overload in the 2023 Summer peak study at 100%.
- Sensitivity Case

- Both Delevan – Cortina 230 kV line and Vaca Dixon – Tesla 500 kV line were overloaded in the 2023 Summer peak study at 108% and 100%.
- The Delevan – Cortina 230 kV line overload in the 2031 Summer peak study at 101%.

Outage of one Malin-Round Mountain 500 kV line: This outage results in high thermal loading on the Delta – Cascade 115 kV line in the 2023 summer peak study reference case at 103%.

Outage of the Table Mountain -Vaca Dixon 500-kV line: This outage resulted in high thermal loading on the on the Delevan -Cortina 230-kV line in the 2023 and 2031 Peak summer study cases with COI at 4,800 MW N-S and generation online that ties to the Delevan 230-kV substation. These high loading were as follows:

- Sensitivity Case
  - Delevan – Cortina 230 kV line overload in the 2023 and 2031 Summer peak study at 106% and 101%.

Outage of the Vaca Dixon – Tesla 500-kV line:

- Reference Case
  - Cayetano – North Dublin 230-kV line overload in the 2026 Summer peak study at 100%

Multiple Contingency (P4)

Malin-Round Mt #1 and Round Mt Table Mt #2 500-kV lines: This outage resulted in high thermal loading on the Delta – Cascade 115 kV line in the 2023 Summer peak reference case at 104%.

Round Mt-Table Mt #1 and Table Mt Vaca Dixon 500-kV lines: This outage resulted in high thermal loading on the Delevan – Cortina 230 kV line in the 2023 and 2031 Summer peak study cases.

- Sensitivity Case
  - Delevan – Cortina 230 kV overload in the 2023 and 2031 Summer peak study at 106% and 101%

Table Mt Vaca Dixon 500-kV line and Vaca Dixon #1 500/230-kV Transformer: This outage resulted in high thermal loading on the Delevan – Cortina 230 kV line in the 2023 Summer peak reference case at 104%

Multiple Contingency (P7)

PDCI Bipole Outage:

- Warnerville - Wilson 230-kV line resulted in a post-contingency loading in the 2023 summer off-peak case of 101% for both the reference and sensitivity case.

Common Corridor 500-kV Outages *(Extreme)*

Malin- Round Mountain 500-kV Lines #1 & #2: This outage resulted in high post-contingency flows on the COTP line in all summer peak load and summer off-peak studies with COI flows at 4,800 MW N-S. This condition is a result of the retirement of the California Department of Water Resources (CDWR) RAS on January 1, 2015. Prior to the CDWR RAS retirement, the CDWR RAS tripped approximately 2,000 MW of large aqueduct pump load in response to the outage. The CDWR RAS was highly effective in reducing the post-contingency flows across the northern California bulk system and particularly across the COTP 500-kV line following a PACI Double Line Outage (DLO). Following the retirement of the CDWR RAS, system studies conducted by planning and operations have indicated higher post-contingency flows across the COTP following a PACI DLO.

Round Mountain-Table Mountain 500-kV Lines #1 & #2: This outage resulted in high post contingency flows on the COTP line in all summer peak load and summer off-peak studies with COI flows at 4,800 MW N-S. This condition had been noted in similar studies with COI at 4,800 MW following the retirement of the CDWR RAS on January 1, 2015. As with the other PACI DLOs, the CDWR RAS effectively reduced the post-contingency flows across the COTP 500-kV line and the northern California BES following a PACI DLO with the automatic tripping of large aqueduct pump load. Following the retirement of the CDWR RAS, system studies conducted by planning and operations have shown high post-contingency flows across the COTP following a PACI DLO.

The results are as follows:

- Reference Cases with COI at 4,800 MW N-S
  - Delevan -Cortina 230-kV line loading of 103% to 106% occurred in the summer peak study cases for 2023 and 2031
  - Delta – Cascade 115 kV line loading of 108% to 114% in the summer peak and off-peak study cases for 2023
- Peak Sensitivity Cases with COI at 4,800 MW N-S
  - Olinda -Tracy 500-kV Line loading of 101% to occurred in the summer off-peak study case for 2023
  - Delevan -Cortina 230-kV line loading of 103% to 113% occurred in the summer peak study cases
  - Delta – Cascade 115 kV line loading of 104% to 105% in the summer peak and off-peak study cases for 2023

Table Mountain South 500-kV Double Line Outage (DLO) (Table Mountain –Tesla 500-kV Line and Table Mountain –Vaca Dixon 500-kV Line): This outage resulted in multiple overloads on the BES facilities located south of Table Mountain and Round Mountain as follows:

- Reference Cases with COI at 4,800 MW N-S
  - Delevan -Cortina 230-kV line resulted in a post-contingency loading in the summer 2023 and 2030 peak cases of 108% and 110% respectively.
- Sensitivity Cases with COI at 4,800 MW N-S

- Table Mountain -Rio Oso 230-kV line resulted in a post-contingency loading in the 2023 and 2031 summer peak cases of 105% and 106% respectively.
- Olinda – Tracy 500-kV line resulted in a post-contingency loading of 103% in the 2023 Summer off peak case.
- Round Mountain -Cottonwood 230-kV Line resulted in a post-contingency loading in the summer 2023 off peak case of 109%.
- Brighton – Bellota 230-kV line resulted in a post-contingency loading of 103% in the 2023 Summer off-peak case.
- Delevan -Cortina 230-kV line resulted in a post-contingency loading in the summer 2023, 2026, and 2031 peak cases of 119%, 110%, and 114% respectively.

Table Mountain – Tesla & Vaca Dixon – Tesla 500 kV lines:

- Reference Cases with COI at 4,800 MW N-S
  - Cayentano – North Dublin 230-kV line resulted in a post-contingency loading of 105% in the 2026 Summer peak case
  - Los Positas – Newark 230-kV line resulted in a post-contingency loading of 101% in the 2026 Summer peak case
  - Contra Costa – Wind Master 230-kV line resulted in a post-contingency loading of 101% in the 2026 Summer peak case.

- Sensitivity Cases with COI at 4,800 MW N-S
  - Conta Costa – Wind Master 230-kV line resulted in a post-contingency loading of 101% in the 2023 Summer peak case.
  - CAYETANO – North Dublin 230-kV line resulted in a post-contingency loading of 105% in the 2026 Summer peak case
  - Las Positas – Newark 230-kV line resulted in a post-contingency loading of 101% in the 2026 Summer peak case

Voltage Stability Analysis

All reactive power margin studies simulating P1, P4, P7, and extreme event contingencies indicate positive reactive power margins at the 500-kV buses in northern California; thereby meeting the requirements of the current WECC Criterion.

Transient Stability Analysis

All transient stability studies simulating P1, P4, P7, and extreme event contingencies for all four study cases indicate that:

- The system was stable, and all oscillations were damped for all contingencies evaluated.
- All system voltage dips meet the current WECC Criterion; and
- All system voltage and frequency recovery meet the current WECC Criterion.

- Unintentional tripping of load-responsive relays did not occur during transient power swings resulting from simulated system disturbances.
- Unrestrained successive loss of load or generation did not occur.

4. INTRODUCTION

The Transmission Agency of Northern California (TANC) is a joint exercise of powers agency that was established in 1984 by a group of public utilities under the laws of the State of California. TANC is the Project Manager and largest participant for the jointly owned 500-kV California-Oregon Transmission Project (COTP) which is a 340-mile long, 500-kilovolt (kV) alternating current (AC) transmission line between the California-Oregon border and Central California.

TANC is the registered Transmission Planner (TP) with NERC for the COTP facilities and provides the transmission planning support as required for the reliable operation of the COTP in the near-term and long-term planning horizons. To this end and in accordance with the requirements of the North American Electric Reliability Corporation (NERC) TPL-001-4 Standard, TANC performs an annual Planning Assessment to determine the expected reliability of the COTP from one to ten years out into the planning horizon. The TANC 2021 Planning Assessment is the Fifteenth such document prepared by TANC and reflects TANC's commitment to undertake such assessments on an annual basis.

This Study Report documents the analyses, methodologies, and assumptions used to perform the TANC 2021 Annual Assessment and a summary of the results of these efforts. The data sets used in the TANC 2021 Annual Assessment were based on the latest available data and the technical studies were performed in accordance to the requirements of the North American Electric Reliability Corporation (NERC) Transmission Planning Reliability Standard TPL-001-4 (NERC Standard) and the Western Electricity Coordinating Council (WECC) Criterion TPL-001-CRT-3 (WECC Criterion). This report is the fourteenth such document prepared by TANC and reflects TANC's commitment to undertake such assessments on an annual basis.

COTP and COI

The COTP was planned and is operated as part of the three 500-kV lines that interconnect southern Oregon with central California and are recognized by the WECC as Path 66 or the California-Oregon Interties (COI). The other two COI lines (known as the PACI) are the Malin-Round Mountain #1 500-kV line (owned by WASN) and the Malin-Round Mountain #2 500-kV line (owned by PacifiCorp and Pacific Gas & Electric (PG&E)).

Previous seasonal operating studies have shown that the COI north-to-south (N-S) Total Transfer Capability (TTC) for seasonal peak load conditions is primarily influenced by the amounts of Northern California hydroelectric generation (NCH) on-line. To assist in system operations, the "COI N-S Nomogram" is developed which describes the relationship between the COI N-S TTC and levels of NCH dispatched. The COI NCH Nomogram is reviewed and updated seasonally in the operating horizon by the California Operating Studies Subcommittee (OSS). TANC actively participates in the OSS.

On April 1, 2018, the PACI double line outages (DLO) were reclassified from being considered "Always" credible multiple contingencies (MC) to "Conditionally" credible MC's in COI path operations. The change was made to better align with the Peak RC SOL methodology and NERC outage classification since the lines pertaining to the PACI DLOs are installed on separate structures. As a "Conditionally" credible contingency, the PACI DLO's are considered an extreme event during Normal Conditions but would be considered a credible (N-2) outage during certain "Threat Conditions" when the risk of a PACI

DLO is more likely to occur. These "Threat Conditions" would include severe weather or threats that might be present due to fire or flooding. To prepare for such threat conditions and as part of the implementation of the PACI DLO reclassification, the COI N-S Nomogram includes two sets of limits which would be relevant during Normal Conditions and Threat Conditions.

In Table 4.1, the 2020 Spring/Summer COI N-S Nomogram is summarized with the limits for both Normal and Threat Conditions.

Table 4.1 2021 COI N-S Nomogram Limits; 2021 Spring/Summer Operating Season

NCH		COI N-S Nomogram 2021 Spring/Summer Season	
(% of Total)	(MW Output)	Normal Conditions (MW N-S)	Threat Conditions (MW N-S)
60	2,459	4,800	4,800
70	2,872	4,800	4,800
80	3,278	4,700	4,475
90	3,677	4,700	4,200
100	4,096	4,650	3,950

During the February-March 2019 time period, there were unusually high south-to-north (S-N) flows on the COI which were driven by the high Northwest load and the limited available resources in the Northwest. During this time, the system operators had to mitigate against potential thermal concerns that were not identified in the COI N-S seasonal study. To better prepare for the 2019 – 2020 winter operating season, the COI operating group developed a COI S-N Nomogram which was first implemented on November 1, 2019 and continues to be used in 2020. Unlike the traditional Nomogram study, the COI S-N Nomogram study is performed with off-peak load conditions in northern California because the thermal concerns were observed during off-peak conditions.

In 2020, the Spring and Summer COI seasonal studies were combined into a single Spring/Summer study. (Since the changed status of the PACI DLO's in operation in 2018, there has been little difference between the Summer and Spring COI Nomograms that are utilized during normal operation. For the 2020 Operating Seasons, the CAISO and the OSS COI group agreed to combine the Spring and Summer seasonal studies into one study and use a common Nomogram for both seasons.)

In Table 4.2, the 2020 Spring/Summer COI S-N Nomogram is summarized with the limits for both Normal and Threat Conditions.

Table 4.2 2020 COI S-N Nomogram Limits; 2020 Spring/Summer Operating Season

NCH		COI S-N Nomogram 2020 Spring/Summer Season	
(% of Total)	(MW Output)	Normal Conditions (MW S-N)	Threat Conditions (MW S-N)
60	2,459	3,675	2,975
69	2,807	3,675	2,625
78	3,178	1,475	1,475
84	3,437	1,450	1,450
89	3,630	750	750

5. ROLES AND RESPONSIBILITIES

The NERC Reliability Standards establish the Transmission Planner (TP) and Transmission Owner (TO) as two of the functional entities within the NERC Functional Model. TANC is registered as both the TP and TO for the transmission facilities that make up the COTP. The COTP includes the 500-kV AC transmission line that spans 340 miles from the California-Oregon border to Central California and includes the 500-kV equipment at the Olinda substation, the Maxwell series compensation station, and the Tracy substation.

The COTP is located within the Western Area Power Administration – Sierra Nevada Region (WASN) defined PC planning footprint as recognized by WECC and is the designated PC for TANC. RC West is the designated Reliability Coordinator (RC) for the WASN PC and by extension TANC.

As required by the NERC TPL-001-4 Standard, TANC is responsible for preparing an annual Planning Assessment for its portion of the Bulk Electric System (BES). This responsibility pertains to the COTP 500-kV facilities that are also owned by TANC. The COTP and related BES facilities included in this assessment are highlighted in the simplified one-line diagram shown in Figure 5.1.

As part of preparing the annual Planning Assessment TANC's responsibilities include the following:

- TANC will prepare an annual Planning Assessment of its portion of the BES that documents the assumptions and summarizes the results of the steady state, stability, and short circuit analysis. **[TPL-001-4 R2]**
- TANC's annual Planning Assessment report will document TANC's performance criteria used to determine acceptable System steady state voltage limits, post-Contingency voltage deviations, and the transient voltage response for its System. **[TPL-001-4 R5].**
- TANC's annual Planning Assessment report will define and document the criteria and methodology used in the analysis to identify System instability for conditions such as Cascading, voltage instability, or uncontrolled islanding. **[TPL-001-4 R6]**
- TANC will distribute the annual Planning Assessment to adjacent PCs and TPs within 90 days of completing the final report. **[TPL-001-4 R8]**
- TANC will distribute the annual Planning Assessment to impacted RCs. **[IRO-017-1 R3]**
- If the annual Planning Assessment identifies concerns in the near-term horizon related to scheduled outages, TANC, WAPA, and RC West will jointly develop solutions. **[IRO-017-1 R4]**
- TANC will notify WASN if the annual Planning Assessment identifies any relay tripping caused by stable or unstable power swings during a simulated disturbance. **[PRC-026-1]**

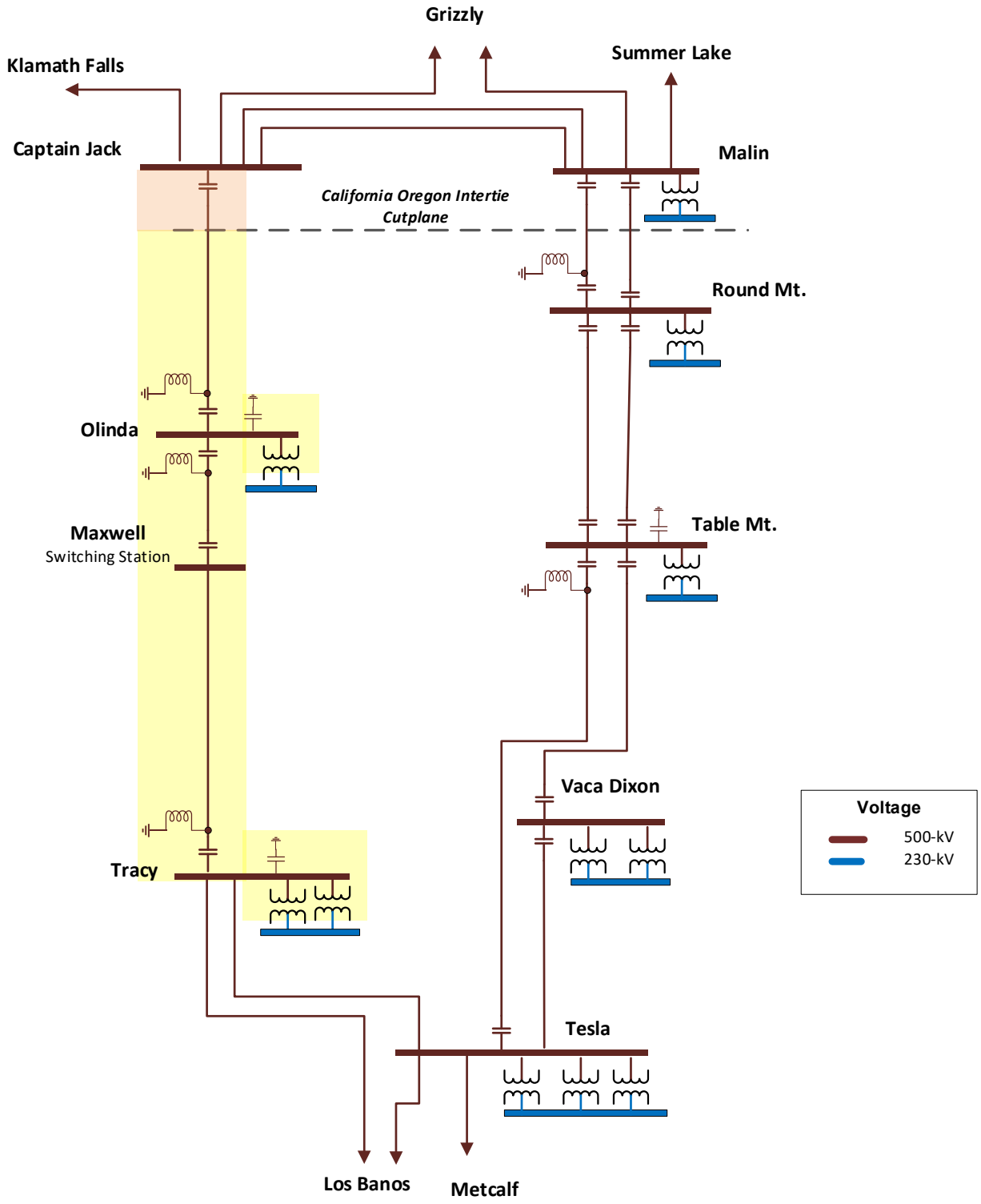


Figure 5.1: Simplified one-line diagram highlighting TANC's portion of the BES. The portion of the Captain Jack - Olinda 500-kV line in Oregon is owned by BPA. However, in the TANC planning assessment the Captain Jack -Olinda 500-kV line is treated as a single 500-kV line facility, that is composed of the elements owned by both TANC and BPA.

6. System Model and Assumptions

Starting Cases

The study cases that were used for the power flow and stability analysis were based on WECC approved base cases that have been developed in coordination with TANC and other TPs and PCs throughout WECC. The base cases model TANC's portion of the BES and the other BES facilities in the entire western interconnection. The BES is modeled in the base cases in a format and level of detail consistent with the data requirements[1] approved by WECC and as required by the NERC MOD-032-1 Standard[2].

The WECC base cases used to develop the study cases were acquired through the WECC and chosen based on the planning year, seasonal load, and the case approval date. The base cases were then reviewed and modified as necessary so that the study cases model the expected BES facilities and system conditions appropriate for the given study.

The assumptions used to modify the WECC base cases when developing the study cases are described in more detail later in this section. With the updates and modifications made, the study cases included the following:

- Existing facilities that are expected to be in-service for the given planning year and season [NERC R1.1.1]
- Known outage(s) of generation or Transmission Facility(ies) with a duration of at least six months and extend into the given planning year and season represented in the study case [NERC R1.1.2]
- New transmission Facilities and changes to existing Facilities that are planned to be completed and in-service for the given planning year and season [NERC R1.1.3]
- Real and reactive Load forecasts expected for the given planning year, season, and hour [NERC R1.1.4]
- Anticipated commitments for Firm Transmission Service and interchange flows for the given planning year, season, and hour [NERC R1.1.5]
- Resources (supply or demand side) required for Load and expected to be available for the given planning year, season, and hour [NERC R1.1.6]

Rationale for Case Selection

To provide a broad base of system conditions, the study cases were chosen to include peak load conditions for the near-term, mid-term, and long-term planning horizon and off-peak load conditions for the near-term planning horizon.

The 2023 spring off-peak and 2023 summer load cases were chosen for the study pertaining to the near-term planning horizon. These cases were chosen as the best options to investigate any potential

[1] 2020 WECC Data Preparation Manual; Version 14 April 2020
Web link: 2020 WECC DPM

[2] TPL-001-4 R1

reliability concerns that might be expected one to two years out during peak and off-peak load conditions.

The 2026 and 2031 summer peak load cases were chosen for the study as they represent the expected system in the mid-term and long-term planning horizon. The cases included up-to-date projections for the expected transmission configuration and seasonal load projections. As such, the cases were chosen as the best option to investigate any potential reliability concerns that might be expected within the next five to ten years.

The starting WECC base cases and the associated study cases are listed in below in Table 6.1:

Table 6.1 WECC Starting Base Cases

WECC Base Case		TANC 2020 Annual Assessment Study Cases			TPL-001-4
File Name	Approved	Planning Year	Load	Approx. Hours (PDT)	Requirement
22HS2a1.sav	7/19/2021	2022 (Year 1)	Summer Peak (1-in-5)	1400 to 1600	R2-2.1.1
26HS2a1.sav	7/26/2021	2026 (Year 5)	Summer Peak (1-in-5)	1400 to 1600	
22LS2a1.sav	10/27/2020	2022 (Year 1)	Summer Off-Peak (Expected Minimum)	0300 to 0500	R2-2.1.2
31HS1a1.sav	10/19/2020	2031 (Year 10)	Summer Peak (1-in-5)	1400 to 1600	R2-2.2

Base Case Modification and Assumptions

The northern California system modeled in the WECC base cases was then evaluated and updated (as appropriate) to ensure that the status of most recently known changes in transmission and generation facilities (e.g., generation retirements, long-term outages, etc.) are reflected in the study cases.

Known Long-Term System Outages

There were not any known maintenance outages planned for the TANC BES facilities or adjacent BES facilities that would to be out-of-service for a duration of at least six months and take place during the time frame assessed in the study cases. As such, no long-term outages were modeled in the 2023, 2026 or 2031 base cases.

However, all cases modeled the Caribou-Palermo 115-kV line as out-of-service. The line was heavily damaged in 2018 during the Camp Fire and has not returned to service since the event. Rather than repairing the line, PG&E's long-term plan is to physically remove the facility.[3]

[3] CAISO Notice: ISO Intention to Release Transmission Lines and Associated Facilities from Operational Control; October 9, 2020. Web link: CAISO Notice Oct. 9, 2020

Planned Transmission Projects

The transmission system within Northern CA was reviewed and modified as necessary to ensure that the study cases included the relevant planned transmission projects expected to be completed by that given year. The planned transmission projects included in the study cases were determine using the following criteria:

1. Transmission projects that result in system changes that might potentially impact the northern California system performance
2. Transmission projects recently completed or currently under construction
3. Transmission projects that have been approved by the entity's board

The full list of transmission projects identified that met this criterion are provided in Appendix D Table D-1.

Planned Generation Resources

TANC ensured that planned generation projects that met specific criteria were also included in the base cases. The criteria used to determine valid generation projects relevant to the study are as follows:

1. Generation additions which could potentially impact the northern California system performance and,
2. Planned point of interconnection in the area between the COB and Tesla and Tracy 500-kV Substations and,
3. Interconnection Agreements status of Completed, Executed, or In Progress.

The full list of planned generation projects identified that met this criterion are provided in Appendix D Table D-2.

Existing Generation Resources

The existing resources significant to the northern California BES performance were evaluated to determine the available resources expected in the near-term, mid-term and long-term planning horizons. The plants that were expected to be unavailable, to return to service, or to have a change in available capacity were modeled as such in the respective study case. For existing plants that were expected to have an increase in available capacity or that are expected to return to service were also reflected in the base cases. Existing generation and expected changes were represented in the base cases using the following criteria:

1. Present status of the generation per the CEC Data (on-line or retired)
2. Present and future status of the Once-Through-Cooling (OTC) Plants based on:
    a. Plant owner's plans to comply with State Water Resource Control Board (SWRCB) regulations.
    b. Status of Settlement Agreement with the SWRCB.
    c. If compliance with the regulations is not pending and no known intent to retire the plant after the compliance due date.

3. Expected status based on projected completion of plant repair and refurbishment (Thermalito Pumping-Generating Plant[4])
4. Expected status based on past year operational status

The existing generation identified as expected to change, based on the above criteria, are listed in Table 6.2.

Table 6.2 Assumed Changes in Existing Generation

Plant	Fuel Type	Initial PMAX	Effective Date	Study Case Assumptions Following the Effective Date		
				Status	PMAX	Description
Moss Landing	Thermal	2,600	2020-Dec	Planned Retro-Fit	1100	State Water Resources Control Board (SWRCB) Agreements are in place with Dynegy and specify that units 6 and 7 will be retired and units 1-5 will be converted to utilize cooling tower(s). This will result in the unit's capacity being reduced by 15%.
Pittsburg	Thermal	1,360	2017-Dec	Currently Retired	-	Presently Retired
Diablo Canyon	Nuclear	2,400	2025-Dec	Planned to Retire	-	SWRCB Agreements still pending. PG&E has announced intention of retiring the plant after 2025. The plant was assumed unavailable in the 2030 base cases

Adverse System Conditions

Adverse system conditions or stressed conditions were modeled in the study cases for the northern California BES. These conditions included high COI flows, high NCH generation output, and adverse load conditions in northern California. These conditions were studied so that potential vulnerabilities might be more easily identified for the BES facilities owned by TANC and neighboring entities within the region. The assumptions used to create the adverse system condition cases are described below.

Northern California Load [NERC R1-1.1.4]

The following paragraphs describe the northern California load assumptions for the various base cases.

[4] "California Water Commission 2016 Annual Review" December 2016; https://cwc.ca.gov/Documents/2017/2016_SWPReview_Final.pdf

System Peak Load Study Cases

2023, 2026, and 2031 Summer Peak Load Cases

The peak load study cases assumed extreme peak loads in northern California for the given study year as forecasted by the California Energy Commission (CEC) in the California Energy Demand Forecast 2019 - 2030 report. The CEC forecast used had the following assumptions:

- Peak Demand – Mid Demand Baseline
- Temperatures – 1 in 5-year occurrence

System Off-Peak Load Study Cases

2023 Summer Off-Peak Load Case

The 2023 summer off-peak study cases assumed off-peak load conditions in northern California like the load distribution pattern and load level modeled in the WECC approved 2021 summer off-peak operating case. The load was not scaled and as in the original WECC case, the load profile represents an expected minimum load condition for the months between June and August and between the hours of 0300 and 0500 PDT

Path Flow

As mentioned in this report the COTP is one of the three 500-kV lines that make up the COI path and is operated in parallel with the other two 500-kV lines. To properly stress the COTP in a way that is consistent with operations, COI was maximized at the rated N-S path limit in the summer peak and off-peak study cases and maximized at the rated S-N path limit for the spring off-peak study cases.

The Pacific DC Intertie (PDCI) path was also maximized in the cases. The HVDC Bipole line spans from the pacific northwest to southern California and the loss of the two HVDC lines is one of the most severe P7 outages during conditions with high COI transfers. For this reason, the PDCI flows were maximized to the N-S path limit in the cases with COI flows at 4,800 MW N-S and was maximized at the path's S-N operating limit in the study cases with COI flows at 3,675 MW S-N.

Northern California Hydro (NCH)

The relationship between the total NCH generation on-line and COI transfer limitations are known and studied seasonally within the Operating Planning Horizon. The results of this study are then used to develop the seasonal COI Nomogram that is used in operations. The COI Nomogram is used to determine the COI TTC during the season when the COI TTC is not limited for system maintenance. In the 2021 TANC Annual Assessment study cases, the NCH dispatch patterns were based on those used in the OSS studies to develop the 2022 Spring/Summer COI N-S Nomogram. As a baseline, all study cases started at the 63% NCH level which refers to the overall NCH dispatch to the overall NCH capacity.

Reference Cases

The base cases described above were used as the Reference Cases in this annual assessment. The system conditions modeled represent stressed conditions for the COTP and the neighboring BES facilities within Northern California. The scenarios represent system conditions within the limits identified in the COI NCH Nomograms developed in 2021. Further details of the assumptions used in the Reference Cases are summarized below in Table 6.4.

Table 6.4 Reference Case Assumptions

		2023 Summer Off-Peak Load	2023 Summer Peak Load	2026 Summer Peak Load	2031 Summer Peak Load
WECC Path Flows	COI (Path 66) MW N-S	4,800	4,800	4,800	4,800
	PDCI (Path 65) MW N-S	3,100	3,100	3,100	3,100
	Path 26 (N.CA - S.CA) MW N-S	3,189	4,000	1,537	-44
MW Load Northern California	Month/Season	Summer	Summer	Summer	Summer
	Approx. Hour (PDT)	0300-0500	1600-1700	1600-1700	1600-1700
	Load	Off-Peak	Peak (1-in-5)	Peak (1-in-5)	Peak (1-in-5)
	MW Total[5]	12,612	26,357	29,545	27,500
Northern California Hydro (NCH)	MW Total	2,865	2,865	2,865	2,865
	% of Total (4,096 MW)	63%	63%	63%	63%
Existing Generation	Moss Landing Units 6-7	0	0	0	0
	Moss Landing Units 1-5	0	935	935	935
	Pittsburg	0	0	0	0
	Sutter Energy Center	0	501	501	501
	Diablo Canyon	2,380	2,380	0	0
	Colusa	126	505.9	324	485
	Hatchet Ridge	14.7	14.7	40	45
Renewables % Dispatch of Max Capacity	Solar Generation	0%	70%	70%	70%
	Wind Generation	70%	33%	33%	33%
	Storage	0%	0%	0%	0%

Sensitivity Cases [NERC R2-2.1.4]

A second set of cases were created for Sensitivity studies that included significant changes in the assumptions used for the NCH dispatch. The assumptions used for northern California load, renewable generation dispatch, COI path transfers, and PDCI path transfers were unchanged in the Sensitivity Cases and remained consistent with the relative Reference Cases.

Summer Peak and Off-Peak Cases

The Sensitivity Cases developed for the 2023 summer off-peak and the 2023, 2026, and 2031 summer peak studies, were created by increasing the total NCH generation output from 63% to 80%. The

[5] Total includes the total MW load in Northern California, north of Path 26, that is not generator plant service station load. The total reflects the energy efficiency and behind the meter distributed generation.

dispatch pattern modeled was based on the 80% NCH dispatch pattern used in the 2021 Spring/Summer OSS study for the similar hydro dispatch level used in the COI N-S Nomogram study.

With the NCH dispatch at 80% and the COI N-S flows at 4,800 MW the system conditions represented in the study cases are just outside the 2021 Spring/Summer COI N-S Nomogram. However, since the 80% NCH dispatch level was assumed in the COI Path Rating Study that established the COI N-S path rating of 4,800 MW these conditions were determined credible and worthy of study.

Further details on the modeling of the NCH are listed below in Table 6.5.

Table 6.5 NCH Dispatch: 2022 Summer Off-Peak and 2022, 2025, and 2030 Summer Peak

River System	Hydro Plant	Summer Study Cases; COI at 4,800 MW N-S		
		Reference Case	Sensitivity Case	Difference
Northern CVP	J.F. Carr	114	146	32
	Keswick	57	75	18
	Shasta	350	451	101
	Spring Creek	122	156	34
	Trinity	96	124	28
Northern CVP Total		**739**	**952**	**213**
Pit	Hat Creek 1-2	10	13.5	3.5
	J.B. Black	109	141	32
	Pit 1	38	50	12
	Pit 3	45	57	12
	Pit 4	60	78	18
	Pit 5	99	120	21
	Pit 6	51	67	16
	Pit 7	70	91	21
Pit Total		**482**	**617.5**	**135.5**
CDWR Lake Oroville	Hyatt	495	636	141
	Thermalito	84	108	24
CDWR Lake Oroville Total		**579**	**744**	**165**
Feather	Belden	79	107	28
	Bucks Creek	37	48	11
	Butt Valley	25	33	8
	Caribou 1	0	0	0
	Caribou 2-3	48	62	14
	Caribou 4-5	76	98	22
	Cresta	44	57	13
	Poe 1-2	76	98	22
	Rock Creek	81	101	20

River System	Hydro Plant	Summer Study Cases; COI at 4,800 MW N-S		
		Reference Case	Sensitivity Case	Difference
Feather Total		**466**	**604**	**138**
North Yuba	Colgate	217	278	51
	Forbestown	23	29	5
	Kelly Ridge	6	10.8	4.8
	Narrows 1	6	8	2
	Narrows 2	36	46	10
	Sly Creek	8	11	3
	Woodleaf	35	45	10
North Yuba Total		**331**	**425**	**94**
Grand Total		**2,597**	**3,342**	**745.3**
NCH - Overall % (Based on 4,096 MW)		**63%**	**80%**	**17%**

7. ANALYSIS AND METHODOLOGIES

Contingency Analysis

The GE Positive Sequence Load Flow (PSLF) software was used to conduct the contingency screening for the steady state, reactive margin and stability analysis performed in this study. The NERC P1, P4, P5, P6, P7 and extreme events included in the analysis are events that produce the most severe impacts to the BES in northern California. The 500-kV facility outages and extreme events included in this study, are consistent with the events assessed in the CAISO northern California BES planning and operational studies. In addition, NERC P6 events that included critical 230-kV facilities were added to the contingency analysis to create more severe system conditions for study. The contingency events used in this assessment were reviewed by the WASN PC and the TANC members. These contingencies are further described in detail in Appendix B. [NERC R3.4-R3.4.1 and NERC R4.4–R4.4.1]

Extreme Events [NERC R3.5 and NERC R4.5]

The extreme events of the PACI DLO's are outages that consist of the simultaneous loss of two parallel 500-kV lines located in a common corridor but mounted on separate structures. The outages are treated as extreme events in normal operation but may be considered credible P7 outages if there is an increased risk of the DLO occurring due to adverse weather conditions, flooding, or wildfire. The PACI DLOs are studied in the operating horizon and related operational plans are reviewed seasonally and updated as needed. The PACI DLOs were included in the TANC planning assessment and included in the steady state and stability analysis for all study cases.

The extreme event of the simultaneous loss of two nuclear units was also included in the TANC planning assessment stability studies performed for the cases with COI transfers at 4,800 MW N-S. These events have the most impact during conditions with high N-S flows on COI and simulate a sudden generation shift that result in a high pick-up on COI N-S flows. These events are included in the study to assess the robustness of the 500-kV system and to identify potential deficiencies in voltage support or instability concerns that might occur during a large unplanned generation shift. The Palo Verde G-2 was also used when building the Reference Study cases with COI flows in the N-S direction. The outage was used to verify the expected COI pick-up of approximately 40%.

Protection System Simulation

The expected automated operation of the protection systems simulated in the studies included remedial action schemes (RAS) in which operation is dependent on system outages or regional bus voltages. The RAS simulated within this study included the automatic operation of facilities located within the Northwest and California. RAS included in the contingency analysis are as follows:

Northwest RAS

The following existing RAS in the Northwest was utilized in the studies, if needed.

High Generation Drop Scheme

- 2,400 MW total generation tripped for PACI double line outage
- 2,700 MW total generation tripped for PDCI Bipole outage

Fast AC Reactive Insert Scheme (FACRI)

- Removal of Malin Shunt Reactors
- Removal of Captain Jack Shunt Reactor
- Insertion of Malin Shunt Capacitor Group
- Insertion of Captain Jack Capacitor Group
- Insertion of Fort Rock series capacitors on
  - Malin –Grizzly 500-kV Line
  - Summer Lake –Ponderosa 500-kV Line
  - Captain Jack –Ponderosa 500-kV Line

California RAS
The following existing RAS in California was utilized in the studies, if needed.

PG&E RAS

- Tripping of Caribou and Butt Valley Hydro Generation: Following a double line outage of the Table Mountain –Tesla 500-kV Line and the Table Mountain –Vaca Dixon 500-kV Line or of the Table Mountain –Tesla 500-kV Line and the Tesla –Vaca Dixon 500-kV Line
- Tripping of Helms Pump Load: Following a double line outage of the Table Mountain –Tesla 500-kV line and the Table Mountain –Vaca Dixon 500-kV Line
- Bypassing of series capacitors in the Malin –Round Mountain 500-kV lines at Round Mountain, in the Table Mountain –Tesla 500-kV Line at Table Mountain, and in the Table Mountain –Vaca Dixon 500-kV Line at Table Mountain
- Insertion of shunt capacitors at the Table Mountain 500-kV Bus
- Tripping of the Round Mountain 500/230-kV Transformer Bank following a double line outage of the Round Mountain –Table Mountain 500-kV Lines

COTP RAS

- Insertion of shunt capacitors at the Olinda 500-kV bus and Tracy 500-kV bus
- Removal of line reactors on the COTP at Olinda and Tracy
- Bypass series capacitors in the Olinda –Tracy 500-kV Line at Olinda

Table Mountain RAS

- Tripping of Hyatt and Thermalito generation in the event of a Table Mountain 500/230-kV transformer outage during low load conditions

Relay and Breaker Thresholds [NERC R3.3.1.2 and WECC WR4]
Simulation of the automatic tripping of system load, generation, and transmission lines due the exceedance of thresholds within the protection system design were also included in the contingency analysis.

Steady State Analysis

Steady state analysis (powerflow) was performed on all Reference and Sensitivity Cases and evaluated according to the Steady State System Performance Criteria described in this report. The powerflow analysis included the evaluation of pre-contingency conditions and post-contingency conditions for each of the study cases. The contingencies screened include the P1, P4, P5, P6, P7, and extreme events listed in Appendix B. *[NERC R3.1, 3.2]*

The powerflow analysis was performed using the GE Positive Sequence Load Flow (PSLF) software and simulated using the full Newton Raphson method. The expected automatic operation of existing and planned devices that are designed to provide steady state control of electrical system quantities were simulated for normal conditions (P0) and for outage conditions (P1-P7 and Extreme Events).

The pre-contingency steady state simulation included the automatic operation of existing and planned devices that are designed to provide steady state control during normal operations. These devises included phase-shifting transformers, load tap changing transformers, switched capacitors and reactors, and generator voltage regulation.

The contingency analysis was simulated using the governor-based power flow method[6] and the system response was measured during the post transient time frame, 0-3 minutes after the contingency event. The post-transient power simulation included disabling the automatic operation of system devices with response times greater than 0-3 minutes. Devices such as phase shifting transformers, transformer voltage control taps, and slower responding static MVAr compensators and automatic switched capacitor banks were locked at the pre-contingency state. Generation response was active but dependent on generator limitations and governor type. *[NERC R3.3.2]*

During the contingency analysis, the removal of all elements was simulated that the protection system and other automatic controls are expected to disconnect for each contingency. The analyses also include the tripping of transmission elements where the assumed relay loadability limits were exceeded and the tripping of generators where bus voltages on the generation bus or high side of the generation step up (GSU) dropped below the known or assumed generator steady state limits or ride through voltage limitations. *[NERC R3.3.1, 3.3.1.2]*

Reactive Margin Study [WECC WR5.1 –WR5.2]

Reactive power margin studies were performed on all study cases as part of the voltage stability analysis. The reactive margin was measured at the most critical 500-kV buses relevant to the northern California BES in the study and was performed using the Static Analysis method described in the WECC Voltage Stability Guide referenced below.

The powerflow cases were further stressed for the reactive margin analysis by increasing the COI flows to levels dependent on the outage category screened. The specific increases in COI studies relevant to the contingency screening include the following:

- P0-P1 Events: COI flows increased to 105%
- P4-P7 Events: COI flows increased to 102.5%
- Extreme Events: No additional stressing was applied to COI.

[6] WECC, *Guide to WECCC/NERC Planning Standards: Voltage Support and Reactive Power*, March 30, 2006

Spare Equipment Strategy [NERC R2.1.5]

As part of the annual assessment, TANC performed a review of the major transmission equipment that is owned by TANC and evaluated the approximate lead time for replacement. Studies were then performed to identify potential impacts on the system due to the unavailability of that specific equipment. This included steady state analysis with the equipment out of service in the base case for contingencies P0 and P1 listed in Appendix B. Equipment which does not have a spare or has a lead time of one year or greater for replacement was identified.

TANC identified that replacement of one of the 164 MVAr shunt capacitor banks at the Tracy 500-kV Substation could require more than one year. To determine any potential adverse effects on the system, the near-term study cases were screened with one of the four 164 MVAr shunt capacitor banks out-of-service at Tracy for the listed P0, P1, and P2 events included in this study.

Transient Stability Analysis [NERC R2.4.3 and NERC R4]

Transient stability analysis was performed on all Reference and Sensitivity Cases to determine if the system complied with the voltage, frequency and angular performance criteria as described in this report. The dynamic study was performed using the WECC approved dynamic data that accompanied the WECC approved base cases used to develop the study cases.

The analysis simulated the expected automatic operation of existing and planned devices designed to provide dynamic control of electrical system quantities when such devices impact the study area. These devices included equipment such as generation exciter control and power system stabilizers, static var compensators, power flow controllers, and DC Transmission controllers.

The analysis simulated the removal of all elements that the Protection System and other automatic controls that were expected to disconnect for each Contingency without operator intervention. The analyses included the impact of the following:

- Successful high speed (less than one second) reclosing and unsuccessful high-speed reclosing into a Fault where high speed reclosing is utilized.
- Tripping of generators where simulations show generator bus voltages or high side of the GSU voltages are less than known or assumed generator low voltage ride through capability. Include in the assessment any assumptions made.
- Tripping of Transmission lines and transformers where transient swings cause Protection System operation based on generic or actual relay models.

Short Circuit [NERC R2.3]

Short circuit (SC) analysis was performed for the near-term planning horizon. The analysis included the simulating a three-phase bolted fault on the 500-kV busses at the Olinda 500-kV substation, Maxwell 500-kV compensation station, and Tracy 500-kV substation. The purpose of the analysis is to verify if the interrupting capability of the existing breakers will still be adequate in the near-term planning horizon.

8. Study Guidelines and Performance Criteria

Study Guidelines

The studies performed in TANC's transmission assessment were based on the guidelines and requirements that were provided by the NERC Standard, WECC Criterion, and WASN SOL Methodology. In this assessment, TANC performed the following studies:

- Steady State Analysis
- Stability Analysis
- Short Circuit Analysis

The methodologies pertaining to the studies listed above are described in detail in Section 2 of this report.

System Performance Criteria [NERC R5]

System reliability was determined by the evaluation of the northern California BES performance during adverse system conditions and contingency events described in Appendix B. The system performance criteria used to determine potential reliability concerns for the analysis performed in this study is consistent with the WECC Criterion and the NERC Standards. The specific details of the performance criteria used in this assessment are described below.

Steady State Performance Criteria

The steady state analysis included the voltage and thermal criteria described below.

Thermal Criteria:

The planning assessment applied the thermal criteria as listed below:

- P0 – Thermal loading is within the limits of the seasonal continuous rating (normal)
- P1-P7 – Thermal loading is within the limits of the seasonal short-term rating
- Extreme Events –Thermal loading is within the limits of the seasonal short-term rating emergency rating

Voltage Criteria:

The voltage criteria used in the planning assessment is listed in Table 8.1.

Table 8.1: Steady State Voltage Performance Criteria

Event Category	Voltage	
	Magnitude[7]	Max % Deviation[8]
P0	95% - 105%	n/a
P1	90% - 110%	8%
P2-P7	90% - 110%	10%

[7] The percent voltage range provided in the voltage magnitude criteria refers to the nominal voltage of the actual bus. This may differ from the base voltage used in the base case.

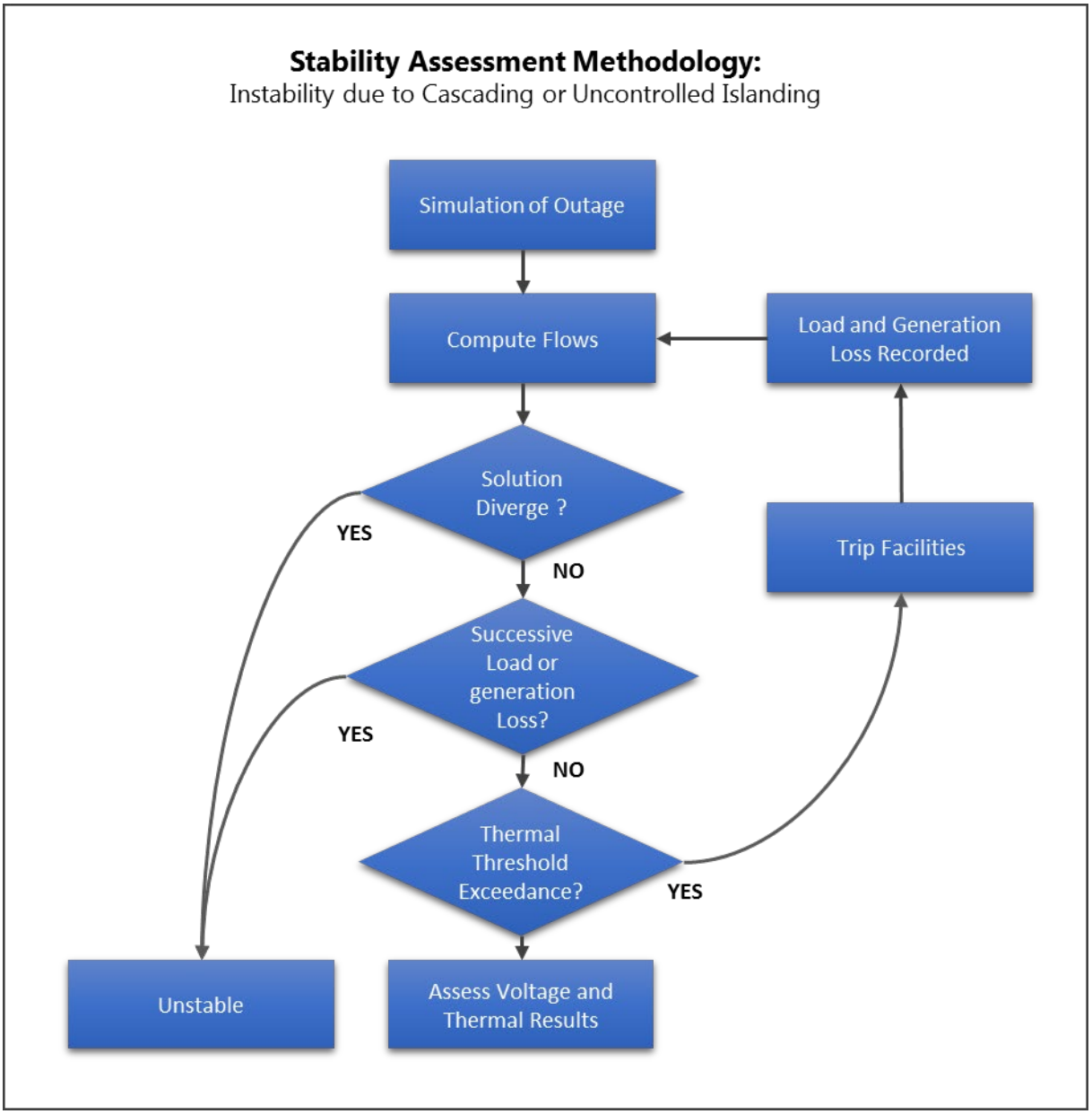
[8] The 10% voltage deviation criteria for P2-P7 events is not required by the TPL-001-WECC-CRT-3.2 or the WAPA SOL Methodology

Voltage Stability

Cascading or Uncontrolled Islanding [NERC R6]

To identify potential cascading trips or uncontrolled islanding the steady state simulation was performed with the assumption that the tripping threshold of BES facilities was 125% of the highest seasonal facility rating. The algorithm applied in the study to identify any reliability concerns related to potential cascading outages is described below in Figure 8.1.

Figure 8.1: Cascading Tripping Methodology



Reactive Margin

The system performance criteria used in the reactive margin analysis is based on the WECC Criterion [WR5.1-WR5.2]. The Criterion requires that a positive reactive margin must be demonstrated for P0 –P7 contingency events. The Criterion also requires that flows are increased on regional transfer paths to a degree that is dependent on the Category of the screened contingency event (P0-P7). As described in Table 8.2., the COI transfers were increased by 2.5% or 5% depending on the screened event.

Table 8.2: Reactive Margin System Conditions Requirement

Event Category	% of Path Rating	COI N-S Transfer (MW) Summer Peak and Off-Peak
P0-P1	105.0%	5,040
P2-P7	102.5%	4,920
Extreme Events	100.0%	4,800

Transient Stability

Voltage Response

The system performance criteria used for the transient voltage response in the stability analysis is based on the WECC Criterion and NERC Standard R5. The details of these criteria are listed in Table 8.3.

Table 8.3: Transient Voltage Recovery Requirement for Applicable BES Buses Serving Load

WECC Requirement	Time Frame	Voltage Criteria: % based on pre-cont. voltage	Max Duration	NERC Events
WR1.3	Following fault clearance	80% or above	20 seconds	P1 – P7
WR1.4 & WR1.5	Voltage dip after initial 80% recovery	70% or above	30 cycles	P1 – P7
		80% or above	2 seconds	P1 – P7

Generator Response and Power Swings

The system performance criteria used for the transient angular stability analysis is based on the WECC Criterion and NERC Standard R4. The details of these criteria are listed in Table 8.4.

Table 8.4: System Response and Synchronism [NERC R6]

NERC/WECC Requirement	NERC Event	Requirement	Max Duration
NERC R4.1.3, WECC WR1.1.6	P1-P7	All oscillations shall show positive damping.	30 sec.
NERC R4.1.1	P1	No generating unit shall pull out of synchronism. (Not including generator simulated faults or tripping per RAS).	n/a
NERC R4.1.2	P2-P7	Tripping of transmission system elements caused by the unintentional tripping of a generator are Not Allowed. (Except tripped GEN ties).	n/a

9. STUDY RESULTS AND FINDINGS

Post Transient Steady State Analysis

Steady state analysis was performed on all Reference and Sensitivity Cases to determine if the system complied with the voltage deviation and thermal loading criteria as described in TANC's system performance criteria and the NERC Standard.

The NCH dispatch patterns used in the Reference peak and off-peak cases and peak Sensitivity Cases was based on patterns used in the 2019 OSS studies as discussed in Section 2. Colusa power plant and Hatchet Ridge wind facilities are typically modeled off-line in the OSS studies, but in the cases of this study the facilities were modeled on-line. As a result, the known impacts caused by these facilities occur in many of the study cases.

The results are presented together for the study cases that modeled COI flows at 4,800 MW. The intent is to provide a comparison of the results from the studies with similar conditions that spans across the 2023, 2026, and 2031 planning years.

Summer Peak and Summer Off-Peak Studies with COI at 4,800 MW N-S

The results of the steady state assessment for the 2023 summer off-peak and 2026, and 2031 summer peak studies are as follows:

Voltage Performance Overview

The steady state analysis for the 2023 summer off-peak and the 2026, and 2031 summer peak Reference and Sensitivity Cases did not result in any voltage violations per the established system performance criteria.

Thermal Performance Overview

The steady state analysis for the 2023, 2026, and 2031 summer peak Reference and Sensitivity Cases resulted in multiple thermal violations (overloads) which are summarized in Table 9.1.

Table 9.1: Summer Load Study COI N-S: Post Transient Steady State Results-Thermal

Impacted BES Facilities	Contingency Event		2023 Summer				2026 Summer		2031 Summer	
			Off-Peak		On-Peak		On-Peak		On-Peak	
	NERC CAT.	Description	Ref.	Sens.	Ref.	Sens.	Ref.	Sens.	Ref.	Sens.
Northern CA 500-kV BES										
Captain Jack-Olinda 500-kV Line	Extreme	Round Mt.-Table Mt. 1 & 2 500-kV Lines	96%	96%	95%	96%	*N/A*	*N/A*	*N/A*	*N/A*
	Extreme	Round Mt.-Fern Rd 1 & 2 500-kV Lines	*N/A*	*N/A*	*N/A*	*N/A*	97%	94%	94%	97%
	Extreme	Fern Rd.-Table Mt. 1 & 2 500-kV Lines	*N/A*	*N/A*	*N/A*	*N/A*	96%	93%	93%	96%
	Extreme	Malin-Round Mt. 1 & 2 500-kV Lines	95%	95%	94%	95%	96%	93%	92%	95%
Olinda -Tracy 500-kV Line	Extreme	Round Mt.-Table Mt. 1 & 2 500-kV Lines	94%	**101%**	92%	98%	*N/A*	*N/A*	*N/A*	*N/A*
	Extreme	Round Mt.-Fern Rd 1 & 2 500-kV Lines	*N/A*	*N/A*	*N/A*	*N/A*	92%	94%	90%	96%
	Extreme	Fern Rd.-Table Mt. 1 & 2 500-kV Lines	*N/A*	*N/A*	*N/A*	*N/A*	91%	94%	90%	95%
	Extreme	Table Mt. -Tesla & Table Mt. -Vaca Dixon 500-kV Lines	91%	**103%**	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Round Mt.-Table Mt. 500-kV Line 1 or 2	P1	Adjacent Round Mt.-Table Mt. 500-kV Line 1 or 2	100%	**104%**	**101%**	**104%**	*N/A*	*N/A*	*N/A*	*N/A*
	P6	Olinda 500/230-kV Tran & Round Mt.-Table Mt #1	102%	105%	103%	106%	N/A	N/A	N/A	N/A
	P6	Olinda -Obanion 230 #1 Line & Round Mt.-Table Mt #1	101%	104%	103%	105%	N/A	N/A	N/A	N/A
	P6	Olinda 500/230-kV Tran & Round Mt.-Table Mt #1	102%	105%	103%	106%	N/A	N/A	N/A	N/A
Table Mt.-Fern Rd 500-kV Line 1 or 2	P1	Adjacent Fern Rd.-Table Mt. 500-kV Line 1 or 2	*N/A*	*N/A*	*N/A*	*N/A*	108%	**112%**	113%	**113%**
	P6	Olinda -Obanion 230 #1 Line & Fern Rd-Table Mt #1	*N/A*	*N/A*	*N/A*	*N/A*	**100%**	**100%**	99%	**104%**
	P6	Olinda 500/230-kV Tran & Round Mt.-Table Mt #1 (North of SWT)	N/A	N/A	N/A	N/A	108%	110%	89%	93%
Round Mt.-Fern Rd 500-kV Line 1 or 2	P1	Adjacent Round Mt.-Table Mt. 500-kV Line 1 or 2 (North of SS)	*N/A*	*N/A*	*N/A*	*N/A*	108%	**112%**	113%	**113%**
	P6	Olinda -Obanion 230 #1 Line & Round Mt.-Table Mt #1 (North of SWT)	N/A	N/A	N/A	N/A	**109%**	**110%**	**110%**	**115%**
Vaca Dixon – Tesla 500-kV Line	P6	Olinda -Obanion 230 #1 Line & Olinda-Tracy	89%	101%	91%	104%	92%	98%	85%	93%
Table Mountain – Fern Road 500kV Line #1 or #2	P6	Olinda -Obanion 230 #1 Line & Fern Rd-Table Mt #1]	N/A	N/A	N/A	N/A	100%	100%	99%	104%
Northern CA 230-kV BES										

Impacted BES Facilities	Contingency Event		2023 Summer				2026 Summer		2031 Summer	
			Off-Peak		On-Peak		On-Peak		On-Peak	
	NERC CAT.	Description	Ref.	Sens.	Ref.	Sens.	Ref.	Sens.	Ref.	Sens.
Cottonwood – Round Mt 230 kV Line	Extreme	Table Mt. -Tesla & Table Mt. -Vaca Dixon 500-kV Lines	86%	**103%**	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Brighton-Bellota 230 kV Line	Extreme	Table Mt. -Tesla & Table Mt. -Vaca Dixon 500-kV Lines	80%	**100%**	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Warnerville – Wilson 230kV Line	P7	PDCI Bipole Outage	80%	**100%**	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Delevan-Cortina 230-kV Line	P1	Olinda-Tracy	*N/A*	*N/A*	**100%**	**108%**	*N/A*	*N/A*	99%	**101%**
	P1	Table Mt. - Vaca	*N/A*	*N/A*	98%	**106%**	*N/A*	*N/A*	99%	**100%**
	P4	Round Mt. - Table Mt. #1 & Table Mt. -Vaca Dixon 500-kV lines	*N/A*	*N/A*	99%	**106%**	90%	98%	100%	**101%**
	P4	Table Mt Vaca Dixon 500-kV line and Vaca Dixon #1 500/230-kV Transformer	*N/A*	*N/A*	96%	**104%**	*N/A*	*N/A*	*N/A*	*N/A*
	P6	Round Mt 500/230-kV Tran & Olinda-Tracy	72%	92%	112%	123%	101%	110%	111%	115%
	Extreme	Round Mt.-Table Mt. 1 & 2 500-kV Lines	*N/A*	*N/A*	**104%**	**113%**	95%	**103%**	**106%**	**108%**
	Extreme	Table Mt. -Tesla & Table Mt. -Vaca Dixon 500-kV Lines	*N/A*	*N/A*	**108%**	**119%**	100%	**110%**	**110%**	**114%**
Contra Costa – Wind Master 230kV Line	Extreme	Table Mt.-Tesla & Vaca Dixon-Tesla 500-kV Line	*N/A*	*N/A*	94%	**104%**	**101%**	93%	*N/A*	*N/A*
Cayentano – North Dublin 230kV Line	P1	Vaca-Tesla	*N/A*	*N/A*	*N/A*	*N/A*	**100%**	99%	*N/A*	*N/A*
	P6	Cottonwood(WASN) - Cotonwood(PGE) 230 & Vaca-Tesla	40%	43%	87%	88%	100%	99%	86%	86%
	P6	Olinda 500/230-kV Tran & Vaca-Tesla	41%	44%	87%	89%	101%	100%	86%	87%
	Extreme	Table Mt.-Tesla & Vaca Dixon-Tesla 500-kV Line	*N/A*	*N/A*	*N/A*	*N/A*	**105%**	**105%**	*N/A*	*N/A*
Las Positas – Newark 230kV Line	Extreme	Table Mt.-Tesla & Vaca Dixon-Tesla 500-kV Line	*N/A*	*N/A*	*N/A*	*N/A*	**101%**	**101%**	*N/A*	*N/A*
Table Mt-Rio Oso 230-kV Line	Extreme	Table Mt. -Tesla & Table Mt. -Vaca Dixon 500-kV Lines	*N/A*	*N/A*	97%	**105%**	*N/A*	*N/A*	94%	**106%**
Keswick – Obanion 230kV Line	P6	Olinda -Obanion 230 #1 Line & Olinda-Tracy	83%	92%	98%	107%	89%	94%	87%	108%

Summer Peak and Summer Off-Peak Load Study Overloads and Corrective Actions

Captain Jack – Olinda 500-kV line and Olinda-Tracy 500-kV line

High thermal loading on the Captain Jack -Olinda 500-kV line and the Olinda-Tracy 500-kV line was noted after the common corridor outages of the Malin-Round Mountain 500-kV lines 1 and 2 and the Round Mountain – Table Mountain 500-kV lines 1 and 2. This overload is a result of the retirement of the CDWR RAS on January 1, 2015. Prior to the CDWR RAS retirement, the PACI RAS included tripping of approximately 2,000 MW of large aqueduct pump load owned by CDWR which effectively reduced the post-contingency flow through northern California bulk transmission system following a PACI DLO. Following the retirement of the CDWR RAS, system studies conducted by planning and operations have shown that the PACI DLO result in more severe impacts on the remaining 500-kV system and on the underlying 230-kV and 115-kV system.

Mitigation: Because the common corridor outage of the Malin-Round Mountain 500-kV lines 1 and 2 and the Round Mountain – Table Mountain 500-kV lines 1 and 2 are not considered credible in operations (unless the corridor is threatened by adverse conditions), the most effective means to mitigate the overload is to reduce COI N-S transfers during Threat conditions. The condition is monitored in operation and is included in the 6110 Operating Procedure (OP).

Round Mountain – Table Mountain 500-kV Line #1 or #2

An overload on one of the Round Mountain –Table Mountain Lines following an outage of the adjacent line occurred in all the Reference and Sensitivity studies. The overload was exacerbated in the 2026 and 2031 peak load cases with the Round Mountain 500 kV Dynamic Voltage Support project. The project includes a new switching station (SS) to be built south of Round Mountain and tie into the Round Mountain -Table Mountain 500-kV Lines 1 & 2. The 2026 and 2031 studies simulated the Round Mountain -Table Mountain 500-kV line outages north of the SS and south of the SS. With SS located near the Round Mountain substation and related low impedance of the two connecting 500-kV lines, the resulting overload on the Round Mountain -Round Mountain SS 500-kV line following the loss of the adjacent line is approximately 12% higher than the overload resulting when the project was not modeled.

Mitigation: Prior to the Round Mountain 500 kV Dynamic Voltage Support project, the most effective means to mitigate the overload on the Round Mountain – Table Mountain 500-kV Line is to install RAS that would bypass the series capacitors on the impacted Round Mountain – Table Mountain 500-kV line as approved in the CAISO in the 2018-2019 TPP Study. Alternative means to mitigate the overload in the near-term for the credible P1 outage would be to reduce Pit River hydro generation, Hatchet Ridge generation, or reduce COI N-S flows as described in the CAISO Operating Procedure 6110.

With the Round Mountain 500 kV Dynamic Voltage Support project, the highest overload on the 500-kV line between the Round Mountain and new switching station following an outage of the adjacent 500-kV line was mitigated in the TANC 2026 and 2031 peak load studies by simulating the RAS of bypassing the series capacitors on all of the remaining lines segments at Table Mountain and Round Mountain. This same RAS was also recommended in the CAISO 2020-2021 TPP preliminary studies. The RAS might be an effective option to mitigate the impacts caused by the Round Mountain 500 kV Dynamic Voltage

Support project, but further studies would be required to be certain. TANC will continue to monitor this project and assess the effectiveness of the RAS recommended by the CAISO.

As expected, in the P6 outage screening the Round Mountain – Table Mountain Line overload was exacerbated if the preceding P1 outage resulted in higher flows on the Round Mountain – Table Mountain 500-kV lines prior to simulating the Round Mountain–Table Mountain single line outage. To mitigate overload due to the P6 outages, the series capacitor on the remaining Round Mountain–Table Mountain 500-kV line (or related line segments in the 2026 and 2031 planning years) could be bypassed to maximize the import capability into California over COI. Alternatively, mitigation could be achieved by reducing COI N-S transfers after the first outage event.

Delevan –Cortina 230-kV Line

Overloads on the Delevan–Cortina 230-kV Line occurred in the peak load Sensitivity Cases for both the near-term and long-term planning studies. The primary reason for the overload is the conductor sizing of the line and the high dispatch of generation tied to the Delevan 230-kV substation. The limitation is well known and typically mitigated by reducing the Colusa power plant generation. However, the planned 500 MW photovoltaic / storage project that is planned to interconnect with the Delevan 230-kV substation has the same impact on the line.

The solar project has an expected in-service-date of May 2024 and was modeled in the 2025 and 2030 summer peak cases. To accommodate the dispatch assumption for solar output of 70%, the Colusa generation was reduced up to 360 MW in the 2026 and 2031 peak load studies to reduce high overloads on the Delevan -Cortina 230-kV line in the Reference cases following a contingency screening of P1 outages.

Mitigation: In the near-term, the most effective means to mitigate the Delevan–Cortina 230-kV line overload is to reduce the dispatch of local generation (as was noted in the CAISO's 2019-2020 TPP studies). A long-term solution, however, would be to reconductor the Delevan–Cortina 230-kV line as also noted in the CAISO's 2017-2018 TPP studies.

Keswick -Obanion 230-kV line

High thermal loading occurred on the Keswick -Obanion 230-kV line in all the study cases but resulted in a thermal overload of 7% in the 2023 summer off-peak Sensitivity Case study, following the overlapping outage of Olinda -Obanion 230-kV line and Olinda -Tracy 500-kV line.

Mitigation: The most effective means to mitigate the Keswick -Obanion 230-kV line overload is to restrict CVP hydro generation output or COI N-S flows during an outage of the Olinda -Keswick 230-kV line.

Round Mountain - Cottonwood 230-kV Line #1

Overloads on the Round Mountain - Cottonwood 230-kV Line 1 occurred in all the Sensitivity cases with the NCH output at the 80% level following the overlapping outage of one of the adjacent Round Mountain -Cottonwood 230-kV lines and followed by an outage of the Round Mountain 500/230-kV transformer. In addition, overloads occurred on the line in all Sensitivity Case studies following the common corridor outage of the Table Mountain-Tesla and Table Mountain-Vaca Dixon 500-kV Lines. In

all Sensitivity Cases, the primary reason for the overload is the size of the conductor and the high dispatch of Pit River hydro and Hatchet Ridge generation in the Sensitivity Cases.

Mitigation: The most effective long-term solution would be to reconductor the Round Mountain – Cottonwood 230-kV line with a larger conductor if economical. In the near-term, the overload can be mitigated by reducing Pit River system generation or by reducing COI to the seasonal Nomogram limit during threat conditions as described in the CAISO Operating Procedure 6110 or by.

Table Mountain -Rio Oso 230-kV Line Overload

An overload occurred on the Table Mountain -Rio Oso 230-kV line in the 2023 summer peak load Reference and Sensitivity studies of 6% and 11% respectively, following the common corridor outage of the Table Mountain-Tesla and Table Mountain-Vaca Dixon 500-kV Lines.

Mitigation: The overload on the Table Mountain -Rio Oso 230-kV line will be mitigated when the line's terminal equipment is upgraded at the Rio Oso 230-kV bus. The upgrade is expected to be completed by September of 2022 with the completion of the Rio Oso Area 230 kV Voltage Support project. Until the upgrade is completed, mitigation can be achieved by reducing Lake Oroville hydro generation or by reducing COI N-S flows to the COI Nomogram relevant during threat conditions.

Bay Area 230-kV Lines Overload

An overload occurred on the Contra Costa – Wind Master, Cayetano – North Dublin, and Las Positas – Newark 230kV Line 230-kV lines in the 2026 summer peak load Reference and Sensitivity studies of up to 6% in both cases, following the various outage involving the 500kV Lines into Tesla 500kV station.

Mitigation: The overloads on these three lines have common local generation mitigation which is to reduce output from the Contra Costa Area generation.

Palermo –Rio Oso 115-kV Lines

With the completion of the reconductoring work between Palermo-Rio Oso 115kV by 2022 there were no resulting overloads on these facilities in the 2023, 2026 and 2031 studies because the Palermo –Rio Oso 115-kV Reconductoring project was assumed completed by 2022 as was shown in previous years reports.

Spare Equipment Strategy

Information regarding TANC's major transmission equipment was reviewed to determine an estimated time required for the replacement of such equipment. For equipment that would require a lead time of one year or more, studies were performed to determine potential impacts on the system that might be expected if the part needed to be replaced.

As a result of this review it was determined that:

- An outage of a year or more would likely not occur of the 500/230-kV transformer banks at Olinda and Tracy because each bank consists of three single-phase units and the availability of a spare single-phase unit at each location.
- The replacement of any one of the four 150 MVAr shunt capacitors at the Tracy 500-kV Substation could require a year or longer to accomplish. As such, the 2020 Off-Peak Reference Case and 2020

Peak Reference Case were studied with one of the capacitor banks out of service in the base case. The events included in the contingency analysis were the P0 and P1 events listed in Appendix B. These studies did not indicate any adverse impacts on the system. System voltages were within range of expected operating levels and no voltage deviations were created by the capacitor bank being out of service. In addition, there were no new or exacerbated thermal overloads created with the equipment out of service.

Stability Analysis

Reactive Margin Study

Reactive power margin studies were performed on the peak and off-peak Reference and Sensitivity Cases where the reactive margin was measured at the most critical 500-kV busses relevant to the northern California BES. For the buses to comply with WECC's system performance criteria, a positive reactive margin must be measured.

A maximum of 1,000 MVArs was tested at each of the 500-kV busses included in the study. The study resulted in a positive reactive margin for all busses and thus complying with WECC's performance criteria.

The lowest reactive margin measured in the study are summarized below in Table 9.3.

Table 9.3 Reactive Margin Results Summarizing the Lowest Measured Margin

Study Case	COI MW N-S	Events Evaluated	Most Critical Contingency	QV Margin	500-kV Bus
Reference Cases (NCH at 70% of Total Capacity)					
2023 Summer Peak	5040	P0, P1, P4	Malin-Round Mtn #1 500kV Line	370	Captain Jack
	4920	P7	None	1,000	All Busses
	4800	Ex. Event	Palo Verde Units #1 and #2	283	Captain Jack
2026 Summer Peak	5040	P0, P1, P4	Malin – Round Mtn #1 500kV Line	811	Captain Jack
	4920	P7	None	1,000	All Busses
	4800	Ex. Event	Palo Verde Units #1 and #2	972	Captain Jack
2031 Summer Peak	5040	P0, P1, P4	Malin-Round Mt #1 and Round Mtn – Fern Rd #2 500kV	483	Malin
	4920	P7	None	1,000	All Busses
	4800	Ex. Event	Palo Verde Units #1 and #2	236	Captain Jack
Sensitivity Cases (NCH at 90% of Total Capacity)					
2023 Summer Peak	5040	P0, P1, P4	Malin – Round Mtn #1 or #2 500kV Line	320	Captain Jack
	4920	P7	PDCI Bipole Outage	855	Captain Jack
	4800	Ex. Event	Palo Verde Units #1 and #2	230	Captain Jack
2026 Summer Peak	5040	P0, P1, P4	Malin-Round Mt #1 and Round Mt– Fern Rd SS #2 500-kV lines	721	Captain Jack
	4920	P7	None	1000	All Busses
	4800	Ex. Event	Palo Verde Unit #1 and #2	553	Malin
2031 Summer Peak	5040	P0, P1, P4	Malin-Round Mt #1 and Round Mtn – Fern Rd #2 500kV	357	Captain Jack
	4920	P7	None	1,000	All Busses
	4800	Ex. Event	Palo Verde Units #1 and #2	388	Captain Jack

Transient Stability Analysis

Stability analysis was performed on all Reference and Sensitivity Cases to determine if the system complied with the voltage, frequency and dampening criteria as described in WECC's system performance criteria and NERC Standard. The simulation and contingency analysis were performed as described in Section 3 of this report.

The study included NERC Category P0, P1, P4, P5, P7 and extreme events listed in Appendix B. The dynamic system performance was assessed in accordance with the NERC/WECC Planning Standards and WECC Criterion summarized in Appendix A.

The studies for all cases show that:

- The system is stable, and all oscillations are damped for all contingencies evaluated
- All system voltage and frequency recovery met the WECC's system performance criteria
- All generation met the NERC generation synchronism requirement
- No tripping of transmission system elements occurred due to unintentional tripping of generation
- No unintentional relay tripping of the TANC owned Transmission lines or transformers occurred during transient power swings resulting from simulated system disturbances.

Provided in Appendix C are the resulting plots of voltage, frequency, and generator angles following the most severe contingency events.

Short Circuit [NERC R2.3 and NERC R2.8]

The short circuit (SC) analysis for the TANC facilities was performed to verify if the interrupting capability of the installed protection equipment would continue to be adequate in the near-term planning horizon. The analysis was conducted using the ASPEN One-Liner software and the short circuit model with the additional generation and planned transmission projects expected in the near-term planning horizon. The study was performed by simulating various short circuit faults on TANC owned facilities and comparing the resulting fault duty to the interrupting capability of the relative protection equipment.

The study found that the interrupting capability of the circuit breakers was adequate, and that the equipment would be expected to operate as designed for any potential fault duties that might occur in the near-term planning horizon. There were no breakers that were identified as a potential concern in this assessment.

WECC TPL-001-WECC-CRT-3

Approved: September 21, 2016

Replaced: TPL-001-WECC-CRT-2.3 *retired on September 20, 2016.*

Steady State Performance Criteria

The steady state analysis included voltage magnitude and voltage deviation requirements for Load serving BES buses. Load serving BES buses are those with direct transformation from BES-level voltage to distribution-level voltage which serves load.

Thermal Criteria:

The planning assessment applied the thermal criteria as listed below:

- P0 Events – Thermal loading is within the limits of the seasonal continuous rating (normal)
- P1-P7 & "Extreme Events": Thermal loading is within the limits of the seasonal short-term rating (emergency)

Voltage Criteria:

The voltage criteria used in the planning assessment is listed in Table A.1.

Table A.1: Steady State Voltage Performance Criteria

Event Category	Voltage	
	Magnitude[9]	Max % Deviation
P0	95% - 105%	n/a
P1	90% - 110%	8%
P2-P7	90% - 110%	n/a

Cascading Trips

To identify potential cascading trips or uncontrolled islanding the tripping threshold of BES facilities will be assumed to be 125% of the highest seasonal facility rating if unknown. Otherwise the known tripping thresholds will be used.

Reactive Margin

The minimum criteria to comply with the reactive margin requirement is that a positive margin must be demonstrated following contingency events. Since the COTP as 1/3 of the COI path, the transfer path stressing methodology will be used to perform the reactive margin study. COI will be stressed for the contingency screening to the following levels:

- P0-P1 Events: COI flows will be increased by 5%
- P2-P7 Events: COI flow will be increased by 2.5%

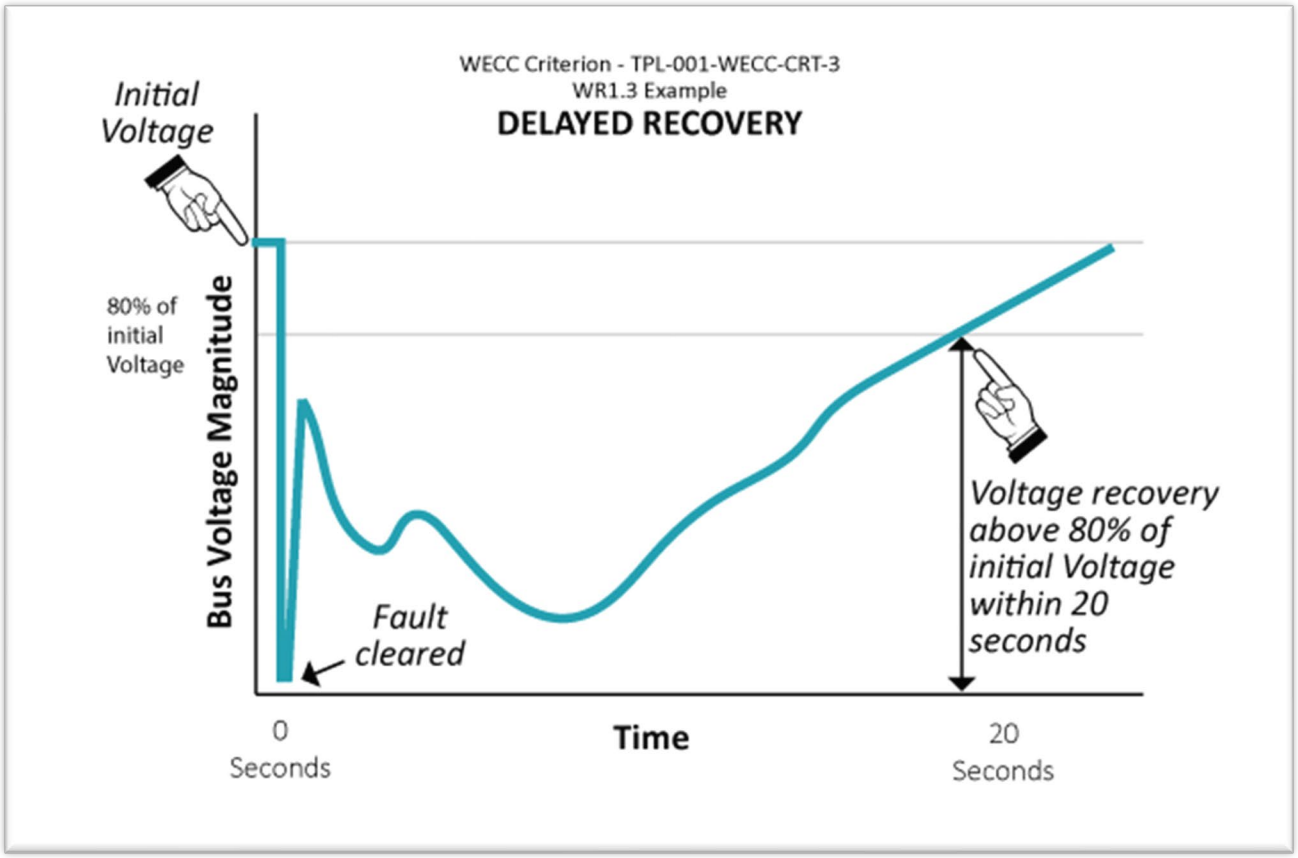
[9] The percent voltage range provided in the voltage magnitude criteria refers to the nominal voltage of the actual bus. This may differ from the base voltage used in the base case.

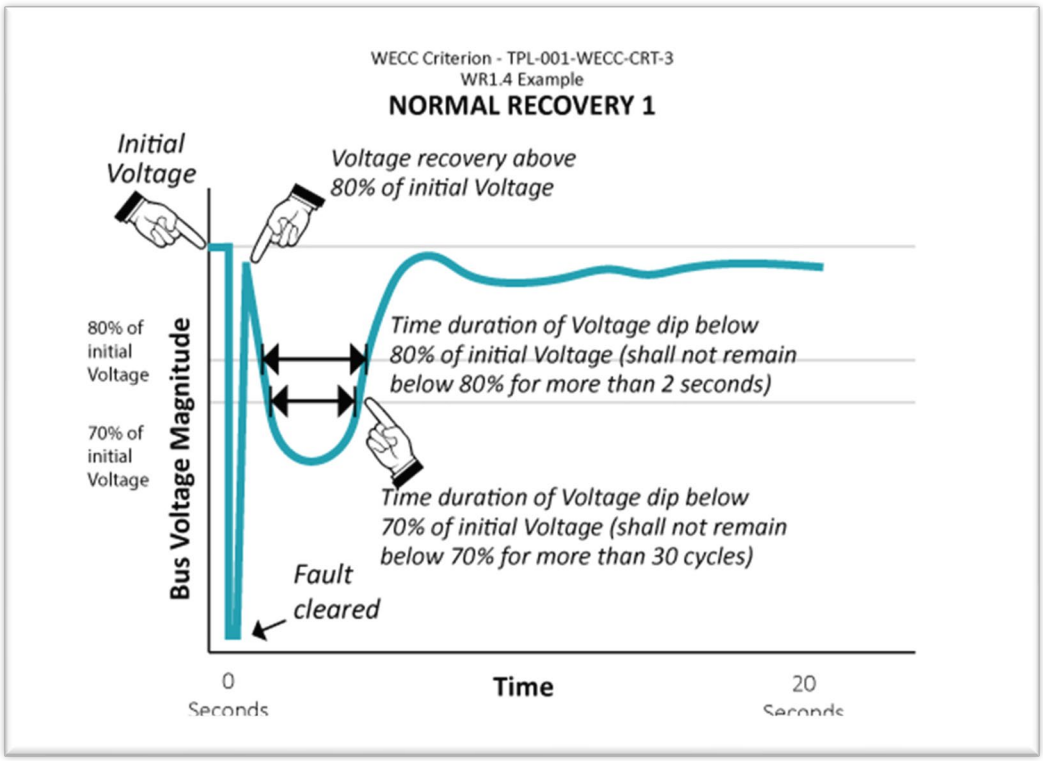
Stability

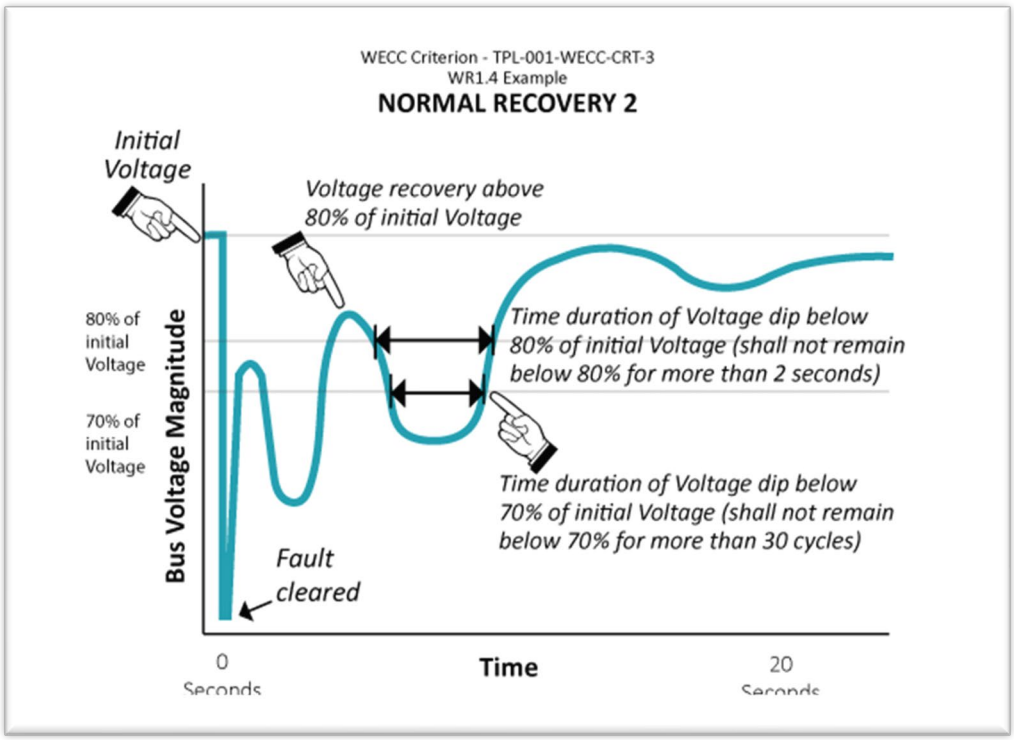
The system performance criteria required for transient voltage response is details of these criteria are listed in Table A.2. In column with heading "Response" the type of response is listed with reference to the illustrations below.

Table A.2: Transient Voltage Recovery Requirement for P1-P7 Contingency Events

WECC Requirement	Time Frame	Voltage Criteria: % based on pre-cont. voltage	Max Duration	Response
WR1.1.3	Following fault clearance	80% or above	20 seconds	Delayed
WR1.1.4 & WR1.1.45	Voltage dip after initial 80% recovery	70% or above	30 cycles	Normal1
		80% or above	2 seconds	Normal2




WECC Criterion - TPL-001-WECC-CRT-3
WR1.4 Example
NORMAL RECOVERY 1
Initial Voltage
Voltage recovery above 80% of initial Voltage
80% of initial Voltage
70% of initial Voltage
Bus Voltage Magnitude
Time duration of Voltage dip below 80% of initial Voltage (shall not remain below 80% for more than 2 seconds)
Time duration of Voltage dip below 70% of initial Voltage (shall not remain below 70% for more than 30 cycles)
Fault cleared
0 Seconds
Time
20 Seconds


WECC Criterion - TPL-001-WECC-CRT-3
WR1.4 Example
NORMAL RECOVERY 2
Initial Voltage
Voltage recovery above 80% of initial Voltage
80% of initial Voltage
70% of initial Voltage
Bus Voltage Magnitude
Time duration of Voltage dip below 80% of initial Voltage (shall not remain below 80% for more than 2 seconds)
Time duration of Voltage dip below 70% of initial Voltage (shall not remain below 70% for more than 30 cycles)
Fault cleared
0 Seconds
Time
20 Seconds

NERC TPL-001-4 Contingency Events

Table A-4: TPL-001-4 Transmission System Planning Performance Requirements

Steady State & Stability:

a. The System shall remain stable. Cascading and uncontrolled islanding shall not occur.

b. Consequential Load Loss as well as generation loss is acceptable as a consequence of any event excluding P0.

c. Simulate the removal of all elements that Protection Systems and other controls are expected to automatically disconnect for each event.

d. Simulate Normal Clearing unless otherwise specified.

e. Planned System adjustments such as Transmission configuration changes and re-dispatch of generation are allowed if such adjustments are executable within the time duration applicable to the Facility Ratings.

Steady State Only:

f. Applicable Facility Ratings shall not be exceeded.

g. System steady state voltages and post-Contingency voltage deviations shall be within acceptable limits as established by the Planning Coordinator and the Transmission Planner.

h. Planning event P0 is applicable to steady state only.

i. The response of voltage sensitive Load that is disconnected from the System by end-user equipment associated with an event shall not be used to meet steady state performance requirements.

Stability Only:

j. Transient voltage response shall be within acceptable limits established by the Planning Coordinator and the Transmission Planner.

Category	Initial Condition	Event [1]	Fault Type [2]	BES Level [3]	Interruption of Firm Transmission Service Allowed [4]	Non-Consequential Load Loss Allowed
P0 No Contingency	Normal System	None	N/A	EHV, HV	No	No
P1 Single Contingency	Normal System	Loss of one of the following: 1. Generator 2. Transmission Circuit 3. Transformer [5] 4. Shunt Device [6]	3Ø	EHV, HV	No[9]	No[12]
		5. Single Pole of a DC line	SLG			
P2 Single Contingency	Normal System	1. Opening of a line section w/o a fault [7]	N/A	EHV, HV	No[9]	No[12]
		2. Bus Section Fault	SLG	EHV	No[9]	No[12]
				HV	Yes	Yes
		3. Internal Breaker Fault [8] (non-Bus-tie Breaker)	SLG	EHV	No[9]	No
				HV	Yes	No
		4. Internal Breaker Fault (Bus-tie Breaker) [8]	SLG	EHV, HV	Yes	No

Category	Initial Condition	Event [1]	Fault Type [2]	BES Level [3]	Interruption of Firm Transmission Service Allowed [4]	Non-Consequential Load Loss Allowed
P3 Multiple Contingency	Loss of generator unit followed by System adjustments[9]	Loss of one of the following: 1. Generator 2. Transmission Circuit 3. Transformer 5 4. Shunt Device 6	3Ø	EHV, HV	No[9]	No[12]
		5. Single pole of a DC line	SLG			
P4 Multiple Contingency *(Fault plus stuck breaker10)*	Normal System	Loss of multiple elements caused by a stuck breaker [10](non-Bus-tie Breaker) attempting to clear a Fault on one of the following: 1. Generator 2. Transmission Circuit 3. Transformer [5] 4. Shunt Device [6] 5. Bus Section	SLG	EHV	No[9]	No
				HV	Yes	Yes
		6. Loss of multiple elements caused by a stuck breaker[10] (Bus-tie Breaker) attempting to clear a Fault on the associated bus	SLG	EHV, HV	Yes	Yes
P5 Multiple Contingency *(Fault plus relay failure to operate)*	Normal System	Delayed Fault Clearing due to the failure of a non-redundant relay[13] protecting the Faulted element to operate as designed, for one of the following: 1. Generator 2. Transmission Circuit 3. Transformer [5] 4. Shunt Device [6] 5. Bus Section	SLG	EHV	No[9]	No
				HV	Yes	Yes
P6 Multiple Contingency *(Two overlapping singles)*	Loss of one of the following followed by System adjustments.[9] 1. Transmission Circuit 2. Transformer [5] 3. Shunt Device[6] 4. Single pole of a DC line	Loss of one of the following: 1. Transmission Circuit 2. Transformer [5] 3. Shunt Device [6]	3Ø	EHV, HV	Yes	Yes
		4. Single pole of a DC line	SLG	EHV, HV	Yes	Yes

P7 Multiple Contingency *(Common Structure)*	Normal System	The loss of: 1. Any two adjacent (vertically or horizontally) circuits on common structure[11] 2. Loss of a bipolar DC line	SLG	EHV, HV	Yes	Yes

Table A.5: TPL-001-4 Transmission System Planning Performance Requirements for Extreme Events

Steady State & Stability

For all extreme events evaluated:

a. Simulate the removal of all elements that Protection Systems and automatic controls are expected to disconnect for each Contingency.

b. Simulate Normal Clearing unless otherwise specified.

Steady State

1. Loss of a single generator, Transmission Circuit, single pole of a DC Line, shunt device, or transformer forced out of service followed by another single generator, Transmission Circuit, single pole of a different DC Line, shunt device, or transformer forced out of service prior to System adjustments.
2. Local area events affecting the Transmission System such as:
   a. Loss of a tower line with three or more circuits.11
   b. Loss of all Transmission lines on a common Right-of-Way11.
   c. Loss of a switching station or substation (loss of one voltage level plus transformers).
   d. Loss of all generating units at a generating station.
   e. Loss of a large Load or major Load center.
3. Wide area events affecting the Transmission System based on System topology such as:
   a. Loss of two generating stations resulting from conditions such as:
   i. Loss of a large gas pipeline into a region or multiple regions that have significant gas-fired generation.
   ii. Loss of the use of a large body of water as the cooling source for generation.
   iii. Wildfires.
   iv. Severe weather, e.g., hurricanes, tornadoes, etc.
   v. A successful cyber-attack.
   vi. Shutdown of a nuclear power plant(s) and related facilities for a day or more for common causes such as problems with similarly designed plants.
   b. Other events based upon operating experience that may result in wide area disturbances.

Stability

1. With an initial condition of a single generator, Transmission circuit, single pole of a DC line, shunt device, or transformer forced out of service, apply a 3Ø fault on another single generator, Transmission circuit, single pole of a different DC line, shunt device, or transformer prior to System adjustments.
2. Local or wide area events affecting the Transmission System such as:
   a. 3Ø fault on generator with stuck breaker10 or a relay failure13 resulting in Delayed Fault Clearing.
   b. 3Ø fault on Transmission circuit with stuck breaker10 or a relay failure13 resulting in Delayed Fault Clearing.
   c. 3Ø fault on transformer with stuck breaker10 or a relay failure13 resulting in Delayed Fault Clearing.
   d. 3Ø fault on bus section with stuck breaker10 or a relay failure13 resulting in Delayed Fault Clearing.
   e. 3Ø internal breaker fault.
   f. Other events based upon operating experience, such as consideration of initiating events that experience suggests may result in wide area disturbances

Table A.6 Footnotes: Planning Events and Extreme Events (Standard TPL-001-4)

1. If the event analyzed involves BES elements at multiple System voltage levels, the lowest System voltage level of the element(s) removed for the analyzed event determines the stated performance criteria regarding allowances for interruptions of Firm Transmission Service and Non-Consequential Load Loss.
2. Unless specified otherwise, simulate Normal Clearing of faults. Single line to ground (SLG) or three-phase (3Ø) are the fault types that must be evaluated in Stability simulations for the event described. A 3Ø or a double line to ground fault study indicating the criteria are being met is sufficient evidence that a SLG condition would also meet the criteria.
3. Bulk Electric System (BES) level references include extra-high voltage (EHV) Facilities defined as greater than 300-kV and high voltage (HV) Facilities defined as the 300-kV and lower voltage Systems. The designation of EHV and HV is used to distinguish between stated performance criteria allowances for interruption of Firm Transmission Service and Non-Consequential Load Loss.
4. Curtailment of Conditional Firm Transmission Service is allowed when the conditions and/or events being studied formed the basis for the Conditional Firm Transmission Service.
5. For non-generator step up transformer outage events, the reference voltage, as used in footnote 1, applies to the low-side winding (excluding tertiary windings). For generator and Generator Step Up transformer outage events, the reference voltage applies to the BES connected voltage (high-side of the Generator Step Up transformer). Requirements which are applicable to transformers also apply to variable frequency transformers and phase shifting transformers.
6. Requirements which are applicable to shunt devices also apply to FACTS devices that are connected to ground.
7. Opening one end of a line section without a fault on a normally networked Transmission circuit such that the line is possibly serving Load radial from a single source point.
8. An internal breaker fault means a breaker failing internally, thus creating a System fault which must be cleared by protection on both sides of the breaker.
9. An objective of the planning process should be to minimize the likelihood and magnitude of interruption of Firm Transmission Service following Contingency events. Curtailment of Firm Transmission Service is allowed both as a System adjustment (as identified in the column entitled 'Initial Condition') and a corrective action when achieved through the appropriate re-dispatch of resources obligated to re-dispatch, where it can be demonstrated that Facilities, internal and external to the Transmission Planner's planning region, remain within applicable Facility Ratings and the re-dispatch does not result in any Non-Consequential Load Loss. Where limited options for re-dispatch exist, sensitivities associated with the availability of those resources should be considered.
10. A stuck breaker means that for a gang-operated breaker, all three phases of the breaker have remained closed. For an independent pole operated (IPO) or an independent pole tripping (IPT) breaker, only one pole is assumed to remain closed. A stuck breaker results in Delayed Fault Clearing.
11. Excludes circuits that share a common structure (Planning event P7, Extreme event steady state 2a) or common Right-of-Way (Extreme event, steady state 2b) for 1 mile or less.
12. An objective of the planning process is to minimize the likelihood and magnitude of Non-Consequential Load Loss following planning events. In limited circumstances, Non-Consequential Load Loss may be needed throughout the planning horizon to ensure that BES performance requirements are met. However, when Non-Consequential Load Loss is utilized under footnote 12 within the Near-Term Transmission Planning Horizon to address BES performance requirements, such interruption is limited to circumstances where the Non-Consequential Load Loss meets the conditions shown in Attachment 1. In no case can the planned Non-Consequential Load Loss under footnote 12 exceed 75 MW for US registered entities. The amount of planned Non-Consequential Load Loss for a non-US Registered Entity should be implemented in a manner that is consistent with, or under the direction of, the applicable governmental authority or its agency in the non-US jurisdiction.
13. Applies to the following relay functions or types: pilot (#85), distance (#21), differential (#87), current (#50, 51, and 67), voltage (#27 & 59), directional (#32, & 67), and tripping (#86, & 94).

APPENDIX B. LIST OF CONTINGENCIES SIMULATED

FERC Category	Outage	Type
P1	Malin-Round Mountain 500-kV Lines 1 or 2	L-1
	Malin-Captain Jack 500-kV Line	L-1
	Round Mountain-Table Mountain 500-kV Lines 1 or 2	L-1
	Table Mountain-Tesla 500-kV Line	L-1
	Table Mountain-Vaca Dixon 500-kV Line	L-1
	Vaca Dixon-Tesla 500-kV Line	L-1
	Tracy-Los Banos 500-kV Line	L-1
	Tracy-Tesla 500-kV Line	L-1
	Tesla-Los Banos 500-kV Line	L-1
	Captain Jack-Olinda 500-kV Line	L-1
	Olinda-Tracy 500-kV Line	L-1
	Round Mountain 500/230-kV transformer	T-1
	Table Mountain 500/230-kV transformer	T-1
	Olinda 500/230-kV transformer	T-1
	Tesla 500/230-kV #2 transformer	T-1
	Tracy 500/230-kV #1 transformer	T-1
	Vaca Dixon 500/230-kV #11 transformer	T-1
	Pacific DC Intertie Monopole	HVDC Monopole
P4	Malin-Round Mountain #1 and Round Mountain–Table Mountain #2 500-kV Lines	Stuck BRKR
	Round Mountain-Table Mountain #1 and Table Mountain–Vaca Dixon 500-kV Lines	Stuck BRKR
	Table Mountain-Tesla and Tesla-Tracy 500-kV Lines	Stuck BRKR
	Table Mountain–Vaca Dixon 500-kV Line and Vaca Dixon #1 500/230-kV transformer	Stuck BRKR
	Table Mountain-Tesla and Vaca Dixon-Tesla 500-kV Lines	Stuck BRKR
P7	Tesla-Tracy and Tesla-Los Banos 500-kV Lines	L-2
	Pacific DC Intertie Bipole	HVDC Bipole
Extreme Event 500-kV Common Corridor Outage	Malin-Round Mountain #1 and #2 500-kV Lines	L-2
	Round Mountain–Table Mountain #1 and #2 500-kV Lines	L-2
	Table Mountain-Tesla and Table Mountain–Vaca Dixon 500-kV Lines	L-2
	Tesla-Tracy and Tracy-Los Banos 500-kV Lines	L-2
Extreme Event Loss of 2 Generators	Palo Verde units 1 and 2 (Simultaneous)	G-2
	Diablo Canyon units 1 and 2 (Simultaneous)	G-2
P6 - First Event Case Normalized	Round Mountain -Cottonwood 230 #2 Line	L-1
	Round Mountain -Cottonwood 230 #3 Line	L-1
	Olinda -Cottonwood 230 #1 Line	L-1

FERC Category	Outage	Type
P6 - First Event Case Normalized (Continued)	Olinda -Obanion 230 #1 Line	L-1
	Olinda -Keswick 230 #1 Line	L-1
	Cottonwood (WASN) - Cottonwood (PGE) 230 #1 Line	L-1
	Delevan-Cortina 230-kV Line	L-1
	Delevan-Vaca Dixon 230-kV Line #1	L-1
	Cortina-Vaca Dixon 230-kV Line #1	L-1
	Keswick-Airport 230-kV line	L-1
	Airport-Cottonwood 230-kV line	L-1
	Olinda 500/230-kV Tran	T-1
	Tracy 500/230-kV #1 Tran	T-1
	Round Mountain 500/230-kV Tran	T-1
	Table Mountain 500/230-kV Tran	T-1
	Tesla 500/230-kV #2 Tran	T-1
	Vaca Dixon 500/230-kV #11 Tran	T-1
	Tracy shunt capacitor out (1 Bank)	Shunt Cap Out
P6 - Second Contingency	Round Mountain -Cottonwood 230 #3 Line	L-1
	Round Mountain -Cottonwood 230 #2 Line	L-1
	Olinda-Cottonwood 230 #2 Line	L-1
	Olinda-Obanion 230 #1 Line	L-1
	Keswick-Airport 230-kV line	L-1
	Airport-Cottonwood 230-kV line	L-1
	Olinda -Keswick 230 #1 Line	L-1
	Cottonwood (WASN) – Cottonwood (PGE) 230 #1	L-1
	Malin-Round Mountain 500-kV line #1	L-1
	Malin-Captain Jack 500-kV line #1	L-1
	Captain Jack - Olinda 500-kV line	L-1
	Round Mountain-Table Mountain 500-kV line #1	L-1
	Olinda-Tracy 500-kV line	L-1
	Table Mountain - Tesla 500-kV line	L-1
	Table Mountain - Vaca 500-kV line	L-1
	Vaca-Tesla 500-kV line	L-1
	Tracy-Los Banos 500-kV line	L-1
	Tesla-Los Banos 500-kV line	L-1
	Tracy-Tesla 500-kV line	L-1
	Tracy 500/230-kV #1 Transformer Bank	T-1
	Round Mountain 500/230-kV Transformer Bank	T-1
	Table Mountain 500/230-kV Transformer Bank	T-1
	Olinda 500/230-kV Transformer Bank	T-1
	Tesla 500/230-kV #2 Transformer Bank	T-1
	Vaca Dixon 500/230-kV #11 Transformer Bank	T-1

APPENDIX C. STABILITY PLOTS

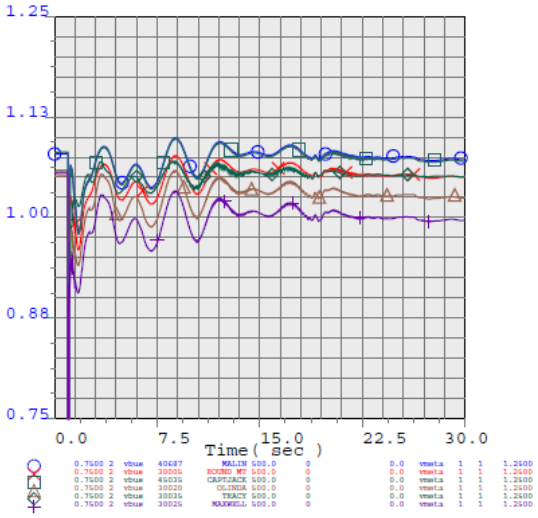
Appendix C contains a selection of plots of the system performance following the most severe 500-kV Common Corridor Outages for each of the Sensitivity cases studied. Included are as follows:

- 2023 Summer Off-Peak Sensitivity Case – Round Mountain-Table Mountain #1 and #2 500-kV lines
- 2023 Summer Peak Sensitivity Case – Round Mountain-Table Mountain #1 and #2 500-kV lines
- 2026 Summer Peak Sensitivity Case – Round Mountain-Fern Rd #1 and #2 500-kV lines
- 2031 Summer Peak Sensitivity Case – Round Mountain-Fern Rd #1 and #2 500-kV lines

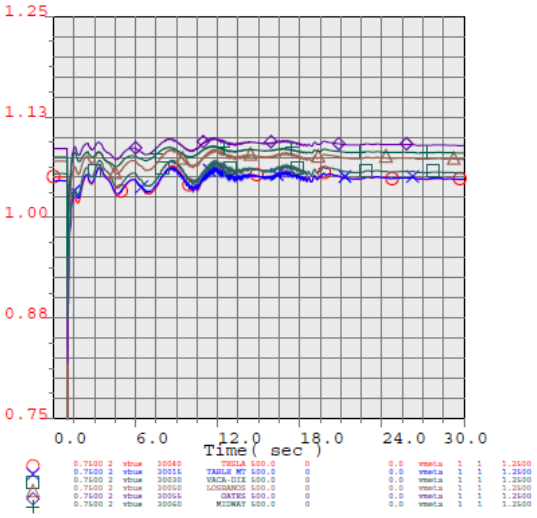
Additional plots will be made available upon request.

VOLTAGE Magnitude

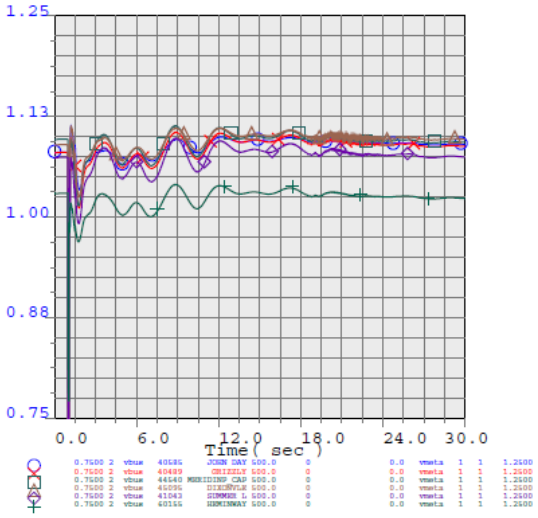
PACI and COTP 500-kV Busses



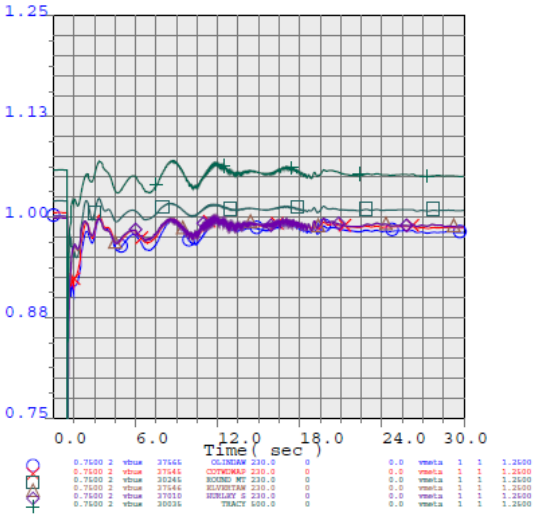
PACI 500kV Busses



Northwest 500kV Busses



Northern California 230-kV Busses



TANC 2021 Transmission Planning Assessment: Near Term Study
2023 Off-Peak Load Study: Reference case; NCH at 80%, COI at 4,800MW
Extreme Event Outage:
Round Mountain - Fern Road 500-kV Line 1 and 2

Page 1

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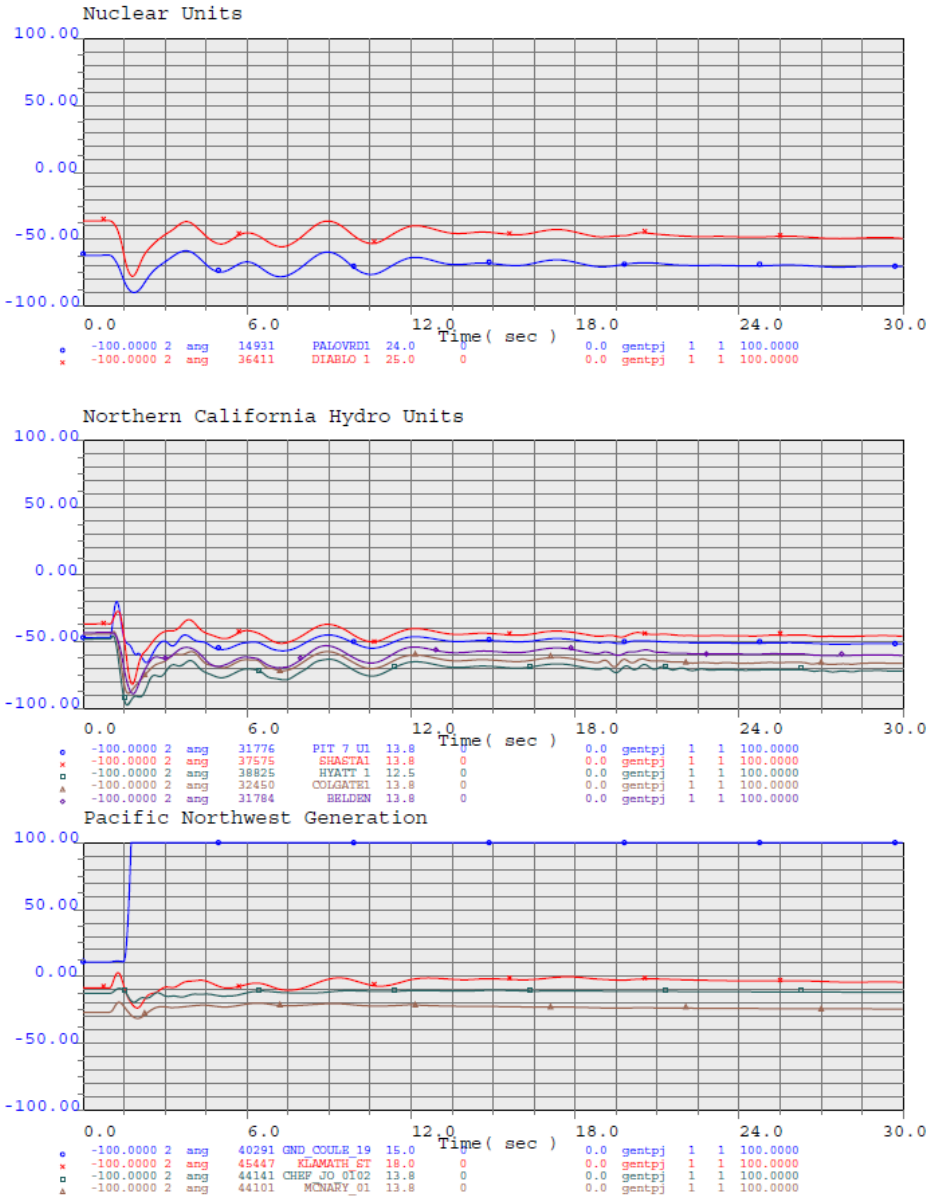
Rotor Angles



TANC 2021 Transmission Planning Assessment: Near Term Study
2023 Off-Peak Load Study: Reference case; NCH at 80%, COI at 4,800MW
Extreme Event Outage:
Round Mountain-Fern Road 500-kV Line 1 and 2

23LS2_NCH90_23LS90NCH_RM-TM12.chf

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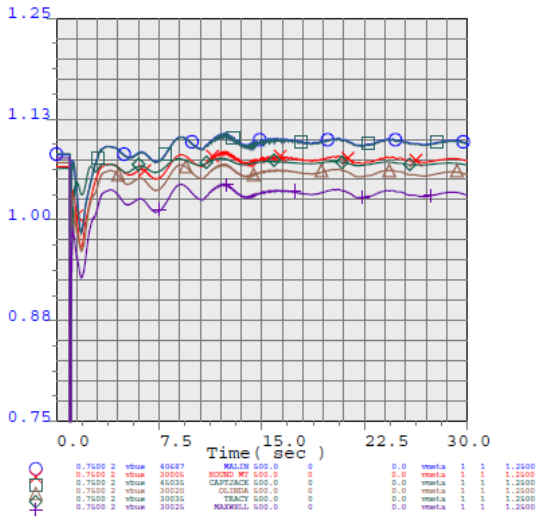
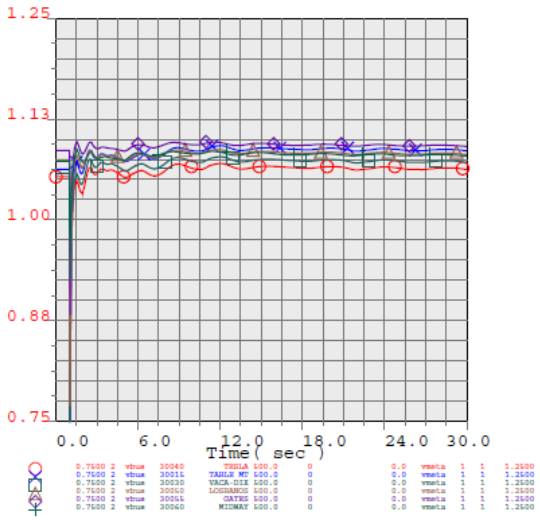
VOLTAGE Magnitude

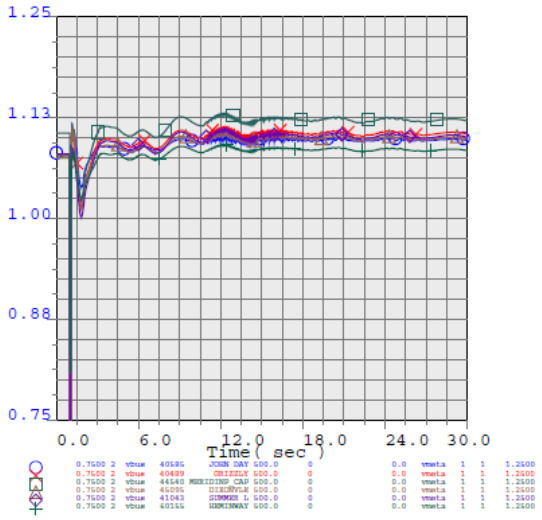
PACI and COTP 500-kV Busses



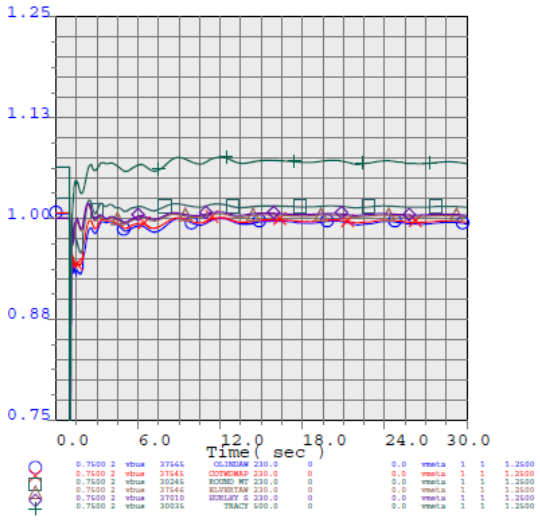
PACI 500kV Busses



Northwest 500kV Busses



Northern California 230-kV Buss



TANC 2021 Transmission Planning Assessment: Near-Term Study
2023 Summer Peak Load Study: Sensitivity Case; NCH at 80%, COI at 4,800MW
Extreme Event Outage:
Round Mountain-Fern Road 500-kV Line 1 and 2

Page 1

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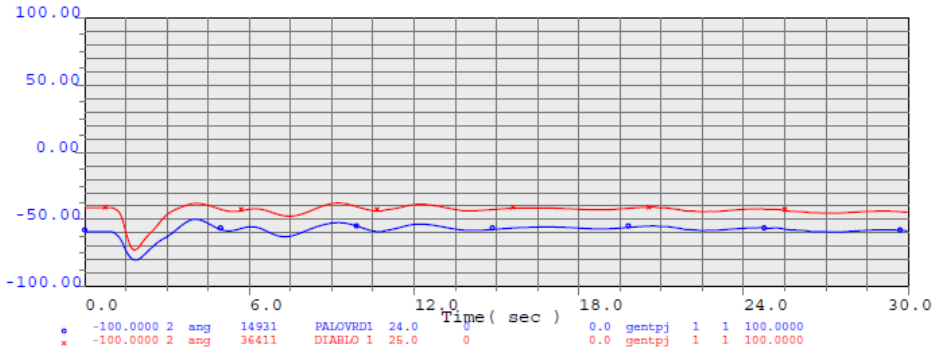
Rotor Angles

Nuclear Units



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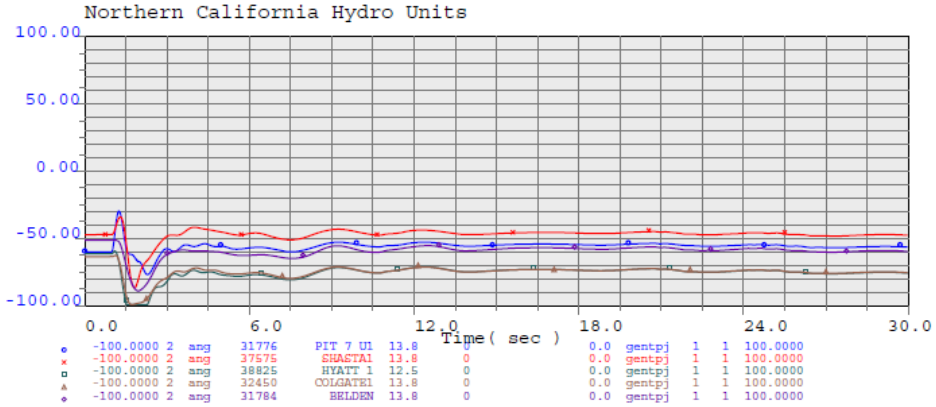
Northern California Hydro Units



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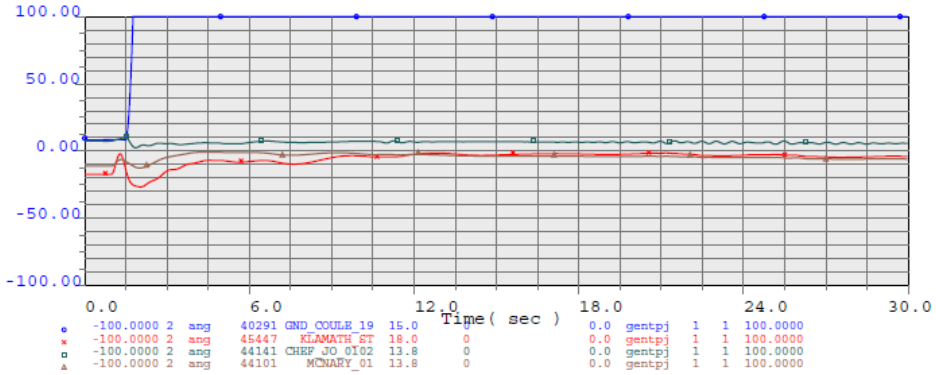
Pacific Northwest Generation



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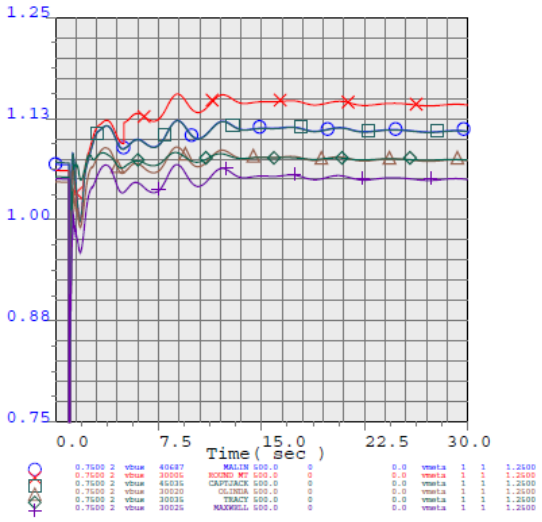
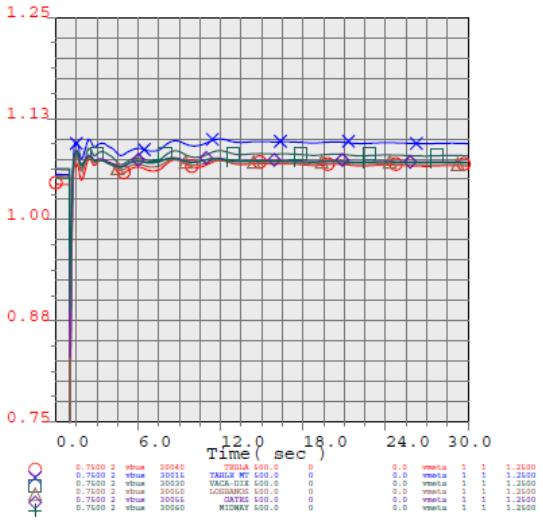
VOLTAGE Magnitude

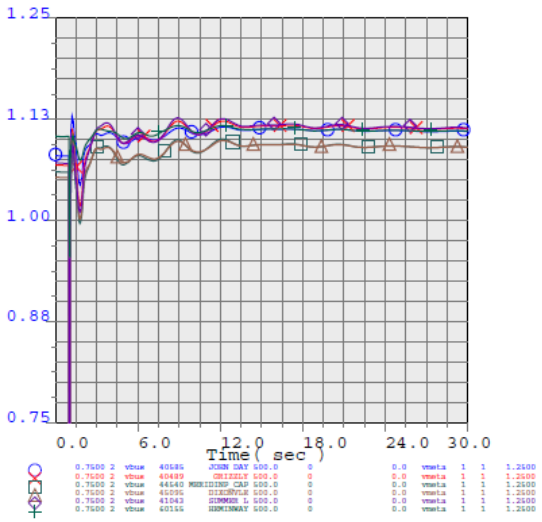
PACI and COTP 500-kV Busses



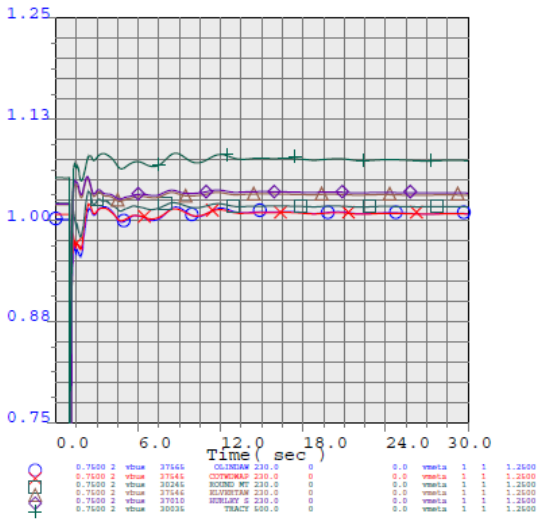
PACI 500kV Busses



Northwest 500kV Busses



Northern California 230-kV Busses



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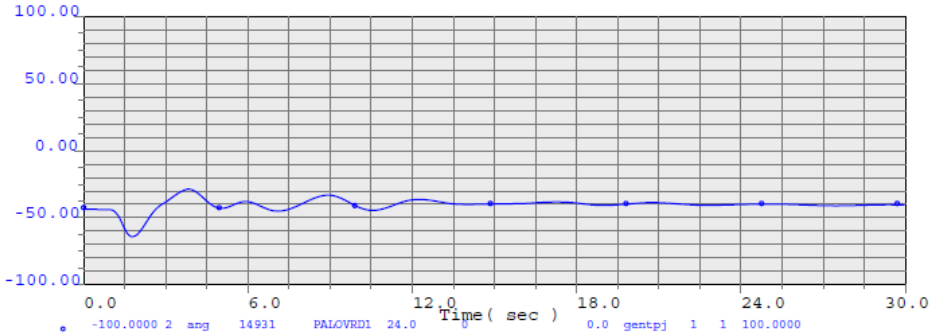
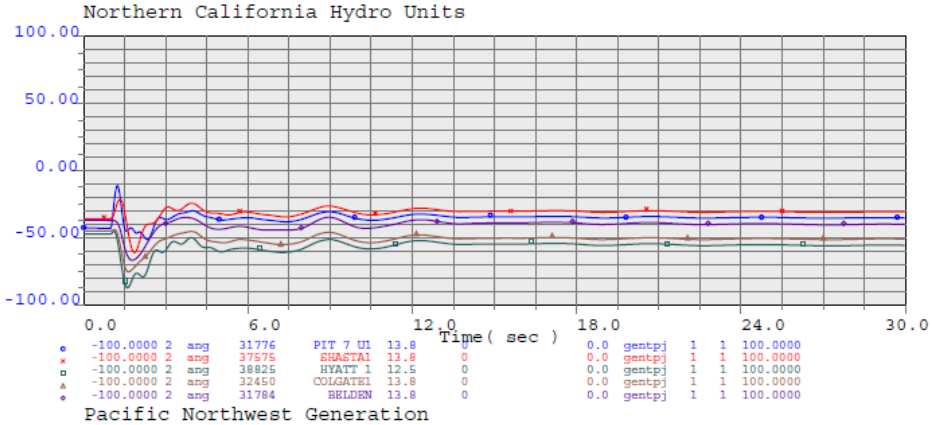
Rotor Angles

Nuclear Units



Northern California Hydro Units



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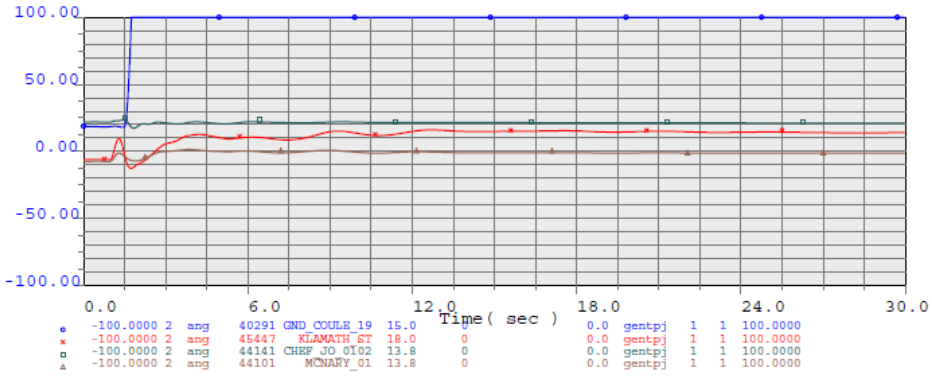

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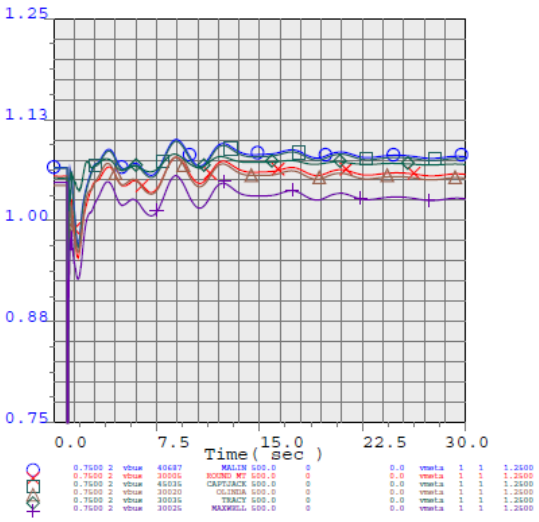
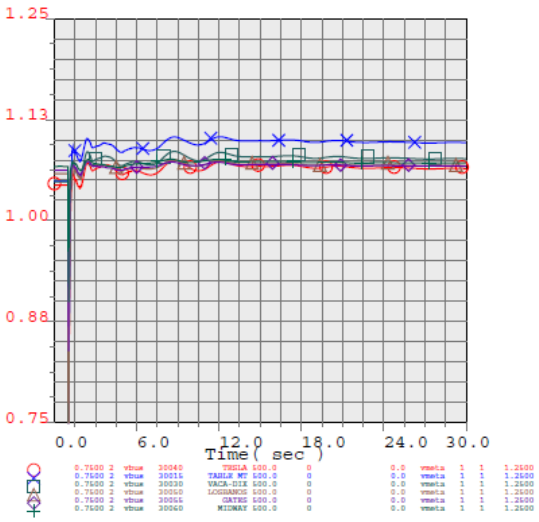
VOLTAGE Magnitude

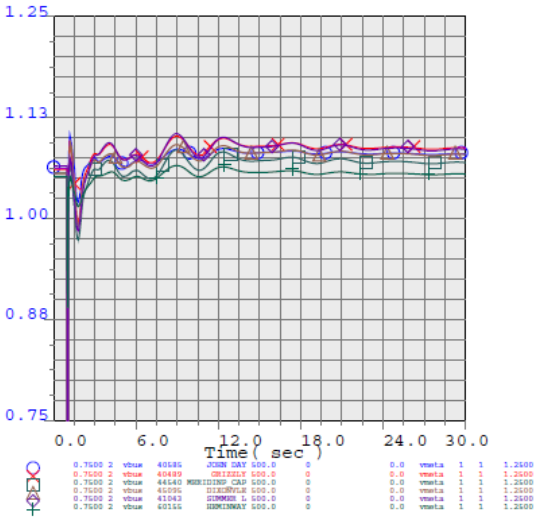
PACI and COTP 500-kV Busses



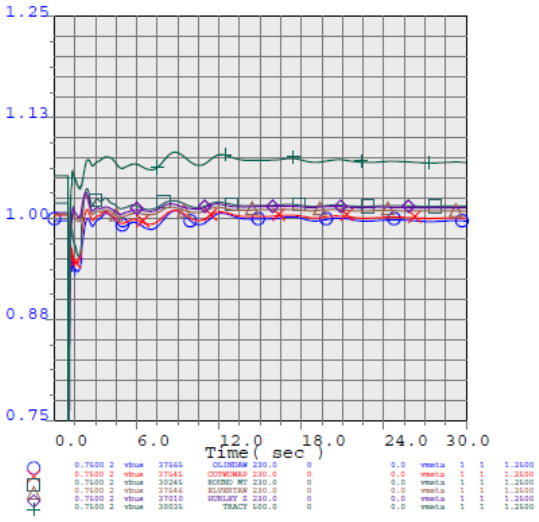
PACI 500kV Busses



Northwest 500kV Busses



Northern California 230-kV Buss



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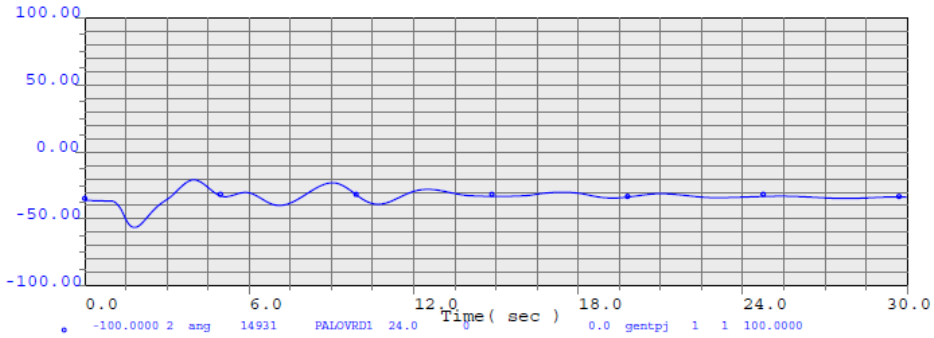
Rotor Angles

Nuclear Units



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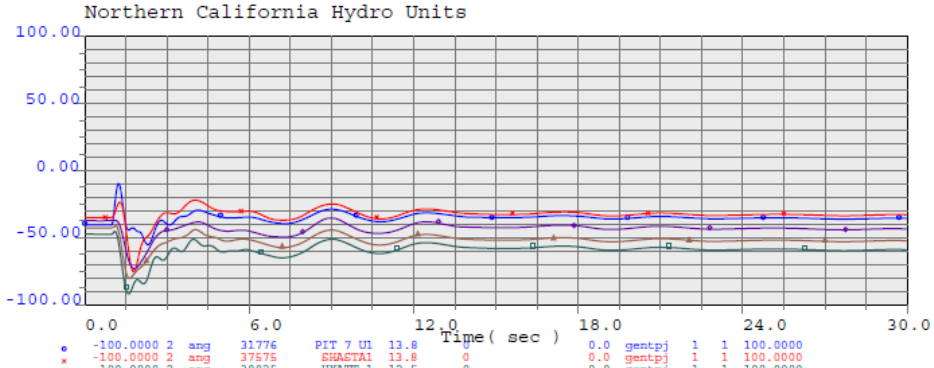
Northern California Hydro Units



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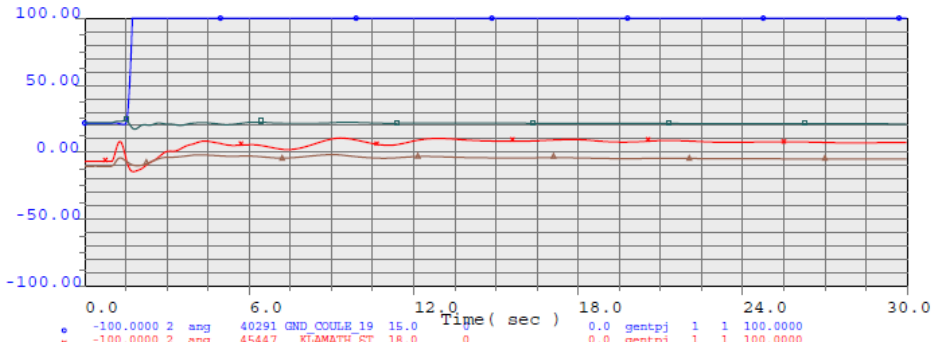
Pacific Northwest Generation



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APPENDIX D. PLANNED TRANSMISSION PROJECTS

Table D-1: Planned Transmission Projects

Project	PTO	Expected In- Service Date
Keswick 230-kV Substation Upgrade	WAPA	Completed
Bellota 230 kV Substation Shunt Reactor	PG&E	Completed
Borden 230 kV Voltage Support	PG&E	Completed
Ignacio 230 kV Reactor	PG&E	Completed
Moss Landing–Panoche 230 kV Path Upgrade	PG&E	Completed
Harry Allen-Eldorado 500 kV transmission project	Desert Link LLC	Completed
Gates #2 500/230 kV Transformer Addition	PG&E	Completed
Los Esteros 230 kV Substation Shunt Reactor	PG&E	May-2021
Glenn 230/60 kV Transformer No. 1 Replacement	PG&E	Dec-2021
Delevan 230 kV Substation Shunt Reactor	PG&E	Completed
Gregg-Herndon #2 230 kV Line Circuit Breaker Upgrade	PG&E	Jan-2021
Vaca Dixon-Lakeville 230 kV Corridor Series Compensation	PG&E	Apr-2027
Cottonwood 230/115 kV Transformers 1 and 4 Replacement	PG&E	Nov-2023
Delaney-Colorado River 500 kV line	DCR Tran.	Dec-2021
Rio Oso 230/115 kV Transformer Upgrades	PG&E	Jun-2022
Rio Oso Area 230 kV Voltage Support	PG&E	June-2024
Rio Oso Area 230kV Voltage Support	PG&E	Sept-2024
South of Palermo 115 kV Reinforcement Project	PG&E	Jan-2022
East Marysville 115/60 kV Project	PG&E	Dec-2027
Tesla 230 kV Bus Series Reactor project	PG&E	Dec-2023
Warnerville-Bellota 230 kV line reconductoring	PG&E	Apr-2024
Gates 500 kV Dynamic Voltage Support	PG&E	Dec-2024
Gold Hill 230/115 kV Transformer Addition Project	PG&E	Dec-2028
Round Mountain 500 kV Dynamic Voltage Support	PG&E	Dec-2024
Lockeford-Lodi Area 230 kV Development	PG&E	Jul-2026
Tesla 230kV Bus Series Reactor Project	PG&E	Dec-2023

Table D-2: Planned Generation Projects

Project Name	Queue Position	Type	MW Total	Point of Interconnection	Current On-line Date	Interconnection Agreement Status
CAISO Generation Interconnection Queue – PG&E System						
Dyer Summit Wind Repower	1010	Wind	45	Vasco -Herdlyn 60-kV line	Nov-2021	Executed
Colinas De Oro	1011	Storage	30	Tesla Substation 115-kV	Withdrawn	Executed
North Central Valley	1109	Storage	132	Bellota Substation 115-kV	Apr-2022	Executed
Black Diamond Energy Storage	1111	Storage	200	Pittsburgh Substation 230-kV	July-2022	Executed
Cascade Energy Storage	1272	Storage	25	Weber Substation 60-kV	Dec-2022	Executed
Mulqueeney Ranch Wind	1277	Wind	20	Tesla 230-kV Bus "C"	Dec-2021	Executed
Sand Hill C	1363	Wind	81	Delta Switching Yard-Tesla 230-kV line	Nov-2025	Executed
Mulqueeney Ranch Wind 2	1459	Wind	60	Tesla Substation 230-kV	Dec-2021	In Progress
Solano 4 Wind	1463	Wind	91	Birds Landing Switching Station 230-kV	May-2025	In Progress
Fountain Wind	1106	Wind	200	Pit1-Cottonwood 230-kV line	Mar-2024	Executed
Corby	1270	Storage	300	Vaca-Dixon Substation 230-kV	March 2024	In Progress
Kola	1275	Storage	418	Tesla Substation 230kV	Apr-2023	Executed
Aramis Power Plant	1349	Photovoltaic / Storage	100	Cayetano Substation 230-kV	Jun-2023	Executed
East-Bay-Wind	1354	Wind	150	Tesla Substation 230-kV	Withdrawn	In Progress
Pinto Pass	1460	Storage	20	Christie Substation 60-kV	Dec-2023	In Progress
Reclaimed Wind	1461	Wind	91	Kelso - Tesla Tap 230-kV	Dec-2022	In Progress
Descendant Ranch 1	1496	Photovoltaic / Storage	500	Delevan Sub 230-kV	Dec-2025	In Progress
Prospect Energy Storage	1507	Storage	50	Gold Hill Substation 60-kV	Sep-2023	In Progress

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON FERC MATTERS

The following provides an update on regulatory and policy issues at the Federal Energy Regulatory Commission (FERC) and other state and federal agencies that are relevant to the Transmission Agency of Northern California (TANC) and its Members.

FERC Member Update

On December 3, 2021, Mr. Willie L. Phillips was sworn in as a member of the FERC. Mr. Phillips was previously nominated in September 2021 and confirmed by the Senate on November 16, 2021. Mr. Phillips will provide FERC both a total of five commissioners and a three to two Democratic majority for the first time in President Biden's administration.

Enforcement Activity

The FERC Office of Enforcement produced the 2021 Annual Report on Enforcement under AD07-13 noting the increase in FERC's energy market enforcement activity in fiscal year 2021. The 2021 Annual Report provides an overview of the Office of Enforcement's accomplishments focused on fraud and market manipulation, violations of Reliability Standards, anticompetitive conduct, and threats to the nation's energy infrastructure. As outlined in the report, the Division of Investigations opened 12 investigations bringing four pending investigations to closure; the Division of Audits and Accounting completed 12 audits of public utility, natural gas and oil companies, and the Division of Analytics and Surveillance reviewed several cases of potential misconduct (including a review of wholesale natural gas and electricity market activity related to Winter Storm Uri to detect market manipulation and review of market-based rate transactions to identify instances of market power.)

Open Meeting
On December 16, 2021, FERC held an open meeting to discuss two recently adopted rules relating to electric transmission line rating and hydroelectric project safety regulations. The final rule regarding transmission line ratings amends FERC's regulations and the pro forma Open Access Transmission Tariff to require: (1) the use of ambient-adjusted ratings for certain transmission transactions; (2) that regional transmission organizations and independent system operators implement electronic systems for transmission owners to update transmission line ratings; (3) that transmission providers set emergency ratings for contingency analysis; and (4) that transmission owners share transmission line rating tactics with their transmission providers.

The final rule amending its hydroelectric project regulations adopted by FERC includes implementation of a two-tier independent consultant inspection cycle, revisions to FERC's project inspection management, changes to existing requirement for significant hazard dam owners prepare an Owner's Dam Safety Program, and modifications to licensee reporting relating to hydroelectric projects public safety.

Pacific Gas and Electric Company Wildfire Right of Way Expansion Program (EL22-16-000)
On December 31, 2021, the Pacific Gas and Electric Company (PG&E) withdraw its Petition for Declaratory Order that had requested FERC approval to capitalize costs associated with PG&E's Wildfire Right of Way Expansion Program. For associated costs incurred in 2021, PG&E will expense those costs (rather than capitalize and include in rate base, upon which PG&E earns a rate of return).

Pacific Gas and Electric Company Abandoned Plant Costs (ER21-2882-000)
PG&E requested cost recovery in the Abandoned Plant Costs Docket for its Spring/Morgan Hill Area Reinforcement Project, Oro Loma 70 kilovolt (kV) Reinforcement Project, and Lockeford-Lodi 230 kV Area Development Project. On December 31, 2021, FERC issued an order denying PG&E's request to recover 50 percent of abandoned plant costs.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON WECC MATTERS

This memorandum provides the Transmission Agency of Northern California (TANC) Commission an update on the relevant matters pertinent to the Western Electricity Coordinating Council (WECC) including its various committees and subcommittees.

Project Coordination Process
In mid-December, LS-Power finalized the study plan and base cases for both the proposed Gates and Round Mountain 500 kilovolt Area Dynamic Reactive Support Projects. The studies are underway and preliminary System Impact Studies results should be completed by the end of January.

Path Task Force
At the December 15, 2021 meeting, the Path Task Force (PTF) continued discussion about the "PTF Homework" reports that were assigned to members. The PTF also discussed the *Relevance of Paths in Planning* document which outlines various scenarios between three connected Transmission Planner (TP) entities, and how those interconnecting paths could be affected and assessed as they are non-WECC rated paths. The following statement outlines the PTF thoughts on why this should be assessed:

"While not required by TPL standards, consideration of Path Impacts is viewed by many WECC members as a best practice that reduces the risk that adverse impacts associated with changes to the grid (e.g. interconnections requests, increased flow between TPs and/or new facilities) will be missed in the Planning Horizon and therefore be left to be managed in the Operating Horizon. Path centric planning studies create paths to help ensure reliability. "

The *Relevance of Paths in Planning* document includes four scenarios including:

1. Scenario 1
    a. Generation Interconnection serving load within TP 'A;
    b. Generation Interconnection serving load within TP 'B'

2. Scenario 2
    a. TP 'A' wants to sell more power to TP 'B' than currently contracted on Path 'Y'
    b. TP 'A' wants to sell more power to TP 'B' than currently contracted on Path 'Y' and it ends up creating simultaneous impact on Path 'X' (between TP 'A' and TP 'C')
3. Scenario 3
    a. Perform assessment on TP 'A' area (firm commitments vs. Path Rating)
4. Scenario 4
    a. New transmission being built between TP 'A' and TP 'C'

Reliability Assessment Committee
The December 10, 2021 Reliability Assessment Committee (RAC) meeting included a discussion of the Anchor Data Set and resulted in strategic review actions including the initiation of discussion on a near-term business case, a Production Cost Model case that addresses benefits (to WECC and to stakeholders), potential obstacles, potential schedule, and timing. The Subcommittee Coordination Vice Chair also proposed a quarterly RAC Newsletter to demonstrate to the WECC community what they are currently working on and some of the successes of RAC.

Studies Subcommittee
The December 1 and 2, 2021 meetings of the Studies Subcommittee (StS) included discussion of comments on the *2040 Sensitivities Report*. The next step for this report is for it to be approved by the StS, then reviewed by WECC. Once these reviews are finished it will be prepared for publishing. The purpose of the study documented in this report was to gain a better understanding of challenges and opportunities of achieving a 100 percent clean energy future with a 2040 study horizon. Topics covered in the document include:

Battery resources
- Battery Energy Storage Systems (BESS) will be key as storage is required to compensate for the misalignment of hourly dispatches from Variable Renewable Energy (VRE) resources versus hourly demand and to provide resource flexibility (flexibility needed to replace gas-fired generation resources).
- At clean energy levels above 90 percent, additional VRE resources such as wind and solar would be needed to further exacerbate the ramping requirements.
- Additionally, evolutionary trends that are occurring will greatly impact the distribution power system which include things such as: increased adoption of electric vehicles, increased rooftop solar, etc.

- An emerging clean flex technology that is not dependent on charging and with performance characteristics like that of gas-fired generation resources will be needed to effectively and economically achieve a 100 percent clean energy level.

Inverter Based Resources

- There are performance characteristics that synchronous resources provide that are essential to the reliable operations of the Bulk Power System. If synchronous resources are displaced by Inverter Based Resources, then challenges with maintaining these essential performance characteristics will need to be addressed and overcome through technology advancements.

Variable Renewable Energy

- The study suggests that achieving clean energy levels above 90 percent with additions increase of BESS, solar, and wind resources alone may not be possible. In this scenario, as BESS increases, so too must the additions of VRE resources to provide charging. The flexibility provided by BESS resource additions in not enough at 90% to compensate for the displaced ramping capability that would be otherwise provided by gas-fired resources.

Load Growth

- The transportation sector current represents roughly 30 percent of total energy consumption in the US. With the trend toward electric vehicle adoption, there is a huge additional demand on the electric energy sector.

Transmission congestion

- Significant congestion occurred when clean energy supplied about 90 percent of load and higher locational marginal prices were identified especially in areas where transmission interconnection was weak relative to the rest of the West Bulk Power System.

The report recommends continued studies and research to better understand the identified challenges.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON TANC OASIS MATTERS

The Transmission Agency of Northern California (TANC) allows third party transmission sales on its portion of the California-Oregon Transmission Project via TANC's Open Access Same-Time Information System (OASIS) wesTTrans web portal. These sales pertain strictly to Project Agreement No. 5 (PA-5) Member participation.

Enclosed is a bar graph indicating preliminary PA-5 Member third party OASIS sales, in addition to two pie charts indicating December 2021 monthly sales and year-to-date sales. A second bar graph includes calendar year sales from 2017 through December 2021. Additionally, another report is provided, indicating megawatt-hour (MWh) sales in a format similar to revenue sales. Buy-backs and excess capacity purchases by TANC OASIS participants are not included.

TANC's third party transmission sales in November totaled $221,847. TANC's third party transmission sales in December totaled $277,779. Year-to-Date sales through December are $1,977,487 which roughly matched last year's 2020 total OASIS sales revenue.

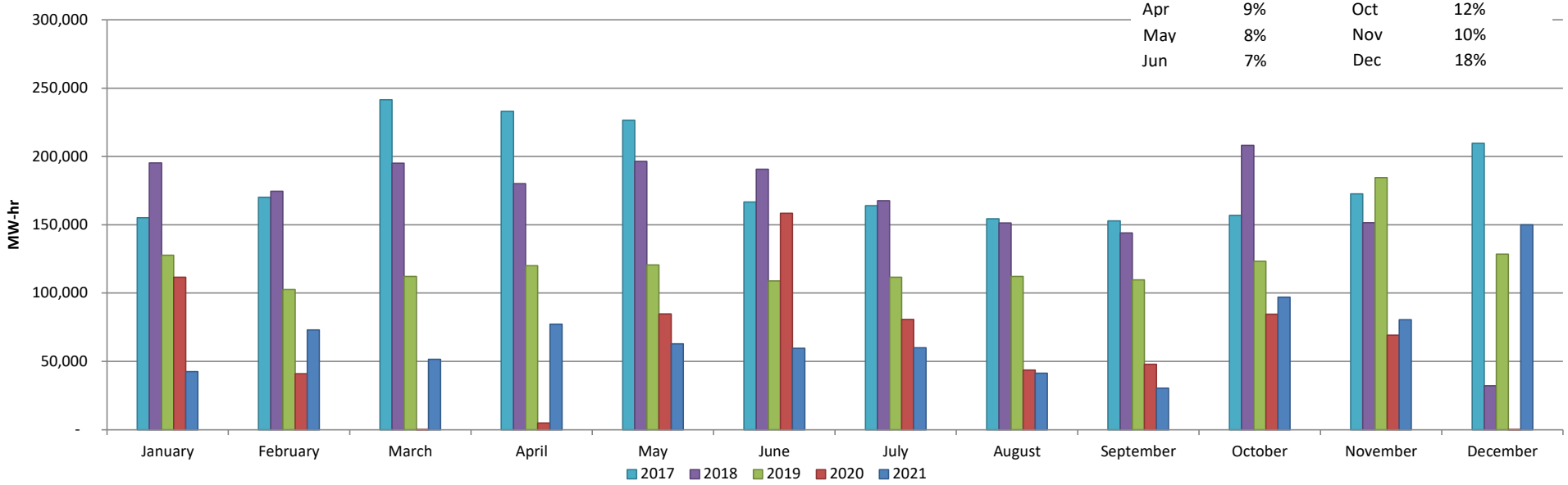
Enclosures

2021 TANC OASIS (PA-5) Annual MWh Third Party Sales*

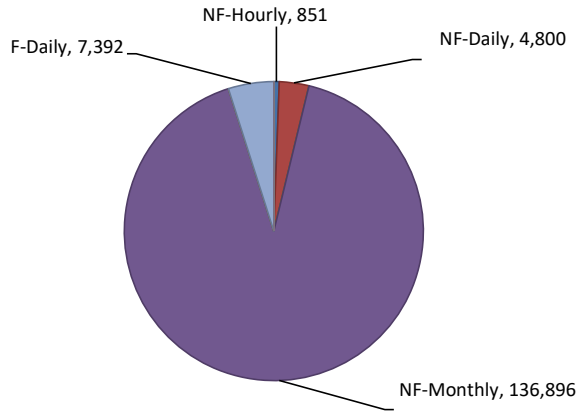
Monthly percentage of the YTD Total MWHr

Jan	5%	Jul	7%
Feb	9%	Aug	5%
Mar	6%	Sep	4%
Apr	9%	Oct	12%
May	8%	Nov	10%
Jun	7%	Dec	18%

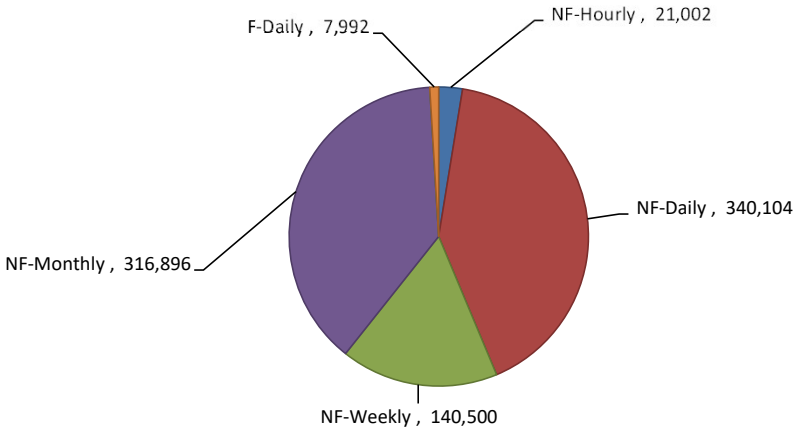
Historical OASIS Sales & Percentages for December 2021
2017-2021



2021 MWh Sales
Total December Sales 149,939 MWh

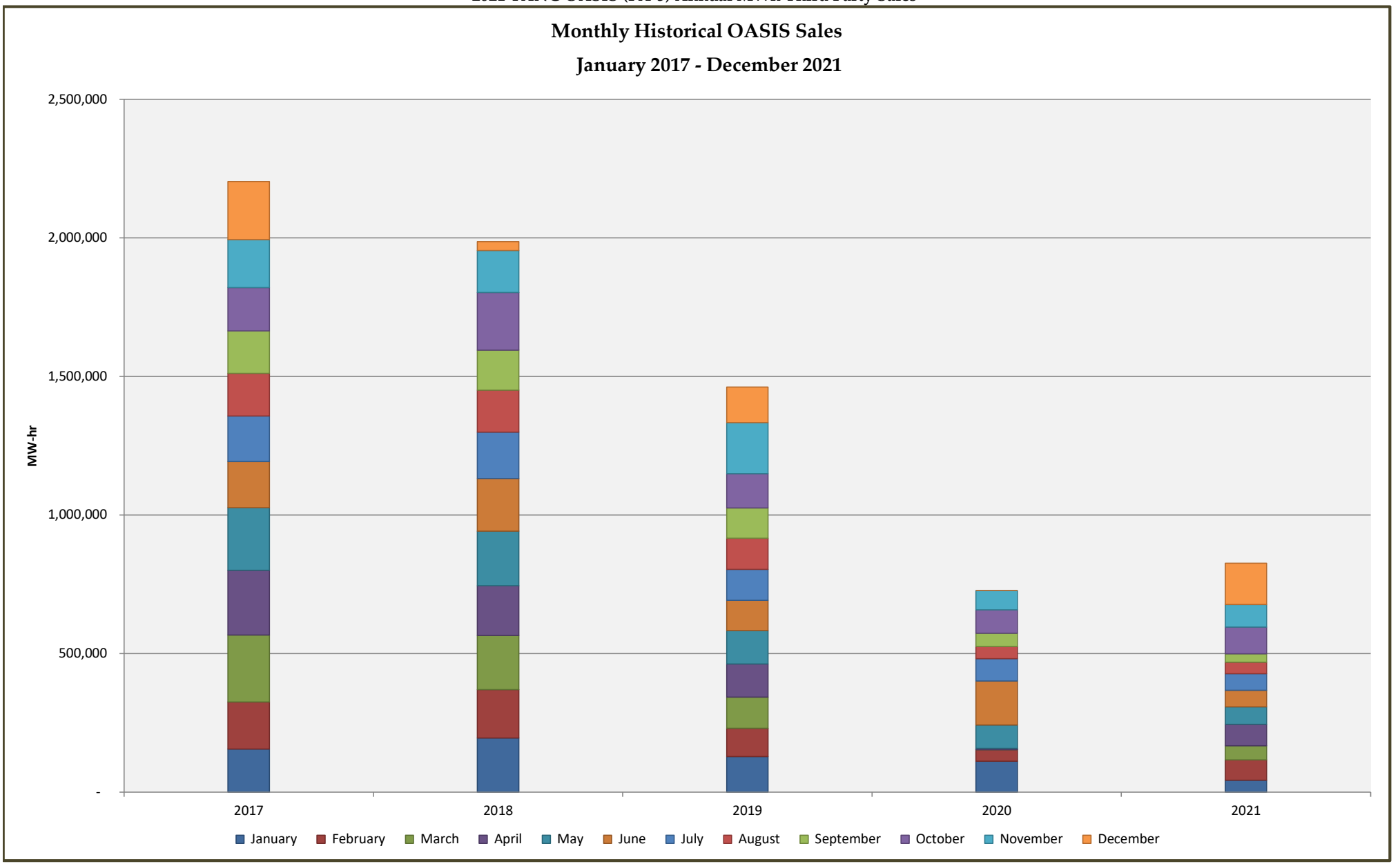


2021 YTD MWh Product Sales
Total 2021 Sales 826.49 GWh



* Includes OASIS sales data through December 2021. Does not include buy-backs or excess capacity purchases by TANC OASIS participants
Includes sales only, does not include actual scheduled energy.

2021 TANC OASIS (PA-5) Annual MWh Third Party Sales*

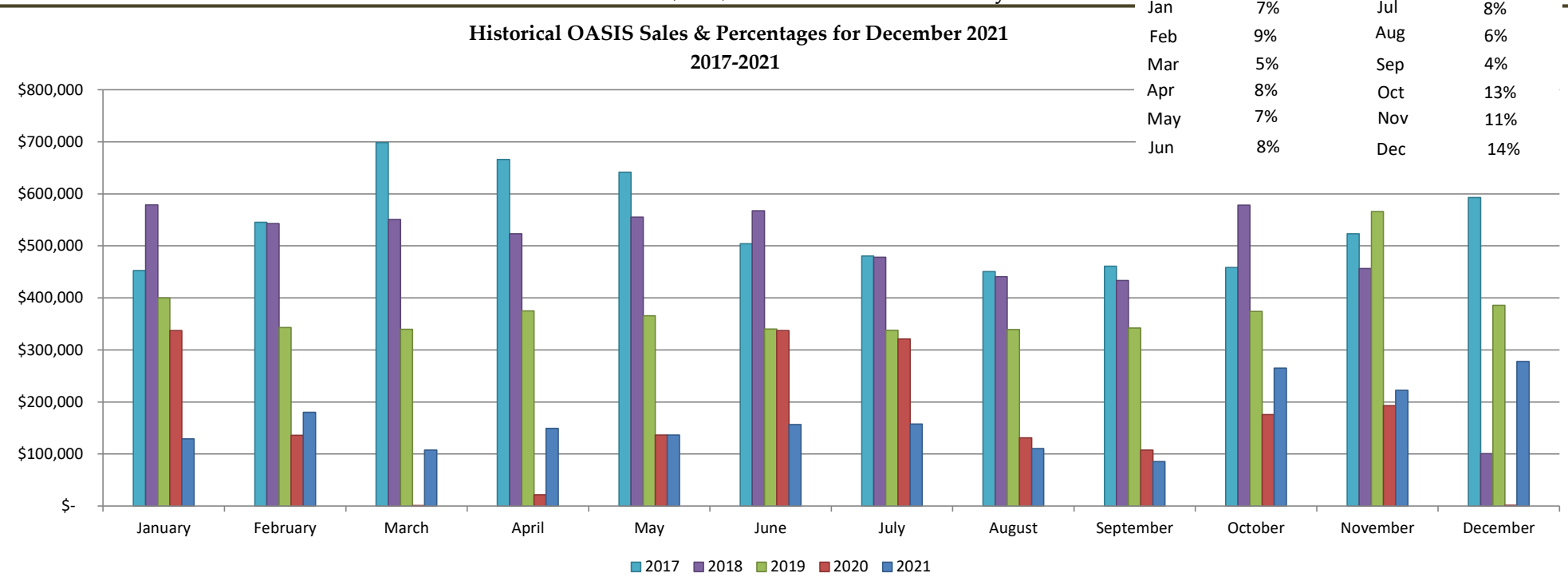


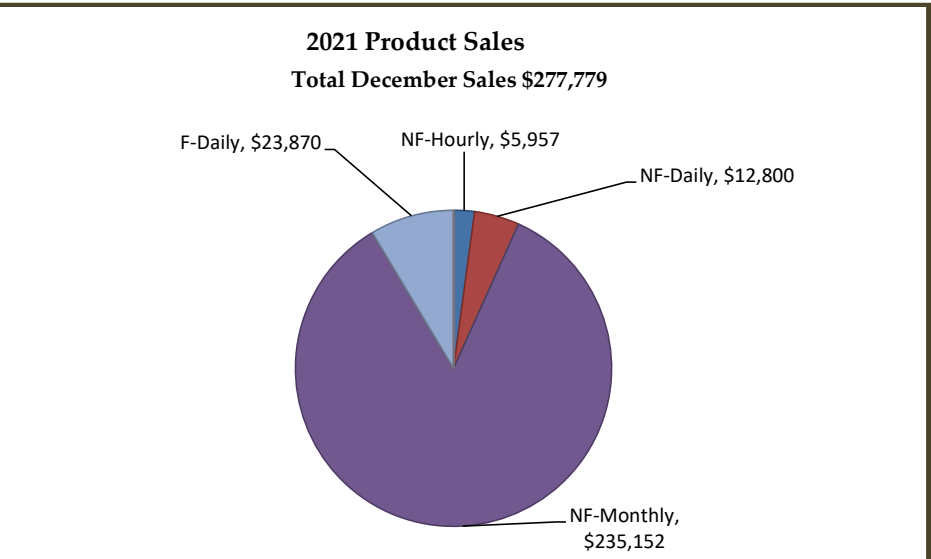
* Includes OASIS sales data through December 2021. Does not include buy-backs or excess capacity purchases by TANC OASIS participants
Includes sales only, does not include actual scheduled energy.

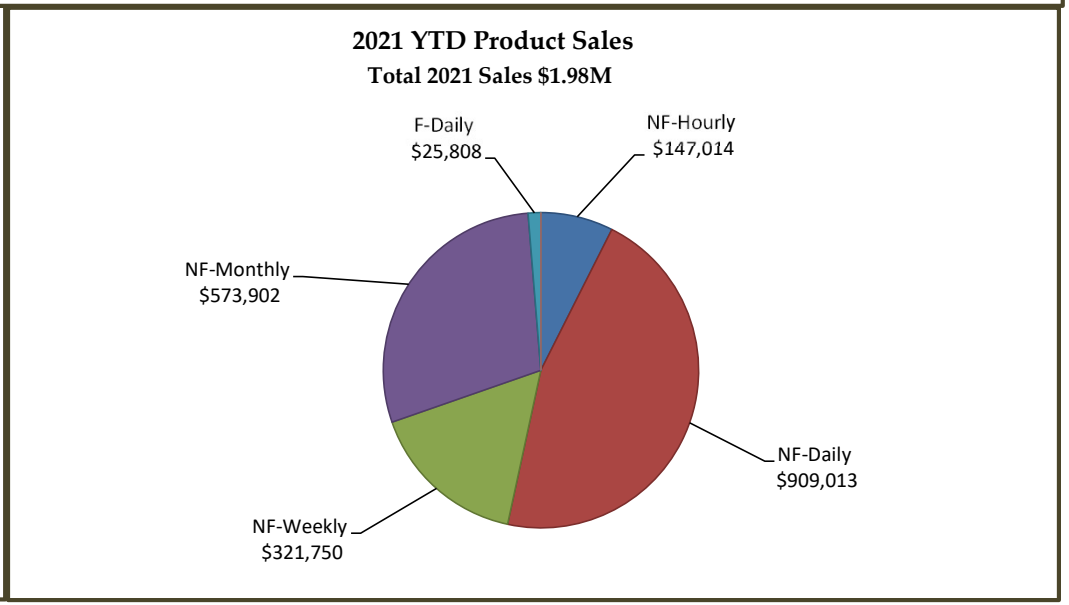
2021 TANC OASIS (PA-5) Annual Revenue Third Party Sales*

Monthly percentage of the YTD Total Revenue

Jan	7%	Jul	8%
Feb	9%	Aug	6%
Mar	5%	Sep	4%
Apr	8%	Oct	13%
May	7%	Nov	11%
Jun	8%	Dec	14%

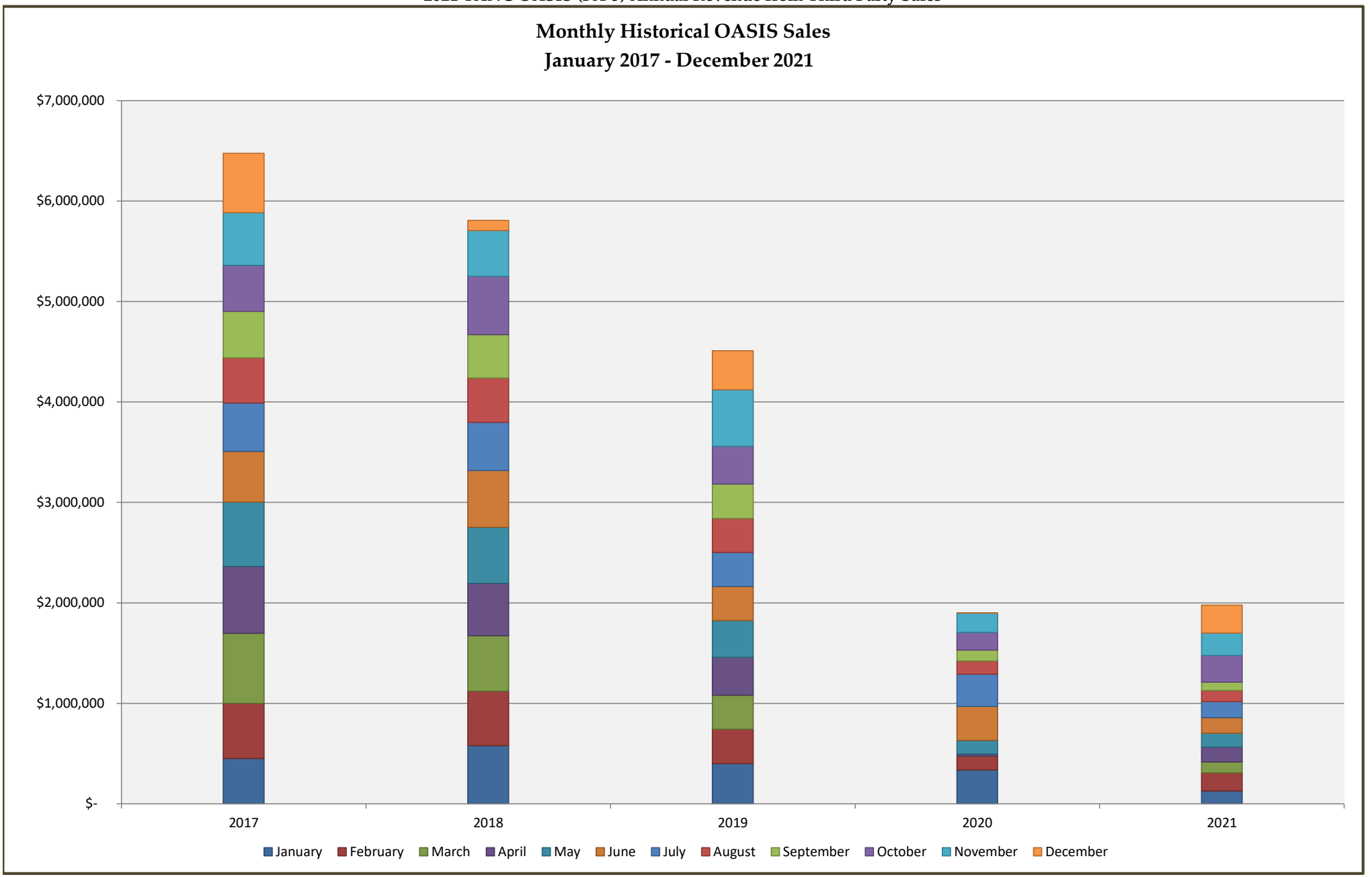






* Includes OASIS sales data through December 2021. Does not include buy-backs or excess capacity purchases by TANC OASIS participants

2021 TANC OASIS (PA-5) Annual Revenue from Third Party Sales*



* Includes OASIS sales data through December 2021. Does not include buy-backs or excess capacity purchases by TANC OASIS participants

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON WILDFIRE ACTIVITIES

This memorandum provides the Transmission Agency of Northern California (TANC) Commission with an update on wildfire activities that have the potential to impact TANC facilities, including the California-Oregon Transmission Project (COTP).

Wildfire Mitigation Plan

California Wildfire Safety Advisory Board

TANC remotely attended the December 7, 2021 quarterly meeting of the California Wildfire Safety Advisory Board (WSAB). During the meeting, Barry Moline, Executive Director of the California Municipal Utilities Association (CMUA), provided a brief update on the completion and submittal status of the 2021 publicly owned utilities' (POUs) wildfire mitigation plan (WMP) updates. During that meeting, the WSAB announced that they are behind schedule in reviewing the POU WMPs and therefore will be delayed in providing their individualized comments and advisory recommendations to each of the POUs. They specifically said that those comments and recommendations will not be provided to POUs until the end of the first quarter of 2022 or soon thereafter. The WSAB is actively hiring staff to assist in POU WMP reviews.

TANC also attended the CMUA Wildfire Preparedness, Response, and Recovery Working Group call of December 15, 2021. Call participants generally agreed that each POU will need to consider the nature and extent of the individual POU WMP advisory recommendations received from the WSAB. Based on those considerations, each POU will conduct its own process for responding to those comments, and the extent to which they will choose to revise their respective 2022 or 2023 WMPs accordingly.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: RESOLUTION PROCLAIMING A LOCAL EMERGENCY, RATIFYING THE PROCLAMATION OF A STATE EMERGENCY BY THE GOVERNOR AND AUTHORIZING REMOTE TELECONFERENCE MEETINGS

The Transmission Agency of Northern California (TANC) Commission and its Committees (including Audit-Budget, Contracts, California-Oregon Transmission Project/TANC Engineering and Operations (E&O), Finance, Open Access Transmission Tariff (OATT) and TANC E&O) are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate and watch TANC conduct their business. Since March 2020, the TANC Commission and its Committees have been operating and meeting under requirements of Executive Order N-29-20, which allowed the meetings to occur by teleconference while making the meetings available telephonically to any member of the public due to the COVID-19 pandemic.

On September 16, 2021, Governor Newsom signed Assembly Bill (AB) 361 into law. AB 361 extends the flexibilities provided to government bodies, including those of TANC, with respect to holding public meetings remotely. As urgency legislation, AB 361 became effective immediately. In order to continue to meet under the relaxed Ralph M. Brown Act rules of AB 361, the TANC Commission must adopt an initial resolution at the first meeting that they will operate under AB 361 and then a subsequent resolution at least every 30 days thereafter. The TANC Commission may also adopt the initial and then subsequent resolutions for its Ralph M. Brown Act Committees.

Once the TANC Commission has adopted the initial resolution and as long as the TANC Commission continues to adopt subsequent resolutions at least every 30 days, the TANC Commission and its Ralph M. Brown Act Committees can continue to meet by teleconference and make the meetings available telephonically to any members of the public. If the TANC Commission goes beyond the 30-day requirement, they would again need to adopt an initial

resolution and any Committee that is meeting prior to the TANC Commission adoption of another initial resolution, would need to do the same. Since the TANC Commission last met greater than 30-days ago, an initial resolution is again required to be adopted.

TANC will only be able to rely on the modified Ralph M. Brown Act requirements under AB361 while there has been a proclamation of emergency by the Governor, and it is in effect. At such time there is no longer a proclamation of emergency in effect, the TANC Commission and its Committees will resume activities under the pre-COVID-19 pandemic Ralph M. Brown Act requirements.

Approval of the attached resolution will allow the TANC Commission and TANC Committees to continue to meet by teleconference while making the meetings available telephonically to any member of the public due as long as subsequent resolutions are approved every 30-days and there is a proclamation of emergency in effect in California.

Enclosure

RESOLUTION 2022-__

A RESOLUTION OF THE
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
PROCLAIMING A LOCAL EMERGENCY, RATIFYING THE PROCLAMATION OF A STATE OF EMERGENCY BY THE GOVERNOR AND AUTHORIZING REMOTE TELECONFERENCE MEETINGS FOR THE PERIOD OF JANUARY 26, 2022 TO FEBRUARY 26, 2022 PURSUANT TO RALPH M. BROWN ACT PROVISIONS.

WHEREAS, the Transmission Agency of Northern California (TANC) is a joint exercise of powers agency organized under the laws of the State of California and is committed to preserving and nurturing public access and participation in its public meetings; and

WHEREAS, the TANC Commission and certain TANC Committee meetings (specifically Audit/Budget, Contracts, Engineering and Operations, Finance and Open Access Transmission Tariff committees, herein after referred to as the TANC Committees) are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate, and watch TANC conduct their business; and

WHEREAS, the Ralph M. Brown Act, Government Code section 54953(e), makes provisions for remote teleconferencing participation in meetings by members of a legislative body, without compliance with the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions; and

WHEREAS, a required condition is that a state of emergency is declared by the Governor pursuant to Government Code section 8625, proclaiming the existence of conditions of disaster or of extreme peril to the safety of persons and property within the state caused by conditions as described in Government Code section 8558; and

WHEREAS, a proclamation is made when there is an actual incident, threat of disaster, or extreme peril to the safety of persons and property within TANC Member jurisdictions caused by natural, technological, or human-caused disasters; and

WHEREAS, such conditions now exist within certain TANC Member jurisdictions, as some Members reside in counties with higher COVID-19 transmission rates, in counties with additional safety requirements in place including masking of all parties indoors regardless of vaccination status and requirements to show proof of vaccination to access certain indoor locations and the TANC Members convening in a central location to attend an in person meeting would present imminent risk to the health and safety of attendees; and

WHEREAS, TANC does hereby find that in person meeting of the TANC Commission and the TANC Committees would present imminent risk to the health and safety of attendees, and will continue to cause, conditions of peril to the safety of meeting participants that are likely to be beyond the control of services, personnel, equipment, and facilities of TANC, and therefore TANC desires to proclaim a local emergency and ratify the proclamation of state of emergency by the Governor of the State of California for its TANC Commission meetings and the TANC Committee meetings; and

WHEREAS, as a consequence of the local emergency, TANC does hereby find that the TANC Commission and TANC Committee meetings shall conduct their meetings without compliance with paragraph (3) of subdivision (b) of Government Code section 54953, as authorized by subdivision (e) of section 54953, and that such legislative bodies shall comply with the requirements to provide the public with access to the meetings as prescribed in paragraph (2) of subdivision (e) of section 54953; and

WHEREAS, TANC will continue to post the agendas and meeting contact information for TANC Commission and the TANC Committee meetings to the TANC website at www.tanc.us which is publicly available at least 72 hours prior to each scheduled regular meeting.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Commission of the Transmission Agency of Northern California that:

Section 1. Recitals. The Recitals set forth above are true and correct and are incorporated into this Resolution by this reference.

Section 2. Proclamation of Local Emergency. That TANC hereby proclaims that a local emergency now exists throughout its Member jurisdictions and the District, and as some Members reside in counties with higher COVID-19 transmission rates and additional safety requirements in place including masking of all parties indoors regardless of vaccination status and requirements to show proof of vaccination to access certain indoor locations and the Members convening in a central location to attend an in person meeting would present imminent risk to the health and safety of attendees.

Section 3. Ratification of Governor's Proclamation of a State of Emergency. TANC hereby ratifies the Governor of the State of California's Proclamation of State of Emergency, effective as of its issuance date of March 2020.

Section 4. Remote Teleconference Meetings. TANC and TANC Interim General Manager are hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution including, conducting open and public meetings in accordance with Government Code section 54953(e) and other applicable provisions of the Brown Act.

Section 5. Effective Date of Resolution. This Resolution shall take effect immediately upon its adoption and shall be effective until the earlier of (i) February 26, 2022 or such time that TANC adopts a subsequent resolution in accordance with Government Code section 54953(e)(3) to extend the time during which the TANC Commission and the TANC Committees may continue to teleconference without compliance with paragraph (3) of subdivision (b) of section 54953.

PASSED AND ADOPTED this 26th day of January 2022 on a motion by_____ seconded by _____.

	AYES	NOES	ABSTAIN	ABSENT
City of Alameda				
City of Biggs				
City of Gridley				
City of Healdsburg				
City of Lodi				
City of Lompoc				
Modesto Irrigation District				
City of Palo Alto				
Plumas-Sierra Rural Electric Cooperative				
City of Redding				
City of Roseville				
Sacramento Municipal Utility District				
City of Santa Clara				
Turlock Irrigation District				
City of Ukiah				

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT AND POTENTIAL ACTION REGARDING TANC'S RELIABILITY STANDARDS COMPLIANCE PROGRAM

This memorandum provides the Transmission Agency of Northern California (TANC) Commission with an overview of recent key activities being conducted in support of TANC's Reliability Standards Compliance Program.

Annual Self Certification

On December 13, 2021, the Western Electricity Coordinating Council (WECC) submitted a letter to the Primary Compliance Contacts for all registered entities announcing a delay in the 2021 WECC annual Self-Certification process. WECC indicated that since this is this first year WECC is conducting Self-Certification in the Align system and given the challenges inherent in this transition that the timeline for the annual Self-Certification process has changed to the following:

- The 2021 Annual Self-Certification will post in Align on **February 1, 2022** (changed from **December 15, 2021**).
- The response window will open **February 15–April 15, 2022**.
- The monitoring period covered by this engagement has not changed and will continue to cover **January 1–December 31, 2021**.

Annual Evidence Request

In November 2021, TANC made its annual requests for 2021 compliance evidence to both the Western Area Power Administration (WAPA) and to the Sacramento Municipal Utility District (SMUD) for applicable Operations and Planning standards. Both WAPA and SMUD confirmed that they would be able to provide the applicable Reliability Standard Audit Worksheet and compliance evidence by the requested deadline of the end of January 2022. Much of the requested compliance evidence has been received from WAPA.

The information will then be used to complete the annual compliance reviews of applicable standards in accordance with the current TANC Internal Compliance Program as well as the annual self-certification request from WECC.

North American Electric Reliability Corporation Advisory

On December 14, 2021, the North American Electric Reliability Corporation (NERC) issued an Industry Advisory regarding a critical remote code execution vulnerability in Apache Software Java logging library Log4j. Successful exploitation of this vulnerability may enable an adversary to install arbitrary malicious code leading to initial access to a targeted environment or full control over impacted system. Log4j is a commonly used, open-source, logging framework in Java developed by the Apache Foundation that is used in millions of applications around the world, including enterprise applications and numerous cloud services and various industrial applications including Supervisory Control and Data Acquisition, Energy Management Systems and other operational technology environments.

At the time of the Advisory, NERC was not aware of any known impacts to the bulk power system reliability or system outages related to the Log4j vulnerability but advised the electricity industry to assess impact and immediately and apply the requisite patches as soon as possible and report any attempts to exploit the vulnerabilities along with indicators of compromise.

NERC Advisories are designed to improve reliability by disseminating critical reliability information and are made available pursuant to Rule 810 of NERC's Rules of Procedure and do not require a particular response.

TANC did coordinate with WAPA on this NERC Advisory and WAPA confirmed that this NERC Advisory does not impact any TANC systems or assets.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON CAISO MATTERS

This memorandum provides the Transmission Agency of Northern California (TANC) Commission with an update on recent activities and stakeholder processes being conducted by the California Independent System Operator (CAISO).

CAISO 2021-2022 Transmission Planning Process

On November 18, 2021, the CAISO posted its preliminary policy and economic study results and held a stakeholder meeting. The resource portfolios used in this year's transmission planning process are much larger than in the previous transmission planning cycle: 27,695 megawatts (MW) for the base portfolio for 2021-2022 compared to 10,387 MW for 2020-2021. The CAISO also studied two alternate resource portfolios containing 31,848 MW for sensitivity 1 and 33,227 MW for sensitivity 2. The sensitivity portfolios contain more than 13,000 MW of solar, 16,000 MW of wind and 9,000 MW of battery storage resources. The portfolios are shown in Tables 1 and 2.

Table 1

Total (FC+EO) generic resource additions and retirements (MW)		
	Current Base	Previous Base
Solar	13,044	6,763
Wind	4,005	992
Pumped Hydro	627	1,256
Geothermal	651	0
Battery storage	9,368	1,376
Gas Retirements	0	0
Total (FC+EO)	**27,695**	**10,387**

Table 2

Total (FC+EO) generic resource additions and retirements (MW)			
	Base	Sensitivity-1	Sensitivity-2
Solar	13,044	13,817	9,807
Wind	4,005	7,955	16,039
Pumped Hydro	627	1,843	1,495
Geothermal	651	105	0
Battery storage	9,368	9,447	7,604
Gas Retirements	0	1,319	1,718
Total (FC+EO)	**27,695**	**31,848**	**33,227**

The 2021-2022 transmission plan will also include the cost of upgrading transmission to accommodate 8.3 gigawatts (GW) of off-shore wind, with a potential to increase the amount up to 21.1 GW.

The CAISO's preliminary policy study results are shown in Table 3, subject to further study.

Table 3

Policy Study Results	Portfolio	Projects Needed
On-peak deliverability assessment	Base	10 transmission upgrades
Off-peak deliverability assessment	Base	3 transmission upgrades
Off-shore wind transmission assessment	Sensitivity 2	6 connection options for 1,607 MW of Humboldt Bay off-shore wind

In its preliminary economic study results, the CAISO is currently not recommending any specific projects, but has identified congestion on many facilities that require further study. The results of this further study will be presented in the draft transmission plan.

Table 4 shows six reliability projects that cost less than $50 million each that the CAISO is planning to recommend for approval to its Board of Governors.

Table 4

Project	Location	Cost
Contra Costa 230-kV Line Terminals Reconfiguration	Greater Bay Area	$5M - $10M
Vasona-Metcalf 230-kV Line Limiting Elements Removal Project	Greater Bay Area	$0.6M - $1.2M
Coppermine 70-kV Reinforcement Project	Greater Fresno Area	$21.8M - $43.6M
Cortina 230/115/60-kV Bank #1 Replacement	Sacramento Division	$21M - $42M
Manteca-Ripon-Riverbank-Melones Area 115-kV Line Reconductoring	Stockton	$6.8M - $13.6M
Weber-Mormon Jct 60-kV Line Section Reconductoring	Stockton Division	$9.3M - $18.6M

The CAISO is currently refining its studies and will present its recommendations in a draft transmission plan that will be posted on January 31, 2022, followed by a stakeholder meeting in February 2022.

CAISO 20-Year Transmission Outlook

On November 18, 2021, the CAISO posted an update on its 20-Year Transmission Outlook initiative and held a stakeholder meeting. The CAISO is conducting a high-level analysis to determine feasible transmission alternatives to achieve the carbon reduction goals of Senate Bill 100 (SB 100). In its studies the CAISO will use a starting point scenario for year 2040 comprised

of 120,781 MW of solar, wind, battery storage, gas-fired, biomass, geothermal and pumped hydro/long duration resources, with 15,000 MW of retirements of gas-fired resources. Table 5 shows the resource portfolios for years 2030, 2031 and 2040. Note the significant increase in resources needed to meet the SB 100 goals, which may require significant new transmission.

Table 5

Portfolio for 2020-2021 Transmission Plan (2030)	Portfolio for 2021-2022 Transmission Plan (2031)	SB 100 Starting Point Scenario (2040)
10,387 MW	27,695 MW	120,781 MW

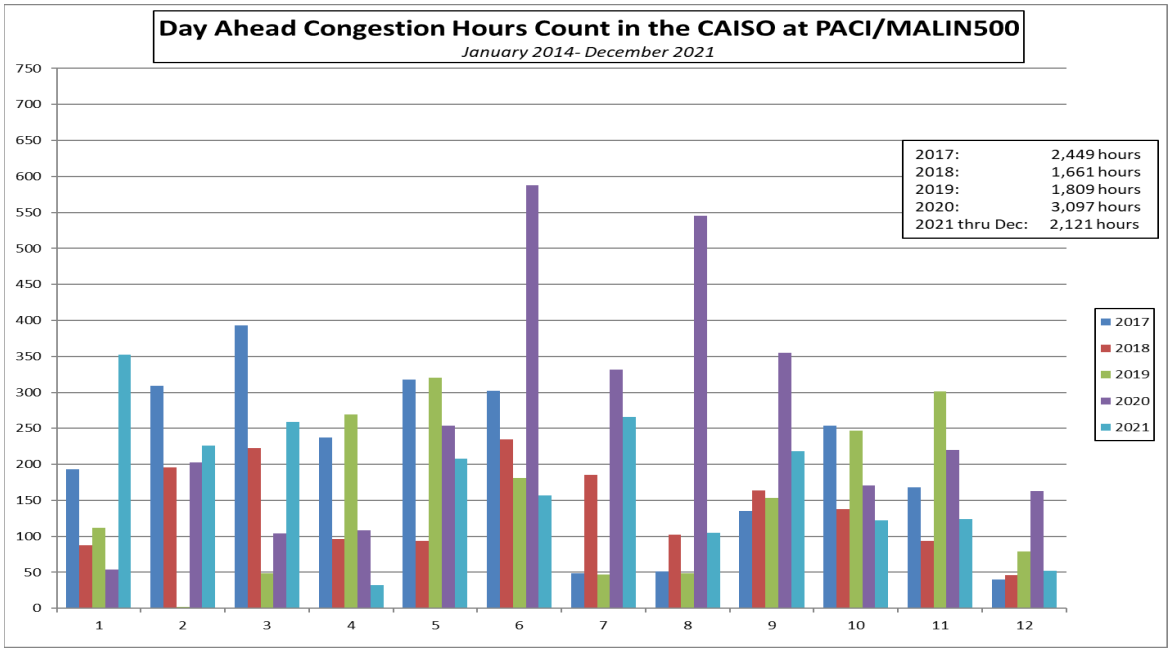
The CAISO provided an illustrative, preliminary geographic mapping of the transmission that may be needed to get power from resource areas to load centers in 2040 (see Figure 1).

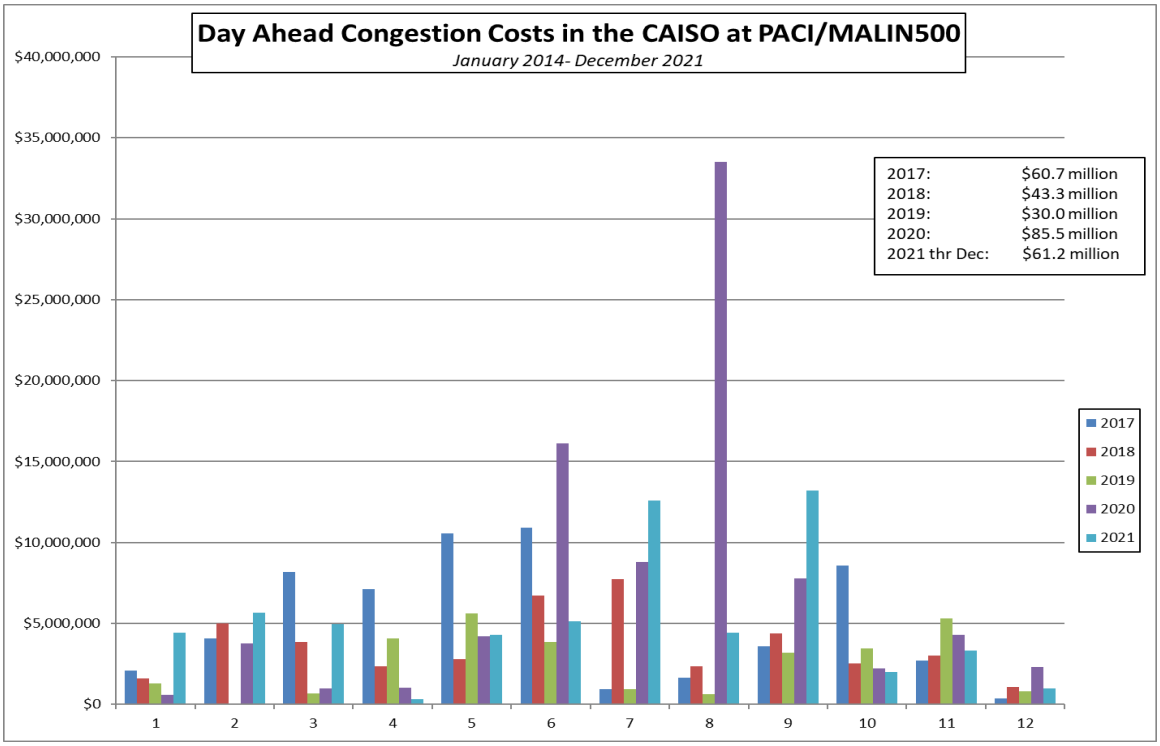
Figure 1

The CAISO will post its initial report on January 31, 2022. To develop the report the CAISO will estimate loads at high electrification levels; develop a bulk system assessment at peak, net peak and off-peak; assess local resource needs with gas-fired resource retirements; and map storage resources to grid locations and load centers.

Congestion

The Day-Ahead Market congestion in the CAISO on the PACI/MALIN500 intertie for December 2021 was $992,227 over 52 hours. Congestion for 2021 was $61,230,748 over 2,121 hours (see the two charts below).





Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON COTP AND TANC FY 2023 BUDGET DEVELOPMENT SCHEDULE

Attached for the Transmission Agency of Northern California (TANC) Commission's review is a working draft of the tentative California-Oregon Transmission Project (COTP) and TANC Fiscal Year (FY) 2023 Budget Development schedules. The schedules follow the same general timelines as in prior years, including formal adoption of the FY 2023 COTP Operations and Maintenance Budget and Work Plan scheduled for consideration at the March 2022 TANC Commission meeting and the FY 2023 TANC Budget scheduled for consideration at the May 2022 TANC Commission meeting.

As reflected in the schedule, the FY 2021 COTP Budget Workshop is proposed for February 9, 2022 and the TANC Budget workshop is proposed for April 29, 2022. A formal notification and copies of preliminary budgets for both workshops will be distributed a week prior to workshop dates.

Enclosures

DEVELOPMENT SCHEDULE

CALIFORNIA-OREGON TRANSMISSION PROJECT (COTP)

FISCAL YEAR (FY) 2023 OPERATION & MAINTENANCE (O&M) BUDGET

Date	Entity	Action
Mid-January 2022	COTP Staff & Western Area Power Administration (WAPA)	Initial discussions with WAPA regarding input for the COTP O&M Budget
February 01, 2022	COTP Staff & WAPA	WAPA to provide Draft budget figures to COTP Staff for WAPA budget categories.
February 04, 2022	COTP Staff	Transmittal of a Workshop Draft of the COTP Budget.
February 09, 2022	COTP Staff & Participants	COTP Budget Workshop. COTP Participants to provide additional direction for the development of the budget.
March 02, 2022	COTP Staff	Transmittal of an E&O Committee Draft of the COTP O&M Budget.
March 09, 2022	Joint COTP/TANC E&O Committee	Joint COTP/TANC E&O Committee meets and provides comments on the E&O Committee Draft
March 16, 2022	COTP Management Committee/TANC Commission	COTP Management Committee and TANC Commission meet to consider approval of the COTP O&M Budget.
Early April 2022	COTP Staff	Approved COTP O&M Budget and transmitted to COTP Participants.

DEVELOPMENT SCHEDULE

TRANSMISSION AGENCY OF NORTHERN CALIFORNIA (TANC)

Fiscal Year (FY) 2023 Budget

Timeline	Entity	Action
January 2022	TANC Staff	Prepare budget input information
Early February 2022	TANC Audit/Budget Committee	Review budget input information
Mid-February 2022	TANC Commission and their staff, Committee Chairs, and other Members	Receive budget input information
Late February 2022	TANC Commission and their staff, Committee Chairs, and other Members	Provide direction on budget input information along with other instructions for budget development
Early March 2022	TANC Audit/Budget Committee	Discuss Commission input and begin budget development
Early/Mid-March 2022	TANC Staff/Controller Staff	Begin development of pro-forma budget based upon feedback received from the Commission and General Manager
Late March 2022	TANC Audit/Budget Committee	Review working draft of budget
Late March/Early April 2022	TANC Staff/Controller Staff	Modify draft budget based upon TANC A/B Committee review and General Manager input
Early April 2022	TANC Audit/Budget Committee and General Manager	Pre-workshop review of updated working draft budget
April 29, 2022	TANC Audit/Budget Committee, along with Commission, other TANC Members, and Public	Hold the TANC Budget Workshop
Early May 2022	TANC General Manager/Staff/Controller Staff	Finalize draft budget based upon input received from Workshop
May 28, 2022	TANC Commission	Final consideration of TANC budget

TAB 19

REPORT FROM THE TANC INTERIM GENERAL MANAGER

The Commission will receive a report from TANC's Interim General Manager.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

`

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT ON TANC STRATEGIC PLANNING EFFORTS

This memorandum provides the Transmission Agency of Northern California (TANC) Commission with an update on activities associated with the TANC 2021-2025 strategic plan. The work has been divided into the three categories shown in Figure 1.

Work Plan for TANC Strategic Plan
Figure 1 - Timeline of Activities

Year 1 (now)	Year 2	Years 3-5
1. Develop work plan	1. Revisit committee structure	1. Explore impacts of market wide events on COTP (retirement of Diablo Canyon, WAPA contracts, electrification/state policies)
2. Determine Agency staffing and employment structure	2. Explore enhancements to SOT asset	2. More closely follow developments at CAISO that involve use of transmission in market, such as enhanced RA rules/EDAM/EIM
3. Develop COTP capital plan	3. Update key TANC agreements	3. Consider refinements to WECC compliance program
4. Resolve PA5 issues (Schedules 1 and 2)	4. Enhance use of CRR program	4. Consider refinements to wildfire plan
5. Determine OASIS services provider	5. Develop process for consultants to do specific projects not included in "base budgets"	5. Develop and adopt enterprise risk plan
6. Increase COI Path 66 rating	6. Explore implications of CAISO 20-year transmission plan	
	7. Resolve PA6 issues (FERC litigation activities)	
	8. Update Agency records/file retention protocol/housing	
	9. Develop marketing program for OASIS sales	

Figure 2 shows the status on the Year 1 (2021) work. The California-Oregon Transmission Project (COTP) Capital Replacement Plan was completed in 2021 and TANC is now working on transitional arrangements with the Western Area Power Administration as its new Open Access Same-Time Information System services provider. In December, a report was submitted to the Western Electricity Coordinating Council proposing to increase the rating of the California-Oregon Intertie from 4,800 to 5,100 megawatts. The TANC Commission also made significant progress in determining TANC's staffing and employment structure and resolving Project Agreement No. 5 Schedule 1 and 2 issues. Figure 3 shows the work planned for 2022, which includes all the Year 2 activities shown in Figure 1 and residual and implementation work on five items from the 2021 work plan.

Figure 2 - TANC 5-Year Strategic Plan: Work Plan for 2021

Date: 1/11/22 @ 2:00 p.m.

Project Lead: John Roukema

Key	
(green)	Indicates completed activity
(gray)	Indicates planned activity
X	Indicates one-day milestone

Task	Assigned To	Progress (%)	Week of: July 2021				August					September				October				November					December			
			5	12	19	26	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27
1. Develop Strategic Plan Work Plan	**Johnson**	**100%**																										
a. Hold internal team coordination calls	Arenchild	100%				X		X		X																		
b. Develop Gantt chart	Johnson	100%																										
c. Finalize Gantt chart	Johnson	100%									X																	
2. Determine Agency Staffing and Employment Structure	**Commission**	**85%**																										
a. BBA to complete its report with revised scope	BBA	100%																										
b. BBA report presented to TANC Commission	BBA	100%												X														
c. TANC Commission discussion on staffing and employment	Commission	70%																X				X					X	
3. Develop COTP Capital Replacement Plan	**Cuellar**	**100%**																										
a. Work with WAPA to develop capital plan	Cuellar	100%																										
b. Present plan at E&O Committee meetings	WAPA	100%										X									X							
c. Present plan at TANC Commission meetings	Roukema	100%												X				X				X						
d. Present plan at COTP Management Committee meeting	Roukema	100%																				X						
4. Resolve Project Agreement No. 5 Schedule 1 and 2 Issues	**Roukema**	**80%**																										
a. Potential settlement proposed by Interim General Manager	Roukema	100%		X																								
b. Parties present proposals to resolve issues	Parties	100%												X													X	
c. Continue discussions to resolve issues	Roukema	70%																										
5. Determine New OASIS Services Provider	**Riegle**	**100%**																										
a. WAPA develops indicative price, with assistance from TANC staff	WAPA	100%									X																	
b. TANC staff evaluates WAPA indicative price received	Riegle	100%																										
c. Discuss WAPA indicative price at OATT Committee meetings	Riegle	100%										X				X												
d. TANC Commission discusses whether to solicit interest from others	Commission	100%												X				X										
e. Inquire whether other entities are interested in providing services	Riegle	100%																										
f. Receive reports/discuss next steps at OATT Committee meetings	Riegle	100%														X				X					X			
g. Develop funding agreement with WAPA	Riegle	100%																										
6. Submit Phase 1 Report to WECC to increase COI Path 66 Rating	**Schiermeyer**	**100%**																										
a. Develop Phase 1 study cases	Schiermeyer	100%																										
b. Conduct Phase 1 studies	Schiermeyer	100%																										
c. Coordinate with TANC members	Schiermeyer	100%																										
d. Write Phase 1 report	Schiermeyer	100%																										
e. Report reviewed by COI Owners and others	Schiermeyer	100%																										
f. Discuss report at E&O Committee meeting	Schiermeyer	100%																			X							
g. Discuss report at TANC Commission meeting	Schiermeyer	100%																				X						
h. Finalize report and transmittal letter	Schiermeyer	100%																										
i. Submit report to WECC	Schiermeyer	100%																										X

Figure 3 - TANC 5-Year Strategic Plan: Work Plan for 2022

Date: 1/11/22 @ 2:40 p.m.

Project Lead: John Roukema

Only First Seven Months of 2022 are currently shown - will add August-December later in Year

Key	
	Indicates completed activity
	Indicates planned activity
X	Indicates one-day milestone

Task	Assigned To	Progress (%)	Week of																											
			January 2022					February				March				April				May					June				July			
			3	10	17	24	31	7	14	21	28	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25
1. Determine Agency Staffing and Employment Structure [1]	**Commission**	**85%**																												
a. Discuss staffing and employment at TANC Commission meetings	Commission	95%				X																								
b. Open recruitment for General Manager	Roukema	0%																												
2. Implement COTP Capital Replacement Plan [1]	**Riegle**	**30%**																												
a. Develop financing plan	Riegle	60%																												
1) Convene TANC Finance Committee	Riegle	0%																												
2) Present options at TANC Commission and COTP Mgmt. Committee meetings	Roukema	0%																												
b. Develop documentation for budget process	Riegle	0%																												
3. Resolve Project Agreement No. 5 Schedule 1 and 2 Issues [1]	**Roukema**	**80%**																												
a. Continue discussions to resolve issues	Roukema	70%																												
b. Implement agreement reached	Roukema	0%																												
4. Implement WAPA as New OASIS Services Provider [1]	**Riegle**	**30%**																												
a. Develop and execute with WAPA OASIS services agreement and scope of work	Riegle	10%																												
b. Work with WAPA on setup and dry run for transfer of services from SMUD to WAPA	Riegle	0%																												
c. "Go live" with WAPA as services provider - Q4 2022	Riegle	0%																												
5. Submit Phase 2 Report to WECC to increase COI Path 66 Rating [1] [2]	**Schiermeyer**	**3%**																												
a. 60-day review of Phase 1 report by WECC StS - Studies Subcommittee (due Mar 7)	WECC	10%																												
b. Develop Phase 2 study plan, conduct studies and write draft Phase 2 report	Schiermeyer	0%																												
c. Review of draft Phase 2 report	Schiermeyer	0%																												
d. Discuss report at E&O Committee meeting	Schiermeyer	0%																										X		
e. Discuss report at TANC Commission meeting	Schiermeyer	0%																											X	
f. Finalize report and transmittal letter - Q3 2022	Schiermeyer	0%																												
g. Submit final Phase 2 report to WECC - Q3 2022	Schiermeyer	0%																												
6. Revisit Committee Structure	**Roukema**	**5%**																												
a. Solicit feedback from TANC members	Roukema	15%																												
b. Establish ad hoc legislative/regulatory committee under General Manager	Roukema	0%																												
c. If needed, implement changes to standing committee structure	Roukema	0%																												
7. Resolve Project Agreement No. 6 issues (FERC litigation activities)	**Roukema**	**0%**																												
a. Consider feedback gathered in "Task 6 Revisit Committee Structure" discussions	Roukema	0%																												
b. Develop successor to Project Agreement No. 6	Riegle	0%																												
8. Update Key TANC Agreements	**TBD**	**0%**																												
a. Determine revisions needed to operating agreements with WAPA and SMUD	TBD	0%																												
b. Revise WAPA and SMUD operating agreements	TBD	0%																												
9. Improve TANC Member Value	**Riegle**	**3%**																												
a. Consider marketing program for OASIS sales	Riegle	10%																												
b. Enhance use of CRR program	Johnson	0%																												
c. Explore enhancements to South of Tesla asset	TBD	0%																												
10. Monitor Activities that may impact the COTP	**Johnson**	**0%**																												
a. Monitor CAISO 20-Year Transmission Outlook initiative	Johnson	0%																												
11. Review Agency Procurement, Policies and Procedures	**Cuellar**	**0%**																												
a. Review file retention	Cuellar	0%																												
b. Review records housing	Cuellar	0%																												
c. Update Policies and Procedures Manual (procurement)	Cuellar	0%																												

[1] Task carried forward from 2021 Work Plan.

[2] Phase 2 of the rating study will consider the known interactions between the proposed 5,100 MW N-S rating for the California-Oregon Intertie and other transmission paths, generation and loads.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: RESOLUTION APPROVING THE THIRTEENTH COLLECTION AGREEMENT WITH THE UNITED STATES FOREST SERVICE

The Modoc and Shasta-Trinity National Forests have proposed the Thirteenth Collection Agreement as a successor to the existing Eleventh Collection Agreement with the Transmission Agency of Northern California (TANC). The Eleventh Collection Agreement is set to expire on June 30, 2022. This memorandum provides background information on the requirements for entering into the Thirteenth Collection Agreement as a successor to the Eleventh Collection Agreement. It also summarizes cost increases for the fire response and fuels management services provided by those two national forests under the agreement and emphasizes the wildfire risk reduction benefits that continue to accrue to TANC through this agreement.

Background

The 1991 Environmental Impact Statement/Environmental Impact Report for the COTP included a requirement that TANC, in cooperation with the United States Forest Service (USFS), develop Fuels Management and Fire Response Plans to reduce the risk of catastrophic wildfires in the area where the California-Oregon Transmission Project (COTP) lies approximately two to three miles away from, and parallel to the Pacific Alternating Current Intertie (PACI) lines. Section 29 of the 1994 Right of Way Grant, a Statutory Easement (TANC Easement), states that the intentions of the Fuels Management and Fire Response Plans are to maintain transmission system reliability by:

- sufficiently reducing the fuel loads between the existing PACI lines and the existing COTP Project line to eliminate the potential for a forest fire-caused simultaneous outage of all three 500 kilovolt transmission lines; and
- ensuring prompt and correct action in the event an accidental fire should occur.

Section 29 of the TANC Easement also states that "A Collection Agreement will be necessary to complete the projects listed in the Fuels Management and Fire Response Plans, which may be mutually updated on an annual basis.

Thirteenth Collection Agreement
The Eleventh Collection Agreement annual costs ranged from approximately $550,000 to $605,000 from Fiscal Year 2018 to Fiscal Year 2022. The proposed Thirteenth Collection Agreement annual costs range from approximately $686,000 to $775,000. These cost increases are attributed more specifically to:

- Projected increases in personnel and maintenance costs at the Long Bell Fire Station;
- Increased fuel treatment costs associated with the increased distances traveled by contractors providing mastication, manual, and related treatments near the COTP and PACI lines; and
- Cost increases for progressively accessing cinder rock sources used for road maintenance work.

TANC continues to realize several wildfire risk reduction, responsiveness, and related benefits from the successive versions of this agreement. Those benefits include an ongoing and strong relationship with the Modoc and Shasta-Trinity National Forests that results in more expeditious reviews and mutually beneficial approvals of related TANC and COTP activities on USFS-managed lands.

At their meeting on January 12, 2022, the COTP/TANC Engineering and Operations Committees recommended approval of the Thirteenth Collection Agreement to the TANC Commission and COTP Management Committee, subject to COTP Counsel review and approval of the final negotiated agreement.

Approval of the enclosed resolution will authorize the Interim General Manager to vote for approval of the Thirteenth Collection Agreement and at the COTP Management Committee's meeting on January 26, 2022 and execute the agreement, subject to COTP Counsel review and approval of the final negotiated agreement.

Enclosure

RESOLUTION 2022-__

A RESOLUTION OF THE
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
AUTHORIZING THE EXECUTION OF THE
THIRTEENTH COLLECTION AGREEMENT WITH
THE UNITED STATES FOREST SERVICE

WHEREAS, Transmission Agency of Northern California (TANC) is a joint exercise of powers agency organized under the laws of the State of California; and

WHEREAS, TANC is the Project Manager of the California-Oregon Transmission Project (COTP); and

WHEREAS, Portions of the COTP are located within the Modoc National Forest and within the Shasta-Trinity National Forest, pursuant to a Right of Way granted on July 6, 1994 under the Act of October 21, 1976, 43 U.S.C. § 1761 et seq. (the "TANC Easement"); and

WHEREAS, TANC and the United States Forest Service (USFS) have entered into a series of prior collection agreements providing for TANC's funding of various undertakings by the USFS in connection with the construction, operation and maintenance of the COTP, and TANC and the USFS desire to enter into the Thirteenth Collection Agreement to provide for additional work by the USFS within the Modoc National Forest and the Shasta-Trinity National Forest in support of the operation and maintenance of the COTP and to maintain compliance with TANC's obligations under Sections 8 and 29 of the TANC Easement; and

WHEREAS, TANC has worked with COTP Counsel to negotiate the Thirteenth Collection Agreement with the USFS; and

WHEREAS, the COTP and TANC Engineering and Operations Committees have reviewed the proposed form of the Thirteenth Collection Agreement with the USFS and

recommended TANC Commission approval subject to the review and approval of the final form of the Thirteenth Collection Agreement by COTP Counsel.

NOW, THEREFORE, BE IT HEREBY RESOLVED that the TANC Commission authorizes the TANC Interim General Manager to vote for approval of the proposed form of the Thirteenth Collection Agreement with the USFS at the COTP Management Committee meeting which will be held January 26, 2022.

BE IT FURTHER RESOLVED that the TANC Commission authorizes the TANC Interim General Manager to execute the Thirteenth Collection Agreement between the USFS and TANC, subject to the review and approval of the final form of the Thirteenth Collection Agreement by COTP Counsel and subject to the approval of the COTP Management Committee.

PASSED AND ADOPTED, this 26th day of January 2022, on a motion by _____, seconded by _____.

	AYES	NOES	ABSTAIN	ABSENT
City of Alameda				
City of Biggs				
City of Gridley				
City of Healdsburg				
City of Lodi				
City of Lompoc				
Modesto Irrigation District				
City of Palo Alto				
Plumas-Sierra Rural Electric Cooperative				
City of Redding				
City of Roseville				
Sacramento Municipal Utility District				
City of Santa Clara				
Turlock Irrigation District				
City of Ukiah				

FS Agreement No.

Cooperator Agreement Title: Thirteenth Collection Agreement

COLLECTION AGREEMENT
Between The
TRANSMISSION AGENCY OF NORTHERN CALIFORNIA
And The
UNITED STATES DEPARTMENT OF AGRICULTURE,
U.S. FOREST SERVICE
MODOC NATIONAL FOREST AND SHASTA-TRINITY NATIONAL FOREST

This COLLECTION AGREEMENT is hereby entered into by and between the Transmission Agency of Northern California, hereinafter referred to as "TANC", and the United States Department of Agriculture (USDA), Forest Service, Modoc National Forest, and Shasta-Trinity National Forest, hereinafter referred to as the "U.S. Forest Service," under the provisions of the Granger-Thye Act of April 24, 1950, 16 U.S.C. § 572.

Background:

A. TANC is a joint exercise of powers agency organized under Chapter 5, Division 7, Title 1 of the California Government Code, and a Joint Powers Agreement, dated as of December 10, 1984, among the City of Alameda, the City of Biggs, the City of Gridley, the City of Healdsburg, the City of Lodi, the City of Lompoc, the Modesto Irrigation District, the City of Palo Alto, the City of Redding, the City of Roseville, the Sacramento Municipal Utility District (SMUD), the City of Santa Clara, the Turlock Irrigation District, and the City of Ukiah, as members, and Plumas-Sierra Rural Electric Cooperative, as an associate member.

B. TANC is the Project Manager of the California-Oregon Transmission Project (COTP), which is an existing 339-mile long, 1,600-megawatt, 500 kilovolt (kV) transmission project between Southern Oregon and Central California.

C. Portions of the COTP are located within the Modoc National Forest and within the Shasta-Trinity National Forest, pursuant to a Right of Way granted on July 6, 1994 under the Act of October 21. 1976, 43 U.S.C. § 1761 et seq. (the TANC Easement).

D. TANC and the U.S. Forest Service have entered into a series of prior collection agreements utilizing TANC's funding to support the operation and maintenance of the COTP and to maintain compliance with TANC's obligations under Sections 8 and 29 of the TANC Easement, and TANC and the U.S. Forest Service desire to enter into this Agreement for those purposes.

I. PURPOSE: The purpose of this agreement, and incorporated Financial Plan, is to document the voluntary payment of funds from TANC to the U.S. Forest Service to cover the expenses of the U.S. Forest Service in undertaking certain fire response, vegetation and fuels management, and road maintenance and improvement and supporting activities within the Modoc National Forest and the Shasta-Trinity National Forest, in support of the

operation and maintenance of the COTP and to maintain compliance with TANC's obligations under Sections 8 and 29 of the TANC Easement.

II. THE TANC SHALL:

A. LEGAL AUTHORITY. TANC shall have the legal authority to enter into this agreement, and the institutional, managerial, and financial capability to ensure proper planning, management, and completion of the project, which includes funds sufficient to pay the nonfederal share of project costs, when applicable.

B. Perform in accordance with the Financial Plan.

C. Upon presentation of a Bill for Collection, deposit with the U.S. Forest Service the amount agreed to in the Financial Plan.

D. Meet with the U.S. Forest Service annually, as specified in provision III.C. SPECIAL PROGRAM DOCUMENTATION- PERFORMANCE REPORTING.

III. THE U.S. FOREST SERVICE SHALL:

A. Perform in accordance with the attached Operating Plan (Attachment A) and Financial Plan (Attachment B).

B. ADVANCE BILLING. The maximum total cost liability to the TANC for this agreement is **$3,648,240.** The U.S. Forest Service shall bill TANC annually for deposits sufficient to cover the estimated costs, including overhead and inflation. Refer to the Financial Plan (Attachment B) for overhead and inflation rate determinations.

Billing Method: Annually based on payment schedule and estimated totals in the Financial Plan (Attachment B).

Billing must be sent to:

Don Wagenet
Transmission Agency of Northern California
P.O. Box 15129
Sacramento, CA 95851

C. SPECIAL PROGRAM DOCUMENTATION – PERFORMANCE REPORTING. This section sets forth the annual planning and reporting process for each TANC fiscal year that begins July 1 and ends the following June 30, beginning July 1, 2022 (i.e., start date for TANC Fiscal Year 2023) and for each fiscal year thereafter for the term of this Agreement.

Annual Planning

The U.S. Forest Service Program Manager shall meet annually with the TANC Program Manager before May 1 to set performance goals for (1) Fire Response, (2) Fuels

Management, and (3) Road Maintenance categories for the TANC fiscal year that begins the following July 1. Each annual goal for activities planned for each of these three categories will specify:

(i) Project type as referenced in Attachment A – Operating Plan;
(ii) Project description;
(iii) Project location;
(iv) Project annual performance metrics targets (acres, miles, accomplishments, etc.);
(v) Estimated annual costs; and
(vi) Estimated annual completion date range that accounts for potential delays.

Annual Monitoring

The U.S. Forest Service Program Manager shall monitor the performance of this Agreement's projects, activities, and budgets. Monitoring will support annual communications, reporting and subsequent annual planning activities for the term of this Agreement.

Annual Reporting

The U.S. Forest Service Program Manager shall prepare and deliver one annual report to the TANC Program Manager. The annual report will be due no later than July 31st following the end of the fiscal year ending the previous June 30th. It will address the annual planning goals for the subject (prior) TANC fiscal year, and include the following progress summary for that prior TANC fiscal year for (1) Fire Response, (2) Fuels Management, and (3) Road Maintenance projects and activities: The annual report will address each of the report elements:

(i) Project type as referenced in Attachment A – Operating Plan;
(ii) Project description;
(iii) Project location;
(iv) Project actual annual performance accomplishments (acres, miles, completed work, etc.);
(v) Actual annual costs;
(vi) Project status as of June 30th of the subject (prior) TANC fiscal year; and
(vii) Agreement budget remaining for next fiscal years' planning purposes.

Items (i), (ii) and (iii) shall note any changes to the project type, description or location that have occurred over the subject fiscal year. Items (iv), (v) and (vi) shall similarly facilitate a comparison of planned versus actual performance, costs, and completion for the subject fiscal year.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

A. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal Cooperator Contacts:

Cooperator Program Contact	Cooperator Administrative Contact
Don Wagenet P.O. Box 15129 Sacramento, CA 95851 Telephone: 916-852-1673 FAX: 916-852-1073 Email: dwagenet@tanc.us	David LaPorte P.O. Box 15129 Sacramento, CA 95851 Telephone: 916-852-1673 FAX: 916-852-1073 Email: dlaporte@tanc.us

Principal U.S. Forest Service Contacts:

U.S. Forest Service Program Manager Contact (1 of 2)	U.S. Forest Service Administrative Contact
Amanda Shoaf Modoc National Forest 508 S Main St Adin, CA 96006 Telephone 530-299-8429 Email-amanda.shoaf@usda.gov	Asmaa Ali Northern California Acquisition Service Area 3644 Avtech Parkway Redding, CA 96002 Telephone: 530-226-2418 FAX: 530-226-2341 Email: aaali@fs.fed.us
U.S. Forest Service Program Manager Contact (2 of 2) Heather McRae Shasta-Trinity National Forest 2019 Forest Road McCloud, CA 96057 Telephone: 530-964-3770 Email: hmcrae@fs.fed.us	

B. FOREST SERVICE LIABILITY TO THE COOPERATOR. The United States shall not be liable to TANC for any costs, damages, claims, liabilities, and judgments that arise in connection with the performance of work by the U.S. Forest Service or its contractors under this agreement, including but not limited to damage to any property owned by TANC or any third party.

C. REFUNDS. Funds collected in advance by the U.S. Forest Service, which are not spent or obligated for the project(s) approved under this agreement, may be refunded to TANC, authorized for use for a new agreement by TANC, or waived by TANC. A Data Universal Numbering System (DUNS) number and registration in the System for Award Management (SAM) by TANC may be necessary to process a refund. Due to processing costs, any balance less than $25 shall not be refunded to TANC.

D. MEMBERS OF CONGRESS. Pursuant to 41 U.S.C. 22, no member of, or delegate to, Congress shall be admitted to any share or part of this agreement, or benefits that may arise therefrom, either directly or indirectly.

E. FREEDOM OF INFORMATION ACT (FOIA). Public access to agreement records must not be limited, except when such records must be kept confidential and would have been exempted from disclosure pursuant to Freedom of Information regulations (5 U.S.C. 552). Requests for research data are subject to 2 CFR 215.36.

Public access to culturally sensitive data and information of Federally-recognized Tribes may also be explicitly limited by P.L. 110-234, Title VIII Subtitle B §8106 (2009 Farm Bill).

F. PARTICIPATION IN SIMILAR ACTIVITIES. This agreement in no way restricts the U.S. Forest Service or TANC from participating in similar activities with other public or private agencies, organizations, and individuals.

G. ENDORSEMENT. Any of TANC's payments made under this agreement do not bydirect reference or implication convey U.S. Forest Service endorsement of TANC's products or activities.

H. NOTICES. Any communication affecting the operations covered by this agreement bythe U.S. Forest Service or TANC will be sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the agreement.

To TANC, at TANC's Cooperator Program contact address shown in the agreement or such other address designated within the agreement.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

I. USE OF U.S. FOREST SERVICE INSIGNIA. In order for TANC to use the U.S. Forest Service insignia on any published media, such as a Web page, printed publication, or audiovisual production, permission must be granted from the U.S. Forest Service's Office of Communications (Washington Office). A written request will be submitted by Forest Service FOREST to the Office of Communications Assistant Director, Visual Information and Publishing Services prior to use of the insignia. The U.S. Forest Service **MODOC NATIONAL FOREST AND SHASTA-TRINITY NATIONAL FOREST** will notify TANC when permission is granted.

J. PROPERTY IMPROVEMENTS. Improvements placed by the U.S. Forest Service on National Forest System land at the direction or with the approval of the U.S. Forest Service under this Agreement become property of the United States. These improvements are subject to the same regulations and administration of the U.S. Forest Service as would

other national forest improvements of a similar nature. No part of this agreement entitles TANC to any interest in the improvements, other than the right to use them under applicable U.S. Forest Service regulations.

K. PURCHASE OF ASSETS. Any assets (such as equipment, property, or improvements) purchased by the U.S. Forest Service with TANC's payments shall become the property of the U.S. Forest Service.

L. TERMINATION FOR COLLECTION AGREEMENTS. Either party, in writing, may terminate this agreement in whole, or in part, at any time before the date of expiration. The U.S. Forest Service shall not incur any new obligations for the terminated portion of this agreement after the effective date of termination and shall cancel as many obligations as possible. Full credit must be allowed for U.S. Forest Service expenses and all non-cancelable obligations properly incurred up to the effective date of termination.

M. DEBARMENT AND SUSPENSION. TANC shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the Federal Government according to the terms of 2 CFR Part 180. Additionally, should TANC or any of their principals receive a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.

N. MODIFICATIONS. Modifications within the scope of this agreement must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 60 days prior to implementation of the requested change. The U.S. Forest Service is not obligated to fund any changes not properly approved in advance.

O. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature, and is effective through June 30, 2027 at which time it will expire. The expiration date is the final date for completion of all work activities under this agreement.

P. AUTHORIZED REPRESENTATIVES: By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement effective as of the last date written below.

[Signatures on following page.]

JOHN ROUKEMA, Interim General Manager — Date
Transmission Agency of Northern California

CHRIS CHRISTOFFERSON, Forest Supervisor — Date
U.S. Forest Service, Modoc National Forest

RACHEL BIRKEY, Forest Supervisor — Date
U.S. Forest Service, Shasta-Trinity National Forest

The authority and format of this agreement have been reviewed and approved for signature.

U.S. Forest Service Grants Management Specialist — Date

Burden Statement

According to the Paperwork Reduction Aa of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid 0MB control number. The valid 0MB control number for this information collection is 0596-021.7 The time required to complete this Information collection Is estimated lo average 4 hours per response, Including the time for reviewing instructions, searching existing data sources, gathering, and maintaining all data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination In all U.S. programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status. familial status, parental status, region, sexual orientation; genetic information, political beliefs, reprisal, or because all or part of an individual's income. is derived from *any* public assistance. (Not all prohibited bases apply to all Programs) Persons with disabilities who require alternative means for communication of program information (Braille, large print audiotape, etc.) should contact USPA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington DC 20250-9410 or call toll free (866) 632 9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

ATTACHMENT A
OPERATING PLAN

MODOC NATIONAL FOREST

SHASTA-TRINITY NATIONAL FOREST

TANC
Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

CALIFORNIA-OREGON
TRANSMISSION PROJECT

ATTACHMENT A
OPERATING PLAN

INTRODUCTION

Background

Cooperation between the US Forest Service (USFS) and the Transmission Agency of Northern California (TANC) in connection with the construction, operation, and maintenance of the California-Oregon Transmission Project (COTP) has been ongoing since 1985. During that period TANC has funded construction and a substantial portion of annual resources to ensure the presence of a fireengine and supporting staffing of the Long Bell fire station. TANC and the USFS have also jointly funded fuels treatment and road maintenance work in and near the Fuels Management Area, described below.

This is the Operating Plan for the Thirteenth Collection Agreement (Agreement) between the Transmission Agency of Northern California (TANC) and the Modoc and Shasta-Trinity National Forests. This Operating Plan is consistent with the need for a Fire-Fuels plan that was included as a condition of approval for the construction, operation, and maintenance of the COTP. The objective of each annual Fuels-Fire Plan is to maintain electric transmission system reliability. This is to be accomplished by:

1) Sufficiently reducing the fuel loads between the existing Intertie[1] and the COTP to eliminate the potential for a forest fire-caused simultaneous outage of all three 500 kV transmission lines, and

2) Ensuring prompt and correct action in the event an accidental fire should occur.

These conditions are also required by Condition 29 of the TANC Right of Way granted by the United States of America in 1994. The right of way crosses 58 miles of National Forest System lands.

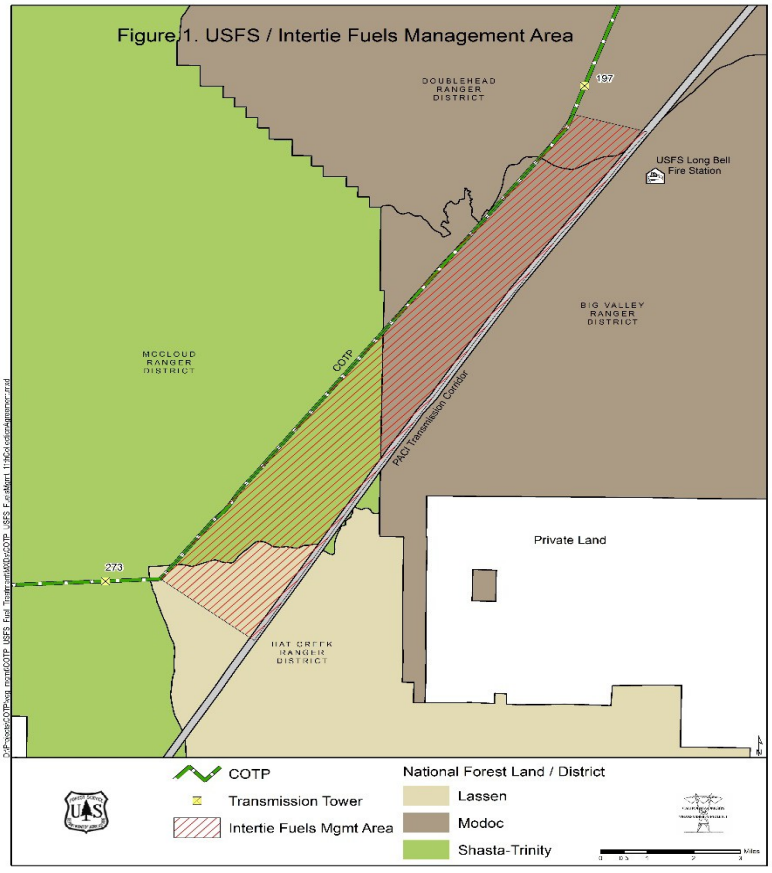
The primary purpose of the Fuels-Fire Plan is to provide a framework for the site-specific implementation of activities to accomplish these two objectives. It consists of management practices designed to create low fuel hazard conditions between the COTP and the pre-existing intertie lines, coupled with improved fire response capability in that immediate area of concern. Adequate fire protection in the vicinity of the COTP and the existing intertie lines is also

[1] During project approvals, the existing Intertie was comprised of two existing 500 kV powerlines that ran parallel to the approved COTP route for about 14 miles. In this area, the average separation distance is two to three miles from roughly the Siskiyou/Modoc County line one mile east of Border Mountain to approximately 2 miles southeast of Hambone Butte.

predicated on having an engine module available or "on order" for the area of concern during the fire season. The area of concern for protecting electric system reliability is referred to as the "Fuels Management Area (Figure 1)." Construction of the Long Bell Fire Station (Figure 1) was also a condition of approval of the COTP, and is intentionally located close to the Fuels Management Area to provide the prompt action needed to protect electric system reliability.

The COTP right of way and Fuels Management Area cross both the Modoc and Shasta-Trinity National Forests, thereby requiring cooperation between those Forests to cost-effectively prioritize and implement fuels treatment and road maintenance activities. Fire response activities are primarily implemented through the Long Bell Fire Station in the Modoc National Forest.

Annual Project Implementation Activities



Annual progress in implemeting projects is integral to this Agreement. TANC has been funding USFS collection agreements for fire response and fuels management activities in the Fuels Management Area since 1994. During that time, it has become evident that circumstances beyond the control of the parties can result in wide swings in yearly accomplishments, including but not limited to weather, seasonal loss of resources to national fire-fighting and recovery efforts, litigation, and other uncontrollable factors. This Agreement is structured to be more adaptable to such factors.

Adaptability is achieved through the use of the following practices:

A requirement for annual planning and reporting as set forth in Section III (C), above titled "Special Program Documentation – Performance Reporting"; that relies on this Operating Plan for: (1) annually selecting approved project types and activities that cover most possible projects and activities needed for meeting Agreement objectives; and (2) optimal flexibility for prioritizing Fire Response, Fuels Management, and Road

Maintenance activities on an ongoing basis to adjust to the need to optimize accomplishments as identified by the USFS and TANC Program Managers implementing this Operating Plan.

The remainder of this Operating Plan describes the types of projects and activities that will be addressed annually under: (1) Fire Response; (2) Fuels Management; and (3) Road Maintenance.

FIRE RESPONSE CAPABILITIES

Long Bell Station Fire Engine Costs

The fire engine at Long Bell Fire Station is a standard Region 5 Type 3 engine that is typically staffed with five wildland firefighters. Standard Operating Procedure for the Modoc National Forest requires that an engine be assigned to Long Bell or "on order" throughout the fire season. This ensures a rapid response to fires occurring in the vicinity of the Intertie power lines. The West Zone Duty officer may use daily discretion with staffing of the Long Bell Station. TANC provides funding for fixed engine operating costs, and fuel costs associated with providing response services to the Fuels Management Area and nearby. The USFS pays for additional fuel costs.

Long Bell Station Personnel Costs

The Long Bell Fire Station requires staffing throughout the fire season. The USFS funds medical testing, training, time spent suppressing fires, time spent opening and closing the Long Bell Station and related administrative time. The apprentices and temporary firefighters required to staff the engine are not year-round employees. They accrue unemployment liability charged to TANC. TANC also pays Sunday, holiday, and planned overtime costs associated with the remoteness of the Long Bell Station. It is USFS policy to charge these costs back to benefiting projects. In this case the benefitting project is the Intertie Fuels Management Area and nearby areas where the transmission rights of way are vulnerable to wildfire damages. Long Bell Station Personnel Costs include salary, overtime, barracks fees, per diem, transportation of crew to the Long Bell Station daily, engine supplies (hose, fittings, medical supplies, tools etc.), personal protective equipment and project supplies (tools, saws, fuel etc.).

Other Long Bell Station Costs

The Long Bell Station includes a garage for housing fire engines (engine bay), an office and barracks. Power is supplied by a diesel generator. TANC primarily pays for generator fuel and maintenance, maintenance of facilities (engine bay, office, barracks, out buildings), water system maintenance, and communication devices (radios, cellular phones, tablets, internet) and personnel costs. When deemed appropriate by TANC and the USFS Program Manager funds from both entities may be utilized to cover various station costs.

VEGETATION AND FUELS MANAGEMENT

Introduction

The Forest Service and TANC recognize that wildfires within the Fuels Management Area constitute a threat to COTP and Intertie reliability. These fires could compromise system reliability of the COI power lines and are more likely to do so during peak summer loads. Vegetation and fuels management activities are likely to be needed on the Modoc, and Shasta-Trinity National Forests (Figure 1) near the COI lines.

Approved Vegetation and Fuels Management Activities

Each year, TANC and the USFS will set forth priorities for vegetation and fuels management activities based on the need to reduce the wildfire risks to the COTP and other Intertie lines. These activities may be planned in either the Fuels Management Area or otherwise near the COTP or other COI lines, or within a reasonable distance where fire response and fuels treatments will decrease the threat and impacts of wildland fire ignitions and spread that could adversely affect the powerlines. Vegetation and fuels management activities may include, but not be limited to those listed in Table 1.

Table 1. Approved Vegetation and Fuels Management Activities

Contract Layout and Inspections	Mechanical and Hand Thinning
Weather Station Maintenance	Timber Sale Preparation and Assistance
NEPA Project Development and Analysis	Right of Way Hazard Tree Removal
Project Mapping and GIS Management	Fuels Inventory and Treatment Monitoring
Fuelbreak Establishment	Treatment Unit Marking
Fuelbreak Maintenance	Treatment Unit Survey
Hand Treatments	Prescribed Pile Burning
Mastication	UTV Fuel and Maintenance
Mechanical Treatments	Annual Water Tank Filling and Maintenance
Pre- and Post-Fire and Project Monitoring	Fuels and Fire Response Equipment Costs
Prescribed Under-burning	Other work as agreed upon in writing

GIS: Geographic Information Systems/ NEPA: National Environmental Policy Act/ UTV: Utility Task Vehicle

Advance Notification to the Western Area Power Administration (Western) of Planned Burns Near the Intertie Lines

In order to minimize the potential for fire and smoke-related risks and accidents, the USFS will provide no less than two-business days of advance notification when they are planning to conduct prescribed burns or use heavy equipment within or near the rights of way for the COI lines. This advance notification will be provided by calling Western Dispatch at **916-353-2201** with the date, time, and location of such plans, and, if available, the COTP tower spans where such work is planned.

Fire/Fuels Equipment

The Modoc National Forest maintains one Type 2 dozer, one Bobcat skid steer and various

attachments (mowers, shears, blades, forks etc.) for the Bobcat. This equipment is used to prepare fire lines for prescribed burning, masticate and pile brush and to accomplish other fuels-related work. TANC funding was previously used to acquire a road grader and a UTV with water tank. The road grader is integral in maintaining road surfaces and is used to remove snow to allow access for contractors to continue fuels work during the winter. The UTV provides improved access to areas not accessible with the fire engine. TANC and the USFS share maintenance and fuel costs when equipment is used in or adjacent to the Fuels Management Area.

ROAD MAINTENANCE

Introduction

The USFS and TANC understand that well-maintained roads improve fire response and fuels management service levels. It is important to have adequate, unimpeded road access for vehicles and heavy equipment to as many of the COTP towers and COI lines as possible consistent with applicable land management and transportation plans. Road maintenance activities are likely to be needed on the Modoc and Shasta-Trinity National Forests (Figure 1) near the COI lines and routes of travel that provide access for suppression resources to the lines. TANC considers road maintenance activities as key elements of fire response capabilities that need to be monitored and responded to annually.

Approved Road Maintenance Activities

Each year, TANC and the USFS will offset forth priorities for road maintenance activities based on the need to reduce the wildfire risks to the COTP and other Intertie lines, including improved access and staging. These activities may be planned in either the Fuels Management Area or otherwise near the COTP or other COI lines where fire response to the transmission infrastructure is important. Road maintenance activities may include, but not be limited to those listed in Table 2. Road maintenance activities may be conducted by Forest Service personnel, COTP (personnel or via contract) or through contracts executed by the Forest Service.

Table 2. Approved Road Maintenance and Improvement Activities	
Access Road Condition Surveys	Road Grading
Road Clearing and Hazard Tree Removal	Downed Tree Removal
Equipment Maintenance	Cinder Pit Expansion
Access Road Surface Cindering	Cinder Mining
Road Realignment	Curve Realignment and Widening
Culvert Maintenance	Road Signage Maintenance
Hand Brush Removal	Materials additions and surfacing
Mechanical Brush Removal	Other USFS Approved Practices & Improvements

Other road maintenance activities may be approved by written confirmation during each annual planning process.

Annual Accomplishments – The Key Focus of This Agreement

The objectives of this Agreement are focused on annual accomplishments. This Agreement is intended to continue to fund TANC's ongoing obligations for fire response, fuels treatment, and road maintenance support for the Fuels Management Area and relevant surrounding areas. Those obligations are served by a well-supported fire station, engine, staff, and roads to facilitate rapid responses to wildfires that threaten the COTP and nearby transmission infrastructure. Equally important is the need to reduce the opportunities for wildfires to ignite, spread, and become catastrophic by damaging transmission infrastructure that is essential to the bulk transmission grid.

Fuels reductions are needed every year to minimize those opportunities. This Agreement has been made flexible so that all of these obligations can be optimized on a year-to-year basis and more frequently if needed to adjust to changing circumstances. It includes frequent communications that will require the respective Program Managers to communicate and allow them to quickly respond to unanticipated and uncontrollable delays to the best of their abilities. The terms and conditions and financial plan that accompany this Operating Plan are intended to provide the USFS Program Manager with maximum flexibility to transfer funds quickly and efficiently as needed among and between funding categories to ensure that annual progress is made on the ground towards providing reduced risk of wildfires near the COTP and nearby Intertie lines.

USFS Agreement _____
Thirteenth Collection Agreement

ATTACHMENT B
FINANCIAL PLAN

Transmission Agency of Northern California (TANC) Annual Cash Payments. For billing frequency, refer to Agreement provision III.B ADVANCE BILLING.

	YEAR					
Fire Response	2023	2024	2025	2026	2027	
Long Bell Station						
Engine	$25,000	$25,000	$25,000	$25,000	$25,000	
Personnel	$300,000	$300,000	$300,000	$300,000	$300,000	
Other Station	$17,000	$17,000	$17,000	$17,000	$17,000	
Subtotal Fire Response	**$342,000**	**$342,000**	**$342,000**	**$342,000**	**$342,000**	
Fuels Management						
Modoc National Forest	$100,000	$100,000	$100,000	$100,000	$100,000	
Shasta-Trinity National Forest	$80,000	$80,000	$80,000	$80,000	$80,000	
Subtotal Fuels Management	**$180,000**	**$180,000**	**$180,000**	**$180,000**	**$180,000**	
Road Maintenance						
Modoc National Forest	$85,000	$85,000	$85,000	$85,000	$85,000	
Shasta-Trinity National Forest	$5,000	$5,000	$5,000	$5,000	$5,000	
Subtotal Road Maintenance	**$90,000**	**$90,000**	**$90,000**	**$90,000**	**$90,000**	
USFS Overhead Rate (%)[1]	12%	12%	12%	12%	12%	
Sub Total	$685,440	$685,440	$685,440	$685,440	$685,440	
Inflation Rate (%)[2]		3.14%	3.14%	3.14%	3.14%	
Totals	**$685,440**	**$706,963**	**$729,161**	**$752,057**	**$774,619**	**$3,648,240**
	2023	2024	2025	2026	2027	GRAND TOTAL

Footnotes

(1) U.S. Forest Service overhead is assessed at the rate of twelve percent (12%), per U.S. Forest Service 2021 Overhead Assessment Rate letter signed Febuary 22, 2021, for the duration of this Agreement.

(2) The Inflation Rate of three point one four percent (3.14%) has been calculated based on a 5-year average of the Consumer Price Index (CPI) for the Western Region of the United States. Figures have been taken from the U.S. Department of Labor, Bureau of Labor Statistics, at www.bls.gov. The Parties stipulate this as an acceptable rate for the duration of this Agreement.

Transmission Agency of Northern California
P.O. Box 15129 Sacramento, CA 95851-0129 (916) 852-1673

MEMORANDUM

DATE: January 19, 2022

TO: TANC Commission

FROM: John Roukema
Interim General Manager

SUBJECT: REPORT AND POTENTIAL ACTION REGARDING A LETTER OF AGREEMENT FOR RADIO REPLACEMENT ACTIVITIES

The Transmission Agency of Northern California (TANC) has been working with the Bonneville Power Administration (BPA) and the Western Area Power Administration (WAPA) to develop a Letter of Agreement for the replacement of BPA-owned microwave facilities that are necessary to conduct BPA's Intertie responsibilities with the California-Oregon Transmission Project. Specifically, the activities include upgrading and energizing a replacement radio at BPA's Captain Jack Substation and at related microwave paths.

The Letter of Agreement is still being prepared by BPA and the initial draft was review by TANC Counsel. It is expected that the Letter of Agreement would be available at the end of January and may require executed prior to the February TANC Commission meeting to keep the radio replacement project on schedule.

The TANC Commission is requested to authorize the Interim General Manager to execute the Letter of Agreement between TANC, BPA and WAPA, subject to TANC Counsel review and approval of the final negotiated agreement.

TAB 23

CLOSED SESSION

Closed Session Conference with Legal Counsel

a. Existing Litigation:
Pursuant to subsections (a) and (b) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss existing litigation at: the Federal Energy Regulatory Commission (FERC): Pacific Gas and Electric Company (PG&E)-RY 2022 Informal Challenge [ER19-13]; 2022 Transmission Revenue Requirement Annual Update posting [ER21- LM]; TO-20 - 2021 Transmission Rate Annual Update – Order on Informational Filing [ER19-13-000, *et. al.]*; TO-19 [ER17-2154]; TO-18 [ER16-2320]; Appeal of TO-18 [9th Circuit 21-70306 (TANC)] and [DC. Circuit 21-1061] (PG&E) and PG&E Depreciation Filing [ER 21-1219]; PG&E Abandoned Plant Cost Recovery – [ER21-2882] LM; PG&E Accounting Request for Tower Coating Program - Update [AC21 153] LM+; Southern California Edison (SCE) – SCE RY 2022 Informal Challenge [ER19-1553]; [ER21-1280]; 2022 Transmission Annual Update posting [ER19-1553]; ER19-1553; San Diego Gas and Electric Company (SDG&E) - 2021 Transmission Revenue Requirement Update (ER21-526); Third Amendment to the California-Oregon Intertie Path Operating Agreement (ER21-649); Morongo Transmission Formula Rate Offer of Settlement - Update [ER21-669; ER21-1280 (SCE)]; Duke American Transmission Company Path 15 [ER20-1006]; FERC Rulemaking Proceedings: FERC Advanced Notice of Proposed Rulemaking on Regional Transmission Planning, Cost Allocation, Generator Interconnection [RM21-17]; Notice of Proposed Rulemaking on Cybersecurity Incentives [RM21-3]; Supplemental Notice of Proposed Rulemaking on Transmission Incentives [RM20-10]; FERC Notice of Proposed Rulemaking on Regional Transmission Organization Adders-Update [RM20-20]; WestConnect (Order 1000 Implementation)-Update [18-60575]; PG&E and SCE Regional Transmission Organization Adder Appeal – Update [20-71335]; PG&E, SCE, SDG&E Retail Return on Equity Request [A.21.08-015]; California Independent System Operator-Western Area Power Administration Amendment 2 to the Market Enhancement Efficiency Agreement [ER21-2735] and existing litigation at the California Public Utilities Commission: PG&E-Safety Culture [I.15-08-019, A.19-04-015] , and PG&E Regionalization Proposal [A.20-06-011].

b. Potential Litigation:
   i. Pursuant to paragraph (2) of subdivision (d) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss potential litigation that may be initiated.

      Balancing Authority/Open Access Same-Time Information System Service Provider

   ii. Pursuant to paragraph (2) of subdivision (d) of the California Government Code Section 54956.9, the TANC Commission may retire to a closed session to discuss potential litigation that may be initiated. One Case.

c. Public Employment:
   Closed Session Pursuant to Government Code Section 54957.6: Conference with Labor Negotiators: Agency Representatives: M. Gill and A. Hatcher; Unrepresented Employees: General Manager and Other Independent Contractors Who Function as Employees.

TAB 24

REPORT AND POTENTIAL ACTION ON ADMINISTRATIVE ITEMS

The Commission will discuss and may take action as necessary administrative matters.

TAB 25

MEETING CALENDAR

The Commission will confirm that the date of its next scheduled meeting is February 23, 2022.