

153 FERC ¶ 61,314
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Cheryl A. LaFleur, Tony Clark,
and Colette D. Honorable.

ETRACOM LLC and Michael Rosenberg

Docket No. IN16-2-000

ORDER TO SHOW CAUSE AND NOTICE OF PROPOSED PENALTY

(Issued December 16, 2015)

1. Pursuant to Rule 209(a)(2) of the Commission's Rules of Practice and Procedure,¹ the Commission's Revised Policy Statement on Enforcement,² and the Commission's Statement of Administrative Policy Regarding the Process for Assessing Civil Penalties,³ the Commission directs the above-captioned respondents, ETRACOM LLC (ETRACOM) and its principal member and primary trader Michael Rosenberg (together, Respondents), to show cause: (i) why they should not be found to have violated section 1c.2 of the Commission's regulations and section 222 of the Federal Power Act (FPA),⁴ by submitting virtual supply transactions at the New Melones intertie (New Melones) at the border of the California Independent System Operator (CAISO) wholesale electric market in order to affect power prices and economically benefit ETRACOM's Congestion Revenue Rights (CRRs) sourced at that location; (ii) why ETRACOM should not pay a civil penalty in the amount of \$2,400,000; (iii) why Rosenberg should not pay a civil penalty in the amount of \$100,000 and (iv) why ETRACOM should not disgorge

¹ 18 C.F.R. § 385.209(a)(2) (2015).

² *Enforcement of Statutes, Regulations and Orders*, 123 FERC ¶ 61,156, at PP 35-36 (2008).

³ *Process for Assessing Civil Penalties*, 117 FERC ¶ 61,317, at P 5 (2006).

⁴ 16 U.S.C. § 824v, as amended, and the Commission's "Prohibition of electric energy market manipulation" (Anti-Manipulation Rule), 18 C.F.R. § 1c.2 (2015). See *Prohibition of Energy Market Manipulation*, Order No. 670, FERC Stats. & Regs. ¶ 31,202 (2006) ("Order 670"), *reh'g denied*, 114 FERC ¶ 61,300 (2006).

\$315,072 plus interest in unjust profits, or a modification to these amounts as warranted.⁵ Pursuant to Rule 213(a) of the Commission's Rules of Practice and Procedure,⁶ the Commission directs Respondents to file an answer to the allegations with the Commission within 30 days of the date of this order. Office of Enforcement Staff (OE staff) may reply to that answer within 30 days of the filing of Respondent's answer.

2. This case presents allegations by OE staff of Respondents' violation of the Commission's prohibition on market manipulation. The allegations arose out of an investigation conducted by OE staff and are described in the Enforcement Staff Report and Recommendation (OE Staff Report).⁷ Issuance of this Order does not indicate Commission adoption or endorsement of the OE Staff Report.

3. The OE Staff Report alleges that in May 2011, ETRACOM submitted and cleared uneconomic virtual supply transactions intended to artificially lower the day-ahead LMP and create import congestion at New Melones, which greatly benefited ETRACOM's Congestion Revenue Rights (CRR) positions sourced at New Melones. Rosenberg developed and implemented both the CRR and the virtual trading strategies for ETRACOM in May 2011 at New Melones. Between May 14 and 31, ETRACOM's virtual supply offers resulted in a \$42,481 loss, while staff estimates that ETRACOM earned \$315,072 in unjust profits related to its CRR positions. Staff also estimates that ETRACOM harmed the market by \$1,514,207.

4. In light of the allegations contained in the OE Staff Report, the Commission directs Respondents to respond to this order as set forth above.⁸ This order also is the

⁵ See 18 C.F.R. § 385.209(b) (2015). We also note that under 15 U.S.C. §717t-1(c), the Commission "shall take into consideration the nature and seriousness of the violation and the efforts to remedy the violation."

⁶ 18 C.F.R. § 385.213(a) (2015).

⁷ The OE Staff Report is attached to this order. The OE Staff Report describes the background of OE staff's investigation, findings and analysis, and recommended sanctions.

⁸ Under 18 C.F.R. § 385.213(c), Respondents must file an answer that provides a clear and concise statement regarding any disputed factual issues and any law upon which they rely. Respondents must also, to the extent practicable, admit or deny, specifically and in detail, each material allegation contained in the OE Staff Report and set forth every defense relied upon. Failure to answer an order to show cause will be treated as a general denial and may be a basis for summary disposition under Rule 217. 18 C.F.R. § 385.213(e)(2).

notice of proposed penalty required pursuant to section 31 of the FPA.⁹ In the answer to this order, Respondents have the option to choose between either (a) an administrative hearing before an ALJ at the Commission prior to the assessment of a penalty under section 31(d)(2), or (b) a penalty assessment by the Commission under section 31(d)(3)(A). If Respondents elect an administrative hearing before an ALJ, the Commission will issue a hearing order unless it is determined that the matter can be resolved in a summary disposition. If Respondents elect a penalty assessment, and if, after a review of the full record to be developed in this proceeding, the Commission finds a violation, the Commission will issue an order assessing a penalty. If such penalty is not paid within 60 days of assessment, the Commission will commence an action in a United States district court for an order affirming the penalty.¹⁰

5. The Commission authorizes OE staff to disclose information obtained during the course of the investigation as necessary to advance this matter.

The Commission orders:

(A) Within 30 days of the date of this order, Respondents must file an answer in accordance with Rule 213 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213, showing cause why they should not be found to have violated 18 C.F.R. § 1c.2 and 16 U.S.C. § 824v(a) with respect to their trading at New Melones.

(B) Within 30 days of the date of this order, Respondents must file an answer in accordance with Rule 213 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213, showing cause why their alleged violation should not warrant an order requiring Respondents to disgorge unjust profits and to be assessed civil penalties in the amounts described in Paragraph 1 of this order, or a modification of that amount consistent with section 31(d)(4) of the FPA.

(C) In any answer, Respondents should address any matter, legal, factual or procedural, that they would urge in the Commission's consideration of this matter. To the extent that Respondents cite any material not cited in the OE Staff Report, Respondents are directed to file non-publicly one (1) copy of such material on CD-ROM or DVD in the captioned dockets and to serve a copy of same on OE staff.

(D) Pursuant to section 31(d)(1) of the FPA, within 30 days of the date of this order, Respondents may also make an election to have the procedures set forth in section 31(d)(3) of the FPA apply to this proceeding. Under that provision, if the

⁹ 16 U.S.C. § 823b(d).

¹⁰ FPA Section 31(d)(3)(B), 16 U.S.C. § 823b(d)(3)(B). *See also Process for Assessing Civil Penalties, supra* note 3.

Commission finds a violation, the Commission will issue a penalty assessment and, if not paid within 60 days of the order assessing penalties, the Commission will institute an action in the appropriate United States district court. Should Respondents fail to make a timely election under section 31(d)(1), the procedures of section 31(d)(2) will apply.

(E) Within 30 days of the filing of the answer by Respondents, Enforcement staff may file a reply with the Commission.

By the Commission. Chairman Bay is not participating.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.



FEDERAL ENERGY REGULATORY COMMISSION

ETRACOM LLC and Michael Rosenberg

Docket No. IN16-2-000

Enforcement Staff Report and Recommendation

Office of Enforcement

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Executive Summary

The Office of Enforcement (Enforcement or staff) submits this report to the Federal Energy Regulatory Commission (Commission) setting forth its findings of fact and conclusions of law regarding the investigation of ETRACOM LLC (ETRACOM) and its primary trader, Michael Rosenberg. Enforcement concludes that in May 2011, ETRACOM and Rosenberg violated the Federal Power Act and Commission regulations by submitting virtual supply offers at the New Melones intertie (New Melones) in the California Independent System Operator (CAISO) in order to affect power prices to benefit ETRACOM's Congestion Revenue Rights (CRRs) at that location. ETRACOM's CRR positions sourced at New Melones were very profitable in early May, but beginning May 8 they experienced a decline in profitability due to unexplained export congestion in some hours. Between May 14 and 31, in response to that decline in profitability, ETRACOM submitted and cleared uneconomic virtual supply offers with the intent to counter the unexplained export congestion and create import congestion, which artificially lowered the day-ahead LMP. The lowered day-ahead LMP greatly benefited ETRACOM's CRR positions sourced at New Melones. ETRACOM's trading initially targeted the hours that experienced export congestion, but quickly expanded to 24 hours a day. ETRACOM ceased trading virtual supply at New Melones on May 31; its June CRR positions were substantially smaller. Rosenberg developed and implemented both the CRR and the virtual trading strategy at New Melones on behalf of ETRACOM.

Between May 14 and 31, ETRACOM's virtual supply offers resulted in a \$42,481 loss, while staff estimates that ETRACOM earned \$315,072 in unjust profits related to its CRR positions. Staff also estimates that ETRACOM harmed the market by \$1,514,207.

ETRACOM argues that its virtual trading strategy was intended to profit from a hydroelectric runoff event it anticipated in late May. Staff concludes the evidence does not support ETRACOM's explanation. Alternatively, ETRACOM argues that flaws in CAISO's administration of the New Melones node are responsible for the price outcomes there. Staff concludes that ETRACOM's arguments are post-hoc rationalizations that do not reflect ETRACOM and Rosenberg's intent at the time of the trades to manipulate the price at New Melones to benefit ETRACOM's CRR positions.

Enforcement recommends that the Commission issue an Order to Show Cause and Notice of Proposed Penalty to ETRACOM and Rosenberg requiring them to show cause why: (i) they did not violate the Anti-Manipulation Rule, 18 C.F.R. § 1c.2 (2015) and section 222 of the Federal Power; (ii) ETRACOM should not pay a civil penalty in the amount of \$2,400,000; (iii) Rosenberg should not pay a civil penalty in the amount of \$100,000 and (iv) ETRACOM should not disgorge \$315,072 plus interest in unjust profits.

I. Background

A. ETRACOM and Rosenberg

ETRACOM is a small financial trading company owning no physical energy assets. The company was formed in 2008 and only operates in the CAISO.¹ ETRACOM began trading in the CAISO at the inception of the Market Redesign and Technology Upgrade (MRTU) in 2009.² ETRACOM trades two products in the CAISO: (1) CRRs and (2) virtual supply and virtual demand.³ ETRACOM has only three members/employees and a few contractors on staff.⁴ There is no centralized office and the employees and contractors mostly communicate through Skype conference calls, supplemented by Instant Messages and email.⁵

Rosenberg is a founding member of ETRACOM and has a 75% interest in the company.⁶ Rosenberg is primarily responsible for data analysis and developing ETRACOM's trading strategies.⁷ He holds a bachelor's degree in physics from Saint Petersburg State University in Russia, a graduate degree in physics from The University of Texas at Austin and received a certificate in finance from the Cox School of Business at Southern Methodist University.⁸ Prior to founding ETRACOM, Rosenberg worked for several power and gas companies including three years as a Manager of Market Assessment at ISO New England and two years as a Manager of Quantitative Analysis at Pacific Gas & Electric Company.⁹

¹ Tr. 40:15-23 (Rosenberg).

² Tr. 27:1-3 and 30:10-31:21 (Rosenberg).

³ Virtual supply and virtual demand, together, are often referred to as "convergence bids" in CAISO.

⁴ Tr. 43:15-18; 51:15-20 (Rosenberg).

⁵ Tr. 31:13-20; 43:8-12 (Rosenberg).

⁶ Tr. 51:15-20 (Rosenberg).

⁷ Tr. 26:7-21 (Rosenberg).

⁸ Tr. 12:3-13:5 (Rosenberg).

⁹ Tr. 14:8-18:5 (Rosenberg).

B. Electric power pricing and products at issue

The CAISO uses locational marginal prices (LMP) to establish the price for wholesale electric energy purchases and sales at specific locations.¹⁰ Locations inside the CAISO market are called nodes and locations at the borders are called interties. Many of the products offered by CAISO settle off LMP values, including CRRs and virtual transactions. The CAISO optimizes bids and offers to determine the most cost effective way to distribute energy throughout the system. This results in an hourly LMP for every price node in the system (including interties) in the day-ahead, hour-ahead (Hour Ahead Scheduling Process (HASP)) and real-time. LMP is comprised of three components: energy, congestion and physical transmission losses. LMPs may differ between locations due to congestion and transmission losses. If there were no congestion or transmission losses, the system would be unconstrained and each nodal LMP would be identical. However, the system is often congested in certain directions because the lowest cost supply cannot always meet all the demand at every location. This is reflected by differences in the LMPs, and is referred to as the congestion component of LMP or the marginal cost of congestion.

In May 2011, ETRACOM held a CRR position sourced at the New Melones intertie and sunk at an internal node within CAISO. CRRs are a product offered by CAISO which settle off the difference in day-ahead congestion costs between two locations.¹¹ CRRs are acquired through monthly, seasonal or longer-term auctions and entities can purchase and sell them in a secondary market. Each CRR consists of a source node and sink node which designates the direction of the CRR. The holder is entitled to a CRR payment if congestion occurs in the same direction as the CRR and the holder incurs a charge if congestion occurs in the opposite direction as the CRR. The per-MW payment or charge is equal to the marginal cost of congestion at the sink minus the marginal cost of congestion at the source for each hour in the day-ahead market.

In May 2011, ETRACOM also engaged in virtual bidding at the New Melones intertie.¹² In the CAISO market, virtual transactions are a “mechanism whereby market participants can make financial sales (or purchases) of energy in the day ahead market,

¹⁰ See CAISO Tariff Appendix C.

¹¹ See CAISO Tariff § 36 and CAISO Business Practice Manual for Congestion Revenue Rights.

¹² See *Cal. Indep. Sys. Operator Corp.*, 133 FERC ¶ 61,039 (2010), *order on reh’g*, 134 FERC ¶ 61,070, *order on reh’g*, 136 FERC ¶ 61,156 (2011). In August 2011, CAISO temporarily ceased virtual bidding at interties. In September 2015, the Commission approved CAISO’s request to permanently discontinue virtual bidding at interties. *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,234 (2015).

with the explicit requirement to buy back (or sell back) that energy in the real time market.”¹³ An accepted virtual demand bid, also commonly referred to as a DEC, is equivalent to purchasing energy at a node in the day-ahead market, with the obligation to sell the same energy back in the real-time market. A company makes money if it buys energy at a lower price in the day-ahead market than it subsequently sells the energy back in the real-time. Conversely, a virtual supply offer, also commonly referred to as an INC, is equivalent to the sale of energy at a node in the day-ahead market with the obligation to buy that energy back in the real-time market. A company makes money when it sells the energy at a higher price in the day-ahead market than the price at which it buys the energy back in the real-time.

Virtual transactions at an intertie are similar. Interties represent the border between the CAISO and a neighboring Balancing Authority (BA). Therefore, at an intertie, power moving out of CAISO is considered an export; power moving into CAISO is considered an import. A virtual demand bid is evaluated as an export because CAISO views it as buying energy from the CAISO. At an intertie, virtual demand settles off the difference between LMP in the day-ahead and HASP.¹⁴ Conversely, a virtual supply offer at an intertie is evaluated as an import because CAISO views it as selling energy to the CAISO. At an intertie, virtual supply settles off the difference between LMP in the HASP and day-ahead.

Virtual supply and demand transactions are evaluated in CAISO’s day-ahead market pricing alongside traditional physical supply and demand transactions. Both virtual and physical transactions can create congestion on transmission constraints, including interties, and both can eliminate congestion on these constraints.¹⁵ For example, in a situation where an intertie had been congested by exports, placing a virtual supply offer (import) could relieve the congestion, as the net flow (*i.e.*, the net cleared imports and exports) would decrease or cancel out the level of exports. In relieving the congestion, the virtual supply offer would therefore lower LMP, impacting the profitability of any other products that settle off that LMP, including CRRs.

¹³ Convergence Bidding, <http://www.caiso.com/1807/1807996f7020.html>; *see* CAISO Tariff § 31 Day-Ahead Market.

¹⁴ CAISO no longer utilizes HASP prices in settling virtual bids and offers at interties. It now utilizes a 15-minute real-time market for interties and internal nodes.

¹⁵ CAISO Business Practice Manual for Market Operations, § 2.2.4 Congestion Revenue Rights and § 3.1 Model Description.

C. Procedural history

ETRACOM's CRR positions and virtual transactions during the month of May 2011 prompted the CAISO Department of Market Monitoring (DMM) to refer the matter to the Office of Enforcement.¹⁶ The DMM's referral alleged that ETRACOM's virtual bidding behavior from May 14 to 31, 2011 potentially violated FERC's prohibition of electric energy market manipulation. Staff opened an investigation analyzing ETRACOM's conduct in CAISO's virtual and CRR markets. Through its investigation, staff obtained responses to data requests from ETRACOM, took the sworn testimony of witnesses, and conducted analysis of trading, market, and pricing data provided by ETRACOM and CAISO.¹⁷

On July 17, 2014, staff sent a letter to ETRACOM and Rosenberg outlining its preliminary findings.¹⁸ ETRACOM and Rosenberg responded and staff fully considered the arguments and defenses that ETRACOM and Rosenberg raised in response. Staff engaged ETRACOM and Rosenberg in settlement negotiations, but has been unable to reach an agreement. On July 31, 2015, staff provided ETRACOM and Rosenberg written notice, pursuant to 18 C.F.R. § 1b.19, of staff's intent to recommend that the Commission issue an Order to Show Cause. ETRACOM and Rosenberg responded on September 30, 2015; that response was fully considered and was provided to the Commission.

D. Facts

The New Melones intertie is located in eastern central California and connects a hydroelectric generating resource located in the SMUD/WAPA balancing authority area with CAISO.¹⁹ It has a maximum physical capacity of 384 MW.²⁰ New Melones is a fully encumbered intertie, meaning that only one entity, WAPA, has physical scheduling rights at the intertie.²¹ In 2011, no other entity could submit bids for physical imports or exports at New Melones, but CAISO did allow for virtual bidding at the intertie. The

¹⁶ California Independent System Operator's Department of Market Monitoring Referral for Enforcement of Etracom LLC (July 29, 2011) (DMM Referral).

¹⁷ Staff is providing copies of all of this data and documents, which are part of the administrative record, to the Commission for consideration. ETRACOM and Rosenberg already have copies of all of this material (most of which is material they produced to staff during the course of the investigation).

¹⁸ *See Revised Policy Statement on Enforcement*, 123 FERC ¶ 61,156, at P 32 (2008).

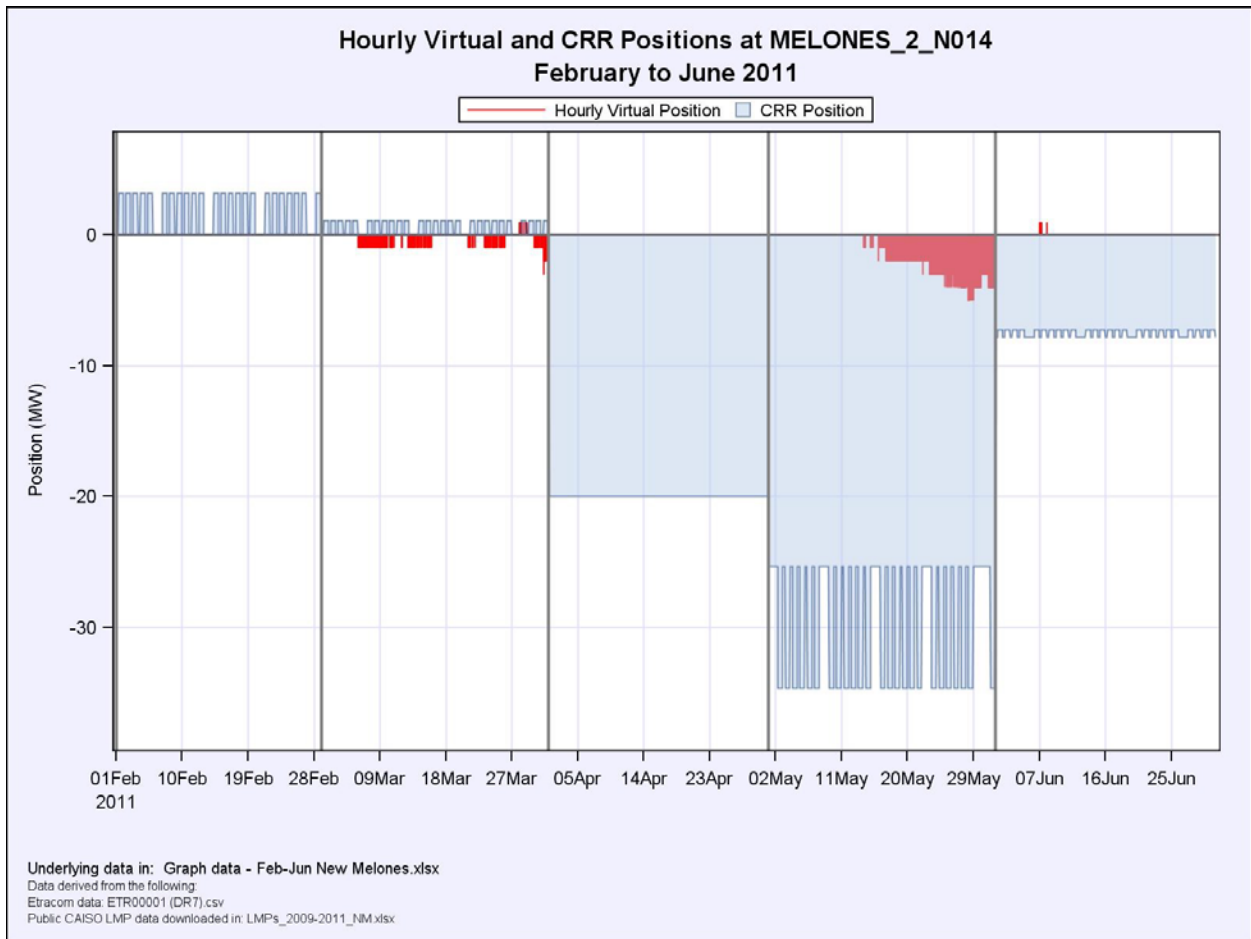
¹⁹ DMM Referral, Attachment 1 at 1.

²⁰ *Id.*

²¹ *Id.*

position limits, calculated by CAISO, at New Melones were 19.2 MW of virtual supply and 1 MW of virtual demand.²² CRR positions were available at New Melones through the seasonal and monthly CRR auctions.

New Melones was one of 723 unique locations at which ETRACOM held monthly CRR positions between January and June 2011 and one of 60 locations in which ETRACOM engaged in virtual trading.²³ Below is a graph summarizing ETRACOM's CRR positions and virtual trading at New Melones between February and June 2011. A narrative discussion of this period follows the graph.



²² *Id.*

²³ ETR0001 (DR7).csv (CRR locations in columns K and M and virtual locations in column O).

1. Pre-Manipulation Period – February, March and April 2011

In February, March and April 2011 ETRACOM was developing its trading strategies in CAISO and specifically at the New Melones intertie. ETRACOM had been participating in CAISO's CRR market since 2009²⁴ and began engaging in virtual trading in February 2011 when it was first introduced in CAISO.²⁵

In February, ETRACOM held about a 3 MW CRR position sinking at New Melones²⁶ and engaged in virtual trading at nine locations, but not New Melones.²⁷

In March, ETRACOM reduced its net on-peak CRR position sunk at New Melones to about 1 MW.²⁸ ETRACOM also engaged in virtual trading at 19 locations including New Melones.²⁹ ETRACOM's cleared virtual transactions at New Melones exhibited characteristics consistent with the trading strategies it had implemented at other locations, indicating that it was part of ETRACOM's overall strategy in the CAISO market.³⁰ For the entire month of March, ETRACOM's virtual transactions (mainly virtual supply) at New Melones lost \$2,029.³¹

In April, ETRACOM significantly expanded its CRR strategy at New Melones to 20 MW in both on-peak and off-peak hours.³² The company also reversed the direction of its position to being sourced (rather than sunk) at New Melones, hoping to profit from import congestion into CAISO. The positions became increasingly profitable over the month, earning the company almost \$200,000.³³ While its portfolio of virtual trading locations grew to 22 locations, ETRACOM did not engage in virtual transactions at New Melones in April.³⁴

²⁴ Tr. 25:6-26:5 (Rosenberg).

²⁵ ETR0001 (DR7).csv.

²⁶ ETRACOM company data – New Melones Only.xlsx (CRR Tab).

²⁷ ETR0001 (DR7).csv.

²⁸ ETRACOM company data – New Melones Only.xlsx (CRR Tab).

²⁹ ETR0001 (DR7).csv.

³⁰ *Id.*; Tr. 107:17-108:3 (Rosenberg).

³¹ Hourly Virtual PNL_March-July2011_NM.xlsx (March Tab).

³² ETRACOM company data – New Melones Only.xlsx (CRR Tab).

³³ Hourly CRR Revenue_March-June2011_NM.xlsx (April 2011 Tab, Column N).

³⁴ ETR0001 (DR7).csv.

2. Manipulation Period - May 2011

In May, through CAISO's monthly auction, ETRACOM acquired even larger CRR positions sourced at New Melones (and sunk at an internal node within CAISO). ETRACOM held 34.668 MW on-peak and 25.326 MW off-peak.³⁵ This represented 39% of the net on-peak and 16% of the net off-peak MW sourced at the New Melones Intertie.³⁶ Over the first 10 days of May, ETRACOM's CRR positions were profitable, earning revenue between \$6,800 and \$25,000 per day, for a total of \$147,388.³⁷

From May 1 through 7, only import congestion into CAISO appeared on the New Melones Intertie.³⁸ Based on the direction of ETRACOM's CRR, this is what it expected. However, beginning on May 8 and lasting through May 13, export congestion occurred most days in hours-ending 1-7 and 23-24.³⁹ This unexpected export congestion caused ETRACOM to lose over \$23,624 on its monthly CRR positions in those hours over those six days.⁴⁰ This drew ETRACOM's attention. There was some confusion within the company as to what was occurring. Mike Davis, a contractor for ETRACOM responsible for analytical support, noted on May 10 that "Melon[e]s did not bind in import today."⁴¹ Two days later, Arik Kapulkin, a co-owner/member of ETRACOM responsible for developing ETRACOM's IT infrastructure, expressed the belief that "melon[e]s imports make sense, exports do not."⁴² Davis again noted on May 13 that "melon[e]s reverse in early morning."⁴³ Rosenberg contacted a former colleague at

³⁵ ETRACOM company data – New Melones Only.xlsx (CRR Tab).

³⁶ CRR_Awards_May2011_NewMelones.xlsx (Net CRR positions summary Tab, Columns B and C, Row 25).

³⁷ Hourly CRR Revenue_March-June2011_NM.xlsx (May 2011_all days Tab, Column P, Rows 2-11).

³⁸ Shadow_Prices_May_2011_NM.xlsx (Shadow_Prices_May_2011_NM Tab, Columns D and E).

³⁹ *Id.*

⁴⁰ Hourly CRR Revenue_March-June2011_NM.xlsx (May 2011 Phase 2 Tab, Column L).

⁴¹ ETRACOM Response to DR 6, 5/10/2011 12:07:22 PM Instant Message from Mike Davis (Bates No. ETR01478-82).

⁴² ETRACOM Response to DR 6, 5/12/2011 3:03:02 PM and 3:03:10 PM Instant Messages from Arik Kapulkin (Bates Nos. ETR01487-92).

⁴³ ETRACOM Response to DR 6, 5/13/2011 11:29:03 AM Instant Message from Mike Davis (Bates No. ETR01493-95).

PG&E for more information on why export congestion was occurring.⁴⁴ ETRACOM never determined the cause of the export congestion.⁴⁵ But ETRACOM did react to it.

ETRACOM had not traded virtuals at New Melones for two and half months, but on May 13, just days after the unexpected export congestion appeared, ETRACOM started doing so based on a new virtual trading strategy that Rosenberg developed and implemented.⁴⁶ For May 14, ETRACOM placed \$0 virtual supply offers in hours-ending 1-6 and 23-24, all but one of the hours in which export congestion had appeared in previous days.⁴⁷ For those hours in which ETRACOM's offers cleared, its offers were identical to the LMP (*i.e.*, \$0), indicating that ETRACOM was the marginal bidder and that its bid set the LMP.⁴⁸ Export congestion disappeared in every hour in which ETRACOM placed its virtual supply offers, solving ETRACOM's problem and returning the positive revenue to the company's off-peak CRR positions in those hours.⁴⁹ However, in hour-ending 7, the only off-peak hour ETRACOM had not offered virtual supply, export congestion remained.⁵⁰

For May 15, ETRACOM again placed virtual supply offers for hours-ending 1-6 and 23-24, but it also added hour-ending 7.⁵¹ ETRACOM's virtual supply offers were again \$0.⁵² ETRACOM cleared in four hours and set the LMP at \$0.⁵³ As on May 14, export congestion disappeared in those hours, and ETRACOM's CRR positions earned

⁴⁴ ETRACOM Response to DR 6, e-mail from Michael Rosenberg to John Chiara on May 13, 2011 (Bates No. ETR00020).

⁴⁵ Tr. 120:2-121:13 (Rosenberg).

⁴⁶ *Id.* at 102:18-103:9.

⁴⁷ CAISO_bid_data_May2011_NewMelones.xlsx (Bid data Tab).

⁴⁸ *Id.* (Bid Data Tab, compare Column I and L in hours when ETRACOM cleared (Column J)).

⁴⁹ Shadow_Prices_May_2011_NM.csv (Shadow_Prices_May_2011_NM Tab, Column E).

⁵⁰ *Id.*

⁵¹ CAISO_bid_data_May2011_NewMelones.xlsx.

⁵² *Id.*

⁵³ ETRACOM cleared in hours-ending 1, 2, 6 and 7. ETRACOM's virtual supply offers in hour-ending 3 also set the LMP at \$0 because it was the next economic bid. *Id.* (Bid Data Tab, compare Column I and L in hours when ETRACOM cleared (Column J)).

positive revenue in those hours.⁵⁴ The company suffered a net loss of \$52 on virtual trades over those two days.⁵⁵ Its CRR positions earned \$28,059, significantly more than its losses and more than ETRACOM would have earned on these positions had its bids not eliminated the export congestion that had decreased the values of its positions between May 8 and May 13.⁵⁶

ETRACOM's virtual position experienced a net loss over May 14 and 15. This result justified a reduction in its virtual supply position at New Melones. But ETRACOM did the opposite - expanding its virtual trading strategy to nearly every hour from May 16 through 31, with predictable results. During this period, ETRACOM increased the MWs it was offering and decreased its offer price, often hitting the offer floor in an attempt to clear more MWs.⁵⁷ In 379 out of 393 (96%) of the hours it traded at New Melones in May, ETRACOM's virtual transactions lost money.⁵⁸ ETRACOM's trading, and associated losses, at New Melones were frequently discussed amongst ETRACOM's employees. On May 16 Davis reported, "We lost \$800 on Melon[e]s but made back \$200 on some evening trades."⁵⁹ On May 20, he again reported on the strategy's losses, "Yesterday Melon[e]s cost us about \$2K - continue with it?"⁶⁰ Despite concern over the company's losses, ETRACOM continued to trade virtual supply at New Melones until May 31—which is the exact date ETRACOM's monthly CRR positions expired. The company's total losses for the month on the virtual supply offers placed at New Melones were \$42,481.⁶¹

ETRACOM was losing money nearly every time it placed a virtual supply offer in the last half of May, but its profits on its New Melones CRR positions more than doubled

⁵⁴ Shadow_Prices_May_2011_NM.xlsx (Column E); Hourly CRR Revenue_March-June2011_NM.xlsx (May 2011 PHASE 3 Tab, Column J).

⁵⁵ Hourly Virtual PNL_March-July2011_NM.xlsx (May 2011 Tab, Column Y, Rows 2 and 3).

⁵⁶ Hourly CRR Revenue_March-June2011_NM.xlsx (May 2011 PHASE 3 Tab, Column N).

⁵⁷ CAISO_bid_data_May2011_New Melones.xlsx.

⁵⁸ Hourly Virtual PNL_March-July2011_NM.xlsx (May 2011 Tab, Columns X-Z, Row 24).

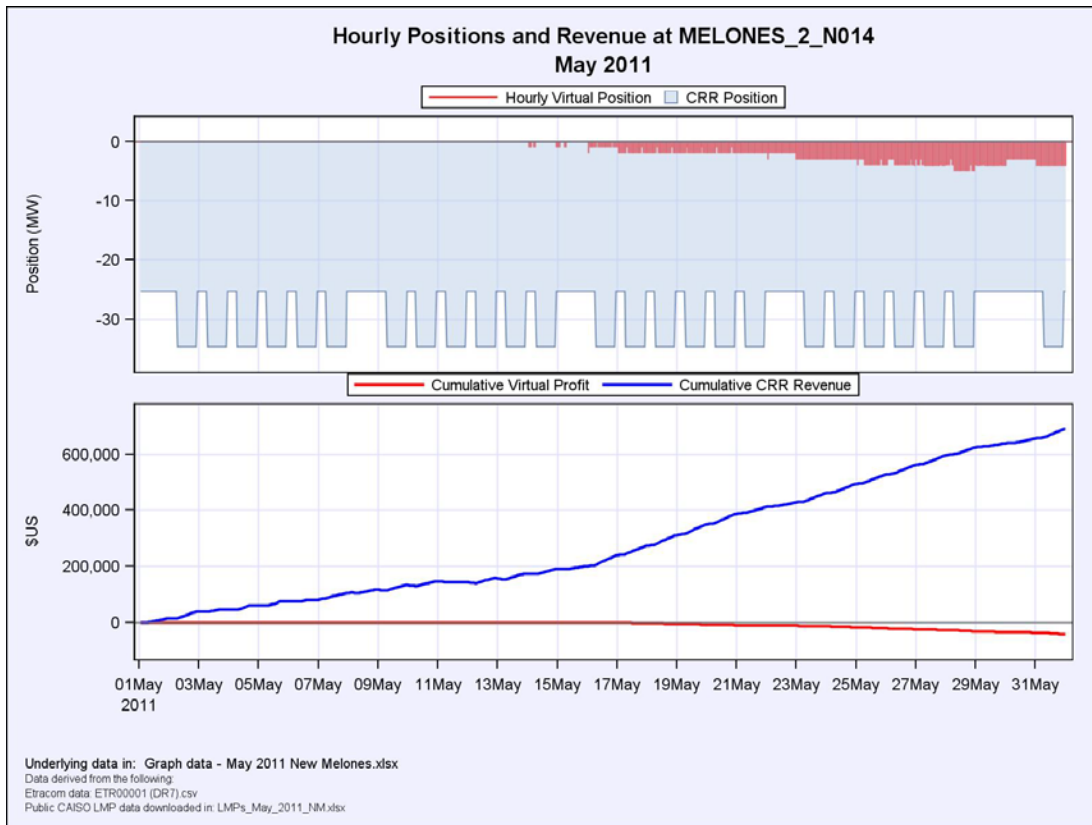
⁵⁹ ETRACOM Response to DR 6, 5/16/2011 9:47:36 PM Instant Message from Mike Davis (Bates No. ETR01506-08).

⁶⁰ ETRACOM Response to DR 6, 5/20/2011 7:33:20 AM Instant Message from Mike Davis (Bates No. ETR01509-11).

⁶¹ Hourly Virtual PNL_March-July2011_NM.xlsx (May 2011 Tab, Column Y, Row 20).

during that time. Between May 1 and May 13, average hourly revenue was \$554.⁶² Between May 14 and 31, when ETRACOM was placing virtual supply offers, its average hourly revenue more than doubled to \$1,198.⁶³ In total, ETRACOM earned over \$690,122 in revenue in May on its New Melones CRR positions, with \$517,423 (close to 75%) earned between May 14 and 31.⁶⁴

The graph below demonstrates the impact ETRACOM’s virtual trading had on its CRR revenues. As the lower graph shows, gains on its CRR revenues grew dramatically as its virtual trading increased. These gains dwarfed the losses associated with its virtual trading.

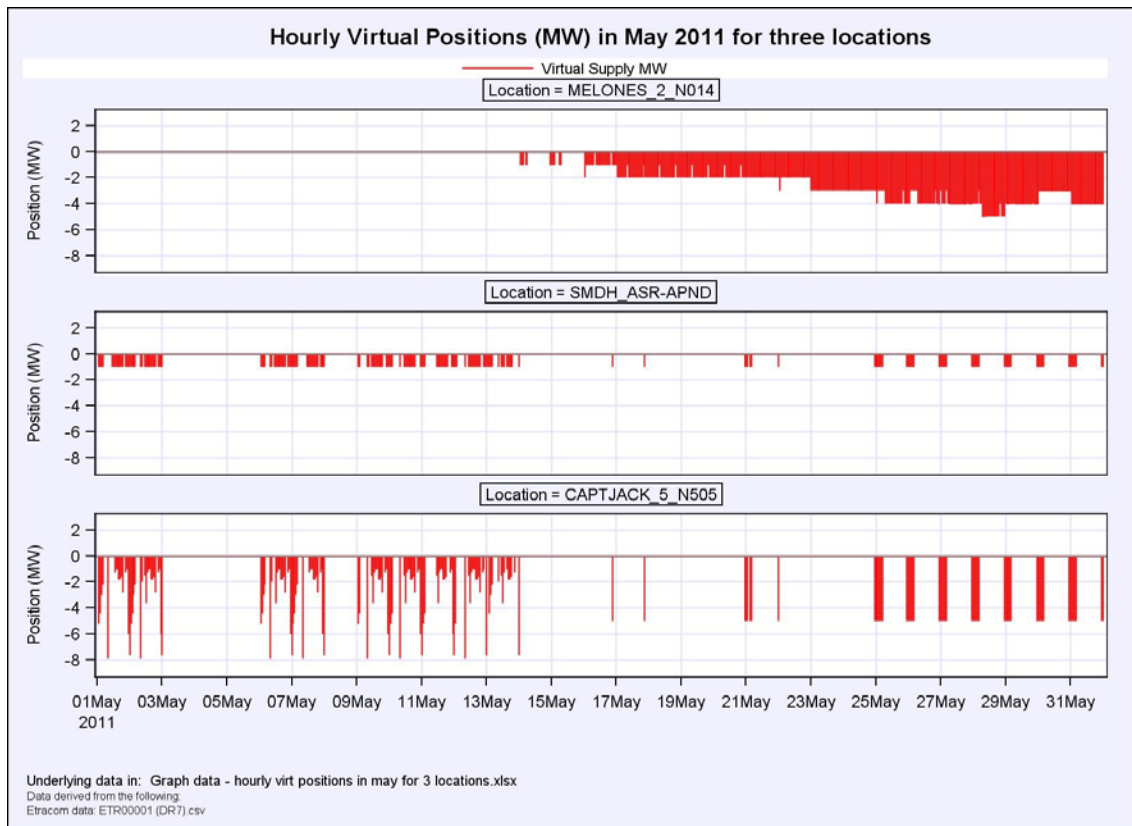


⁶² Hourly revenue represents the difference between the congestion component at the sink minus the congestion component at the source for each hour. It does not include the purchase cost of the CRR position. This is considered a sunk cost. Hourly CRR Revenue_March-June2011_NM.xlsx (May 2011_all days Tab, Column P, Row 36).

⁶³ *Id.* (May 2011_all days Tab, Column P, Row 37).

⁶⁴ *Id.* (May 2011_all days Tab, Column P).

ETRACOM's virtual trading at New Melones in May 2011 was anomalous compared to its trading at all 21 other locations. At those locations, ETRACOM cleared virtual bids/offers starting on May 1 and never submitted continuous bids/offers for 24 hours a day.⁶⁵ ETRACOM's virtual trading at New Melones was the only strategy that began mid-month and encompassed all hours for an extended period.⁶⁶ All of the other locations at which ETRACOM placed virtual supply offers in May 2011 were clearly related. At four locations ETRACOM cleared exactly 1 MW of virtual supply on intermittent days but similar hours across the month; at 14 locations ETRACOM cleared between 5 and 8 MW of virtual supply on those same intermittent days and hours.⁶⁷ At the three locations which ETRACOM cleared virtual demand, it was for 10 MW or greater in intermittent days but similar hours across the entire month. The graph below demonstrates how different ETRACOM's strategy at New Melones looked from the other virtual supply strategy.



⁶⁵ Etracom_May_2011_Virtuals-ALL LOCATIONS.pdf (generated from data originally located in ETR0001 (DR7).csv, formatted in Etracom_May_2011_Virtuals - all locations - graph data.xlsx).

⁶⁶ *Id.*

⁶⁷ *Id.*

3. Post-Manipulation Period - June 2011

In June 2011, ETRACOM held considerably smaller CRR positions sourced at New Melones (7.24 MW on-peak and 7.79 MW off-peak) than it had in May.⁶⁸ ETRACOM bid for larger amounts but was awarded smaller positions because the market was more competitive and prices were higher.⁶⁹ ETRACOM also attempted to purchase additional CRRs in bilateral transactions but was unsuccessful there too.⁷⁰

With a much smaller CRR position in place, ETRACOM's virtual activity in June at New Melones was also significantly reduced. ETRACOM cleared virtual demand bids in seven individual hours for June 7, for a total loss of about \$54.⁷¹ It cleared no virtual supply offers.

II. Applicable law

The Commission's Anti-Manipulation Rule, 18 C.F.R. § 1c.2, prohibits any entity from: (1) using a fraudulent device, scheme or artifice, or making a material misrepresentation or a material omission as to which there is a duty to speak under a Commission-filed tariff, Commission order, rule or regulation, or engaging in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity; (2) with the requisite scienter; (3) in connection with the purchase or sale of electricity subject to the jurisdiction of the Commission.⁷²

The Commission has defined fraud "to include any action, transaction, or conspiracy for the purpose of impairing, obstructing or defeating a well-functioning market."⁷³ Fraud is a question of fact to be determined by all the circumstances of a

⁶⁸ ETRACOM company data – New Melones Only.xlsx (CRR Tab).

⁶⁹ Tr. 134:12 (Rosenberg).

⁷⁰ *Id.* at 134:19-25, 135:1-12; ETRACOM Response to DR 6, e-mail from Michael Rosenberg to AK on June 2, 2011 (Bates Nos. ETR00043-47).

⁷¹ Hourly Virtual PNL_March-July2011_NM.xlsx (June 2011 Tab, Column S).

⁷² *See Prohibition of Energy Market Manipulation*, Order No. 670, 71 Fed. Reg. 4244 (Jan. 26, 2006), FERC Stats. & Regs. ¶ 31,202, at P 38, *reh'g denied*, 114 FERC ¶ 61,300 (2006) (Order No. 670). The terms "manipulative or deceptive device or contrivance" are understood by the Commission as they are used in Section 10(b) of the Securities Exchange Act of 1934. *Id.* at P 52.

⁷³ *Id.* P 50.

case.⁷⁴ In determining whether an entity has employed a fraudulent device, scheme, or artifice, the Commission has considered, for example, whether an actor is responding to pricing incentives in a market or whether the actor is seeking to manipulate prices in that market.⁷⁵ The Commission has also considered whether an actor intended to affect prices in a FERC-jurisdictional market to benefit a position in another market.⁷⁶

The term scienter, for purposes of the Securities Exchange Act of 1934, refers to “knowing or intentional misconduct ... conduct designed to deceive or defraud investors by controlling or artificially affecting the price of securities.”⁷⁷ The Commission applies this same concept to its own anti-manipulation rule and requires evidence of “knowing or intentional misconduct” or recklessness.⁷⁸

The Commission has repeatedly held that cross-product manipulation violates section 1c.⁷⁹ Additionally, the Commission has stated that “intentional manipulation of market prices for the purpose of benefitting other instruments in the actor’s portfolio is actionable, even in the absence of evidence that specific false statements were made.”⁸⁰

⁷⁴ *Barclays Bank PLC*, 144 FERC ¶ 61,041 at P 32 (2013); Order No. 670, FERC Stats. & Regs. ¶ 31,202 at P 50.

⁷⁵ *See N.Y. Indep. Sys. Operator, Inc.*, 128 FERC ¶ 61,049 at 61,256 (2009).

⁷⁶ *Barclays*, 144 FERC ¶ 61,041 at P 57-58.

⁷⁷ Order No. 670, FERC Stats. & Regs. ¶ 31,202 at P 52 (citing *Ernst & Ernst v. Hochfelder*, 425 U.S. 185 (1976)).

⁷⁸ Order No. 670, FERC Stats. & Regs. ¶ 31,202 at P 53.

⁷⁹ *See, e.g., Barclays*, 144 FERC ¶ 61,041 (order approving settlement finding that trading fixed price products to manipulate an index price to benefit a swap position violated section 1c); *MISO Virtual and FTR Trading*, 146 FERC ¶ 61,072 (2014) (order approving settlement finding that virtual trades used to manipulate FTR positions violated section 1c); *Deutsche Bank Energy Trading, LLC*, 142 FERC ¶ 61,056 (2013) (order approving settlement finding that physical exports used to manipulate a CRR position violated section 1c); *Constellation Energy Commodities Group, Inc.*, 138 FERC ¶ 61,168 (2012) (order approving settlement finding that uneconomic virtual transactions and day ahead power flows used to manipulate swap positions violated section 1c).

⁸⁰ *Amaranth Advisors L.L.C.*, 124 FERC ¶ 61,050, at P 65 (2008) (citing *Markowski v. SEC*, 274 F.3d 525, 527-28 (D.C. Cir. 2001)).

III. Staff's findings

A. The manipulative scheme

In May 2011, in response to a decrease in revenue associated with ETRACOM's New Melones CRR positions, Rosenberg developed a manipulative scheme in which ETRACOM lowered the day-ahead LMP at New Melones by submitting \$0 or negative virtual supply offers. The lower day-ahead LMP created import congestion into CAISO, increasing the profitability of ETRACOM's CRR positions. ETRACOM's virtual trades were unprofitable and timed such that they could only have been intended to benefit its CRR positions.

The implementation of ETRACOM's scheme is best explained by examining the price formation at New Melones before and after ETRACOM began its virtual trading. ETRACOM's virtual supply offers at the end of May contributed significantly to congestion direction and magnitude and therefore price formation.⁸¹ Staff divided the month into four phases summarized in the diagram below, which depicts the scheme using approximate prices for simplicity. The lower the price at New Melones (compared to the price in CAISO), the greater the profitability of ETRACOM's CRR positions.

⁸¹ As a fully encumbered line, no one may place physical bids except WAPA. Therefore, import and export congestion on the New Melones intertie occurs only as a result of virtual bids. If any virtual supply (imports) clears against virtual demand (exports), the marginal cleared virtual supply bid will set the day-ahead LMP. If no virtual bids clear, then the next economic MW of uncleared virtual supply or demand will set the day-ahead LMP. If the bid that set the LMP is below the system energy plus loss components of LMP, import congestion occurs because the price at New Melones is below the internal CAISO price. If the bid that set the LMP is above the sum of the system energy and loss components of LMP, export congestion is created as a result of the price differential. DMM Referral, Attachment 1 at 1-2.

		Price Formation at New Melones in May 2011					
Phase		LMP at New Melones	-	CAISO uncongested LMP*	=	New Melones Congestion Component of LMP**	
(1)	Pre-Manipulation	May 1-7	\$3	-	\$5	=	-\$2 { Etracom CRR profitable}
(2)	Pre-Manipulation	May 8-13 (offpeak)	\$7	-	\$5	=	\$2 { Etracom CRR NOT profitable}
Etracom begins offering virtual supply, lowering the LMP at New Melones							
(3)	Test Period	May 14-15 (offpeak)	\$0	-	\$5	=	-\$5 { Etracom CRR profitable}
(4)	Manipulation	May 16-31	-\$30	-	\$5	=	-\$35 { Etracom CRR profitable}

*CAISO uncongested LMP represents the energy plus loss components of the LMP at New Melones.

** The congestion component at New Melones is equal to the difference between the LMP at New Melones and the costs of energy in CAISO. Negative implies import congestion, which benefits Etracom's CRR position; positive implies export congestion, which hurts Etracom's CRR position.

The first two phases demonstrate congestion at New Melones prior to the implementation of ETRACOM's scheme. Initially from May 1-7, there was import congestion at New Melones in a majority of hours that benefited ETRACOM's CRR positions.⁸² During this phase other market participants' virtual supply offers were always less than the cost of energy in CAISO (plus loss component).⁸³ This surplus of cheap (virtual) energy offered from New Melones to serve the CAISO market created import congestion. In a small number of hours during this period there were no virtual offers and therefore no congestion.⁸⁴ ETRACOM did not place any virtual trades during this phase.⁸⁵

In the second phase, from May 8-13, WAPA began scheduling 1 MW of net physical exports during mostly off-peak hours.⁸⁶ During these hours, the binding limit

⁸² Shadow_Prices_May_2011_NM.xlsx (Shadow_Price_May_2011_NM Tab, Column D).

⁸³ CAISO_bid_data_May2011_NewMelones.xlsx.

⁸⁴ *Id.* (Bid Data Tab, Column O).

⁸⁵ CAISO_bid_data_May2011_NewMelones.xlsx.

⁸⁶ *Id.*

(i.e., the maximum volume allowed to flow across the constraint) at New Melones was set to 1 MW in the export direction and 0 MW in the import direction.⁸⁷ High-priced, uncleared virtual supply bids set the LMP and created export congestion in most hours.⁸⁸ ETRACOM did not know the cause of the congestion, but it knew that its CRR position in off-peak hours had become unprofitable as a result.⁸⁹ While assessing the situation during this phase, ETRACOM did not place any virtual trades.⁹⁰

The last two phases demonstrate the impacts of ETRACOM's virtual trading strategy designed to lower day-ahead LMP at New Melones. Rosenberg developed both the CRR strategy and the virtual trading strategy implemented by ETRACOM in May 2011 at New Melones.⁹¹ He was responsible for researching the New Melones intertie, setting ETRACOM's offer prices and monitoring the performance of ETRACOM's CRR positions and virtual trading.⁹² Staff finds that ETRACOM and Rosenberg implemented this strategy in response to the change in congestion, and associated CRR losses, that occurred in the second phase, not because they expected their virtual trades to be profitable.

Staff finds that the third phase, May 14 and 15, was the test period for ETRACOM's scheme.⁹³ During this phase, ETRACOM placed \$0 virtual supply offers in mostly off-peak hours, essentially offering free energy from New Melones into

⁸⁷ DMM Referral Attachment 1, at 3.

⁸⁸ CAISO_bid_data_May2011_NewMelones.xlsx.

⁸⁹ ETRACOM Response to DR 6, 5/10/2011 12:07:22 PM Instant Message from Mike Davis (Bates No. ETR01478-82); ETRACOM Response to DR 6, 5/12/2011 3:03:02 PM and 3:03:10 PM Instant Messages from Arik Kapulkin (Bates Nos. ETR01487-92); ETRACOM Response to DR 6, 5/13/2011 11:29:03 AM Instant Message from Mike Davis (Bates No. ETR01493-95); ETRACOM Response to DR 6, e-mail from Michael Rosenberg to John Chiara on May 13, 2011 (Bates No. ETR00020).

⁹⁰ CAISO_bid_data_May2011_NewMelones.xlsx.

⁹¹ Tr. 102:18-103:9 (Rosenberg); ETRACOM company data – New Melones Only.xlsx (Virtual Tab, Column F and CRR Tab, Column F).

⁹² Tr. 96:10-97:13, 105:1-106:7, 139:4-9 (Rosenberg).

⁹³ Rosenberg testified that when he initiated a new strategy it was good practice to go “from a position of limited scope to the target scope.” Tr. 348:9-11 (Rosenberg). With respect to its virtual trading strategy at New Melones, ETRACOM “wanted to make sure that what we started was successful and that [they] would grow that position to the targeted size.” Tr. 348:25-349:2 (Rosenberg).

CAISO.⁹⁴ ETRACOM frequently set the price during these hours because it was either the marginal virtual supply offeror or the next economic bid.⁹⁵ As the marginal offeror, ETRACOM's \$0 offers set the New Melones LMP at \$0 and created import congestion.⁹⁶ The import congestion created by ETRACOM's scheme benefited ETRACOM's CRR positions, which profited when the price at New Melones was below the price in CAISO.

In the fourth phase, having seen that it could effectuate a \$0 LMP at New Melones, ETRACOM expanded its virtual trading strategy to all hours of the day and began making virtual supply offers below \$0. In fact, in 94% of hours in which ETRACOM placed an offer, it was willing to sell at least a portion of its MWs between -\$28 and -\$30 (the offer floor).⁹⁷ From May 16-31, ETRACOM frequently set the price by being either the marginal virtual supply offer or the next economic bid.⁹⁸

The graph below shows the differences in congestion and CRR revenue between these four phases. Each point represents ETRACOM's hourly CRR revenue. In the first two phases, green points designate hours with import congestion and red points are hours with export congestion. In the third and fourth phase, the highlighted green points are hours with import congestion and when ETRACOM placed virtual supply. The graph shows: 1) the decrease in CRR profitability in the first two phases, attributable to the export congestion; and 2) the roughly \$20/MWh increase in CRR profitability aligning with ETRACOM's round-the-clock virtual bidding shown by the shift up of the trendline in phase four.

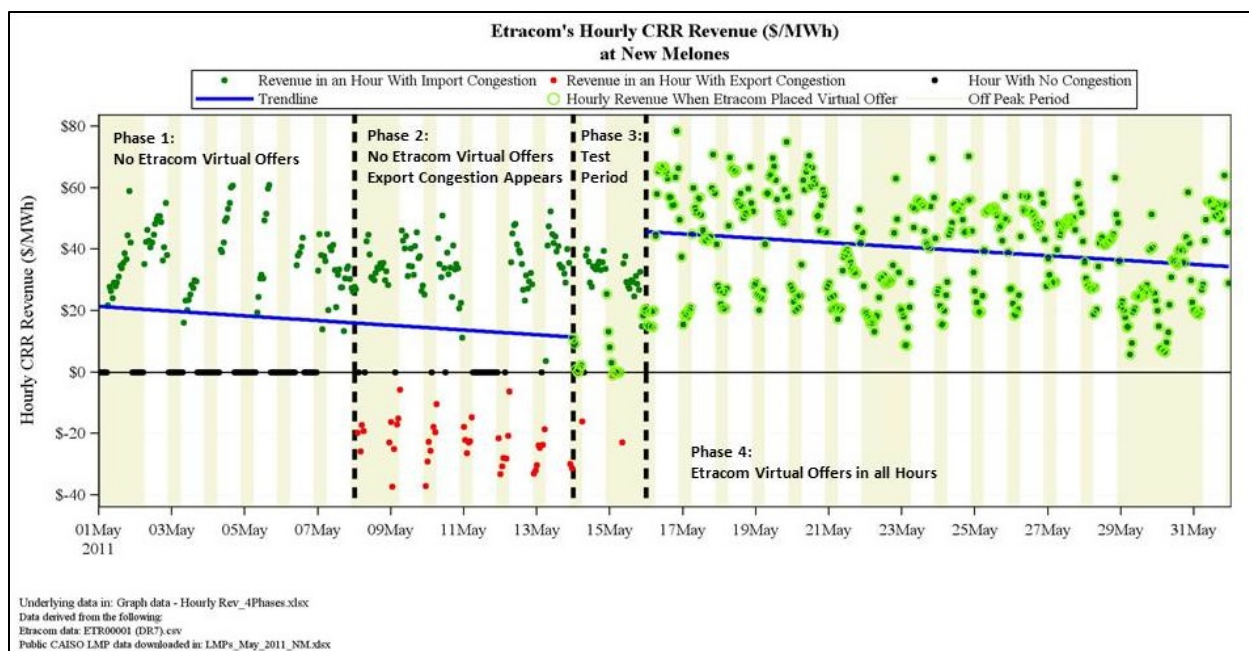
⁹⁴ CAISO_bid_data_May2011_NewMelones.xlsx.

⁹⁵ *Id.* (Bid Data Tab, compare Column I and L). In hours when ETRACOM did not clear, it was because there were no sufficiently priced virtual demand bids. *See Id.* (Bid Data Tab, 14May2011 Hour_Ending 4 and 15May2011 Hour_Ending 3).

⁹⁶ *Id.* (Bid Data Tab, compare Column I and L).

⁹⁷ CAISO_bid_data_May2011_NewMelones.xlsx.

⁹⁸ *Id.* (Bid Data Tab, compare Column I and L).



Throughout May, Rosenberg tracked the impact of his virtual trading strategy at New Melones and knew it was losing money. He compared the day-ahead price at New Melones to ETRACOM's offers⁹⁹ in a spreadsheet, specifically highlighting hours in which ETRACOM's offers equaled the LMP.¹⁰⁰ ETRACOM also tracked its profitability in daily reports.¹⁰¹ ETRACOM's employees had daily conference calls though Skype to discuss the company's activities and performance. The video and audio from these conference calls were not recorded. However, the participants routinely sent each other Instant Messages during the calls. Those messages show ETRACOM's disproportionate interest in New Melones; its employees discussed ETRACOM's performance at New Melones almost daily¹⁰² despite the fact that it was one of almost 300 locations in which

⁹⁹ Tr. 139:4-9 (Rosenberg).

¹⁰⁰ *Id.* 139:14-18; *see, e.g.*, Spreadsheet ETR03140.xlsx (20110522_20110522_PRC_LMP_DAM_2 Tab).

¹⁰¹ Tr. 88:15-17; 184:4-185:13 (Rosenberg).

¹⁰² ETRACOM Response to DR 6, 5/1/2011 2:20:51 PM Instant Message from Arik Kapulkin (Bates Nos. ETR01457-60); ETRACOM Response to DR 6, 5/10/2011 12:07:22 PM Instant Message from Mike Davis (Bates Nos. RTR01478-82); ETRACOM Response to DR 6, 5/11/2011 11:16:40 AM and 5/11/2011 11:21:23 AM Instant Messages from Mike Davis (Bates Nos. ETR01483-86); ETRACOM Response to DR 6, 5/12/2011 3:03:02 PM and 3:03:10 PM Instant Messages from Arik Kapulkin (Bates Nos. ETR01487-92); ETRACOM Response to DR 6, 5/13/2011 11:29:03 AM Instant Message from Mike Davis (Bates No. ETR01493-95); ETRACOM Response to DR 6,

ETRACOM was actively trading virtuals or holding CRR positions in May.¹⁰³ ETRACOM's mounting losses at New Melones, which ranged from \$871 and \$5,851 per day, could not be overlooked.¹⁰⁴ By the end of the month, ETRACOM's aggregate losses were almost three times greater than its next largest monthly loss at any node in the CAISO between February 2011 and July 2011.¹⁰⁵

On May 15, when its virtual position at New Melones was at a net loss and its CRR positions were back to profitable in all hours, Rosenberg reported to his colleagues that "we['re in good shape in CA" and directed them to review ETRACOM's portfolio tracker which included ETRACOM's "new strategies ... in ca."¹⁰⁶ On May 15, the only new strategy ETRACOM had initiated in California was at New Melones. On May 20, four days after expanding its strategy to 24 hours a day, Davis contacted Rosenberg with his concern regarding the mounting losses on ETRACOM's virtual supply positions, specifically noting "yesterday Melon[e]s cost us about \$2K."¹⁰⁷ As a way to limit the losses, Davis suggested limiting the trades to only off-peak hours, which were

5/14/2011 1:34:45 PM Instant Message from Arik Kapulkin (Bates Nos. ETR01496-98); ETRACOM Response to DR 6, 5/15/2011 1:32:48 PM, 2:45:01 PM, 2:45:55 PM, and 2:46:13 PM Instant Messages from Mike Davis and Arik Kapulkin (Bates Nos. ETR01499-01505); ETRACOM Response to DR 6, 5/16/2011 9:47:36 PM Instant Messages from Mike Davis (Bates Nos. ETR01506-08); ETRACOM Response to DR 6, 5/20/2011 7:33:20 AM through 7:38:19 AM and 11:23:30 AM, Instant Messages from Mike Davis and Michael Rosenberg (Bates Nos. ETR01509-11); ETRACOM Response to DR 6, 5/21/2011 10:09:57 PM, Instant Message from Mike Davis (Bates No. ETR01512); ETRACOM Response to DR 6, 5/23/2011 1:55:27 PM through 2:20:42 PM Instant Messages from Mike Davis, Michael Rosenberg and Arik Kapulkin (Bates Nos. ETR01515-19); ETRACOM Response to DR 6, 5/25/2011 1:00:02 PM through 1:56:21 PM Instant Messages from Mike Davis, Joseph D Bryngelson, Michael Rosenberg and Arik Kapulkin (Bates Nos. ETR01525-31); ETRACOM Response to DR 6, 5/30/2011 12:53:19 PM Instant Messages from Arik Kapulkin (Bates Nos. ETR01539-44).

¹⁰³ ETR0001 (DR7).csv.

¹⁰⁴ Hourly Virtual PNL_March-July2011_NM.xlsx (May 2011 Daily Summary Tab).

¹⁰⁵ Etracom_Monthly_Virtual_PNL_Feb-July2011.xlsx.

¹⁰⁶ ETRACOM Response to DR 6, 5/15/2011 11:07:48 AM Instant Message from Michael Rosenberg (Bates No. ETR01499) (within the Instant Message CA to refer to CAISO, VT to refer to virtual trading, and HPT to refer to ETRACOM's hypothetical portfolio tracker).

¹⁰⁷ ETRACOM Response to DR 6, 5/20/2011 7:33:20 AM Instant Message from Mike Davis (Bates No. ETR01509-11).

traditionally cheaper.¹⁰⁸ But Rosenberg was already aware of ETRACOM's losses and did nothing to mitigate them.¹⁰⁹ The losses were tolerable because gains on the CRR positions were much greater. ETRACOM continued to implement this new strategy for 24 hours each day. At the same time Rosenberg was monitoring ETRACOM's virtual trading losses, he was also monitoring the performance of ETRACOM's CRR positions.¹¹⁰ On May 20, Davis noted and Rosenberg acknowledged that Melones was continuing to bind in all hours in the import direction.¹¹¹ Rosenberg knew the export congestion at New Melones had been eliminated because of his virtual supply offers and he knew that ETRACOM's CRR positions benefited as a result.

By the end of May, ETRACOM had driven the LMP at New Melones so low that it attracted an increase in virtual demand bids, which resulted in ETRACOM clearing more MWs.¹¹² Virtual demand was very profitable during this period because ETRACOM was willing to pay an entity \$30/MWh to "buy" energy. No other entity was offering negative virtual supply because price signals did not indicate that negative supply was profitable.¹¹³ At times, these highly profitable virtual demand bids (many of which were negative) exceeded the volume of ETRACOM's supply offers and therefore set the LMP.¹¹⁴ By placing negative virtual supply offers (that is, paying to provide energy), ETRACOM caused the day-ahead LMP at New Melones to be even lower than it had been during the test period of ETRACOM's strategy. The average day-ahead LMP at New Melones was \$34/MWh lower in the second half of May than in the first half.¹¹⁵ Therefore, the price difference between New Melones and the system energy cost (and loss component) was even wider, indicating greater import congestion. Greater import congestion led to greater benefits to ETRACOM's CRR positions. The graph below shows the fundamental and persistent change in the LMP prices at New Melones as a direct result of ETRACOM's virtual trading strategy.

¹⁰⁸ *Id.*; Tr. 231:18-232:17 (Rosenberg).

¹⁰⁹ Tr. 225:1-10 (Rosenberg).

¹¹⁰ *Id.* 111:13-21; *See* Spreadsheet ETR00706 (Sheet 5).

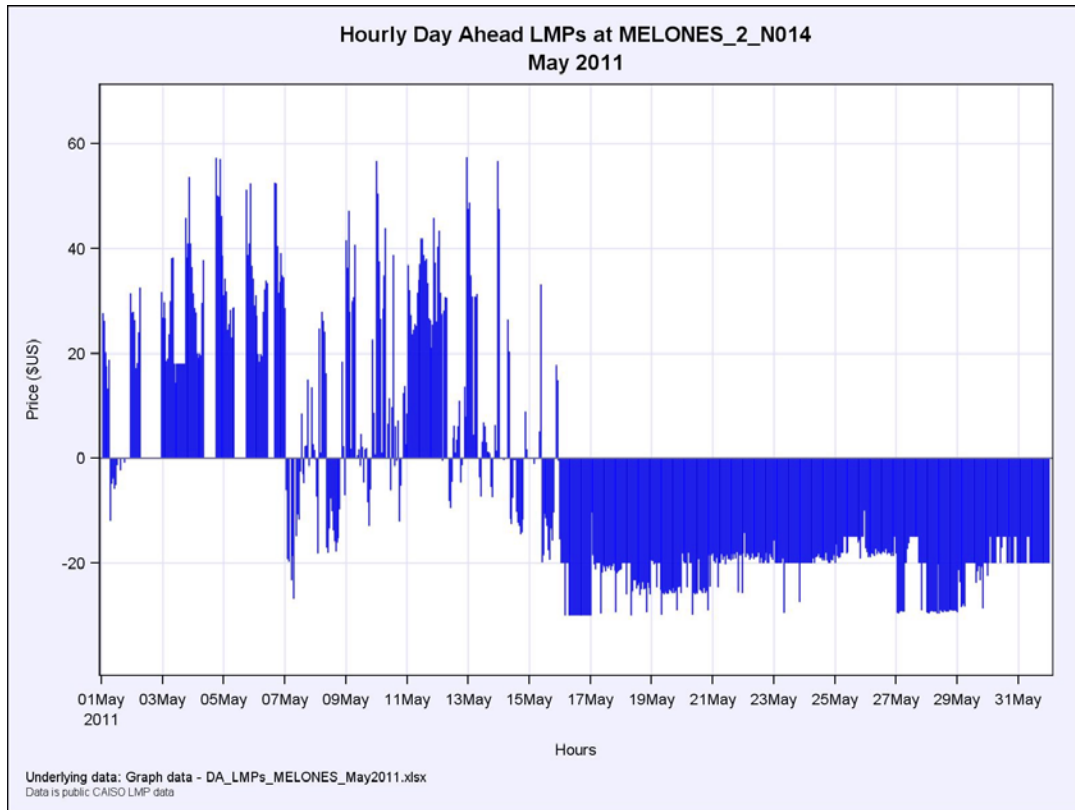
¹¹¹ ETRACOM Instant Message, 5/20/2011 11:23:30 AM, Bates No. ETR01510.

¹¹² CAISO_bid_data_May2011_NewMelones.xlsx (*See e.g.* Bid Data Tab, 31May2011 Hour_Ending 20).

¹¹³ CAISO_bid_data_May2011_NewMelones.xlsx.

¹¹⁴ *Id.*

¹¹⁵ LMPs_May_2011_NM.xlsx (Column L, Row 7).



ETRACOM ceased virtual trading at New Melones abruptly on May 31.¹¹⁶ ETRACOM offered no explanation for this. Moreover, as discussed below, abandoning this strategy after two weeks is inconsistent with ETRACOM’s claim that its trades were designed to capture congestion caused by an anticipated hydro event that, by that time, had not yet materialized. The only material difference on June 1 (as compared to May 31) was the substantially smaller size of ETRACOM’s CRR positions at New Melones.¹¹⁷

ETRACOM’s virtual trading strategy at New Melones in May 2011 was uneconomic and led to increasing losses. Virtual supply offers are only profitable when the day-ahead LMP is higher than the HASP LMP. From May 1-13, the day-ahead LMP was approximately \$16 lower than the HASP LMP on average, meaning virtual supply offers lost \$16 per MWh.¹¹⁸ ETRACOM’s \$0 and negative offers only decreased the day-ahead LMP further, increasing the spread between day-ahead and HASP LMPs,

¹¹⁶ ETRACOM company data – New Melones Only.xlsx (Virtuals Tab).

¹¹⁷ *Id.* (CRR Tab).

¹¹⁸ LMPs_May_2011_NM.xlsx (Data Tab, Column O, Row 10).

making ETRACOM's virtual transactions even more unprofitable. From May 14-31, the day-ahead LMP was approximately \$36 below the HASP LMP, on average.¹¹⁹

B. ETRACOM's intent

Staff finds that ETRACOM pursued its uneconomic virtual trades at New Melones in May 2011 with the intent to manipulate day-ahead LMP, lowering it to benefit its CRR positions. The lower ETRACOM was able to drive LMP, the more profitable its CRR positions became. In particular, the uneconomic nature of ETRACOM's virtual trades, the location, timing, and distinctiveness of its trades when compared to its CRR positions, and the implausible nature of its hydro event explanation all combine to establish scienter in this case.

ETRACOM's virtual trades as a whole were uneconomic, a fact known to ETRACOM prior to initiating its trading strategy and throughout the trading period. Market prices in early May made it obvious that absent a dramatic change in conditions, negatively priced virtual supply offers would lose money. In fact, ETRACOM's trades consistently lost money throughout the entire trading period. The only way ETRACOM's trades would have been profitable was if HASP prices dropped below ETRACOM's -\$30/MWh offer price. As discussed below in Section III.D, ETRACOM's claim that a hydro event was imminent, which would lead to significantly negative prices, is unpersuasive and unsupported. Historical data available in May 2011 shows that only 0.21% of hours had HASP prices lower than ETRACOM's -\$30/MWh supply offers, further demonstrating how unlikely it would be for ETRACOM to profit from its purported hydro event strategy.¹²⁰

The numerous characteristics of ETRACOM's virtual trading strategy indicate ETRACOM's intent to manipulate. These include: the location (*i.e.*, New Melones); timing (*i.e.*, start date, test period hours, expansion to 24 hour trading and end date); and the distinctiveness of the strategy compared to ETRACOM's virtual trading at other locations. Staff finds no other reason for ETRACOM to select New Melones for its virtual trading strategy other than an attempt to manipulate LMP to benefit its CRR positions. As discussed below, ETRACOM's only justification for this location is a purported hydro related strategy that inexplicably would only apply at New Melones. As outlined below, in fact, there were many other potentially more profitable locations ETRACOM could have chosen for such a strategy.

¹¹⁹ *Id.* (Data Tab, Column O, Row 11).

¹²⁰ LMPs_2009-2011_NM.xlsx (New Melones LMPs Tab, Column N, Row 4).

Furthermore, the timing associated with ETRACOM's trading strategy is revealing. The strategy was initiated only a few days after ETRACOM discovered that the profitability of its CRR positions was being adversely impacted by export congestion. This export congestion was unexpected and significant to ETRACOM, as evidenced by its failed attempts to determine the cause.¹²¹ Also significant is the targeting of those hours which experienced export congestion during the strategy's test period for May 14 and 15. The test period targeted precisely the eight hours that had experienced the export congestion. The exclusion of just one of those hours (hour-ending 7) on May 14 was the control variable in the test that ETRACOM used to see the impact of its trading strategy and gauge how successful it was at countering the export congestion and lowering the day-ahead LMP. This is a strong indication that ETRACOM intended its trades to counter the export congestion. The expansion of ETRACOM's strategy to 24 hours a day on May 16 (and thereafter) demonstrates that ETRACOM viewed its strategy as successful in the test period and worthy of expansion, even though the strategy suffered a net loss.¹²² Staff concludes it must be the impact on day-ahead LMP (and associated CRR profitability) that motivated the expansion. Finally, ETRACOM ended its trading strategy on the same day that the CRR positions that benefited from the strategy substantially decreased. ETRACOM's CRR positions at New Melones in June were substantially smaller and the incentive to continue the manipulation was greatly decreased.

Lastly, ETRACOM's virtual trading at New Melones in May 2011 was anomalous compared to its trading at all other locations. ETRACOM's virtual trading at New Melones was the only strategy that began mid-month and encompassed all hours for an extended period.¹²³ The distinctiveness of ETRACOM's trading strategy at New Melones indicates that it had a discrete purpose apart from ETRACOM's other strategies. Staff finds that purpose was to reverse congestion to benefit ETRACOM's CRR positions.

¹²¹ Tr. 120:2-121:13 (Rosenberg), ETRACOM Response to DR 6, e-mail from Michael Rosenberg to John Chiara on May 13, 2011 (Bates No. ETR00020).

¹²² Hourly Virtual PNL_March-July2011_NM.xlsx (May 2011 Tab, Column Y, Rows 2 and 3).

¹²³ Etracom_May_2011_Virtuals-ALL LOCATIONS.pdf (generated from data originally located in ETR0001 (DR7).csv, formatted in Etracom_May_2011_Virtuals - all locations - graph data.xlsx).

C. The evidence does not support ETRACOM and Rosenberg’s explanations

ETRACOM and Rosenberg maintain that ETRACOM’s virtual trading at New Melones was part of a legitimate strategy based on expectations of a significant hydroelectric runoff event. They also argue that market design flaws led ETRACOM to trade the way it did. Additionally, they argue that ETRACOM’s trades were a legitimate response to observed price signals, ETRACOM did not intend or know its virtual trading would impact its CRR positions, and several characteristics of its strategy are not indicative of a manipulative scheme. Staff carefully considered these arguments and determined that they are either implausible or fail to explain ETRACOM’s behavior.

1. ETRACOM’s supposed expectation of profit from negative HASP prices due to a hydroelectric runoff event is unreasonable

ETRACOM’s explanation for its virtual trading at New Melones is that it expected to profit from a significant hydro event that failed to appear in May 2011 (or, in fact, at any time during 2011).¹²⁴ ETRACOM cites numerous NOAA and USDA reports that suggest that in early 2011 abnormally high snow pack and reservoir levels were recorded in the Pacific Northwest and California.¹²⁵ ETRACOM now claims – though there is no contemporaneous evidence to support it – that it predicted that these conditions would lead to dramatically increased hydro generation for some limited duration, lasting several hours to several days at New Melones, creating sudden and significant import congestion and negative HASP clearing prices in the -\$100s to -\$1000s/MWh (referred to as a hydro event).¹²⁶ ETRACOM predicted that these prices would be substantially lower than the day-ahead price, making virtual supply even at negative prices profitable during that period. Rosenberg said he believed the hydro event was “imminent” in May at New Melones because day-ahead congestion had been rising since March¹²⁷ and NOAA water flow predictions were revised significantly upward between March to early May.¹²⁸ While spring 2011 forecasts predicted high levels of hydro generation in California, and

¹²⁴ ETRACOM 1b.19 Response at 6-8 and 19-20.

¹²⁵ *Id.* Atts. F-I. Staff notes that none of these documents were provided to staff during the investigation despite staff’s request for all documents related to ETRACOM’s trading in CAISO. *See* ETRACOM Response to DR 3. Staff also notes that there is no evidence that ETRACOM employees reviewed these documents while developing their trading strategy at New Melones in May 2011.

¹²⁶ Tr. 306:9-17 (Rosenberg).

¹²⁷ *Id.* at 297:7-19; ETRACOM 1b.19 Response at 8-9 and 20.

¹²⁸ Tr. 298:1-14 (Rosenberg); ETRACOM 1b. 19 Response at 19.

ETRACOM was monitoring hydro conditions, the facts do not support ETRACOM and Rosenberg's claim.

i. Intensifying day-ahead congestion

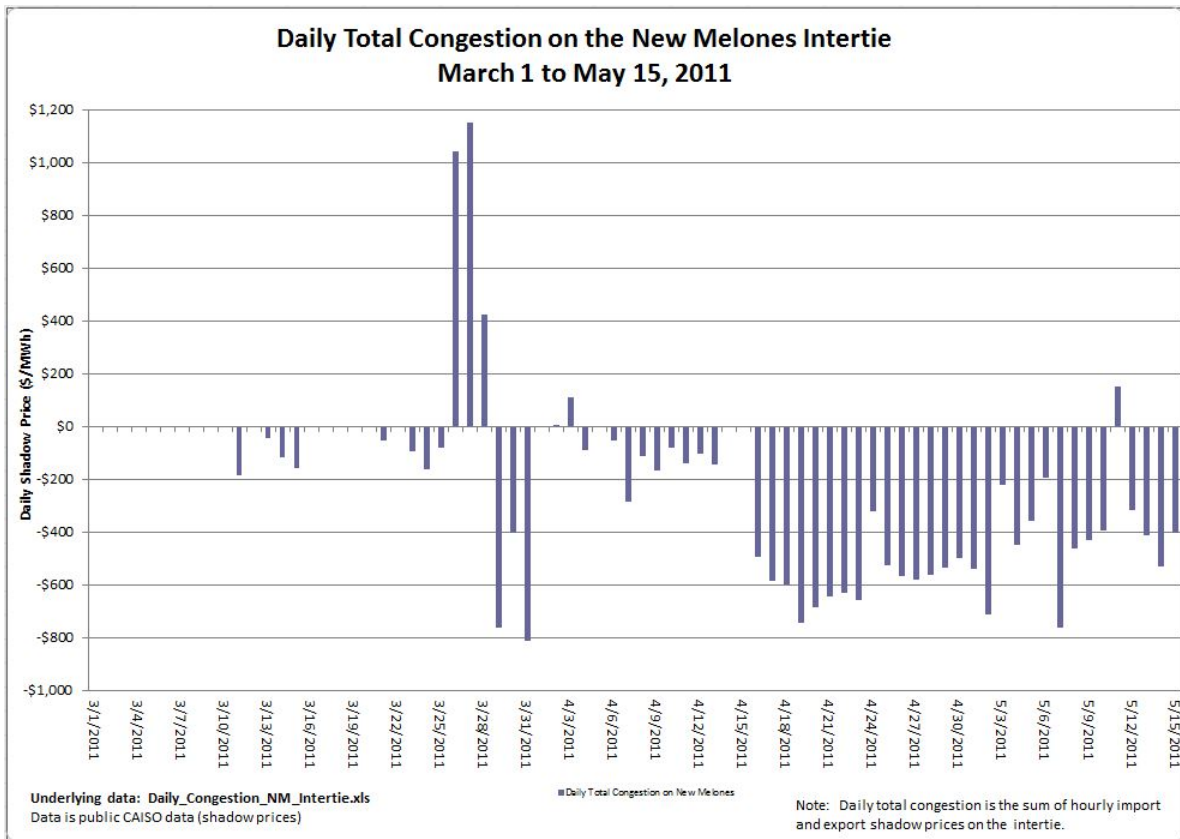
ETRACOM's assertion that increasing day-ahead import congestion in early May was an indication of an imminent hydro event not only fails to comport with ETRACOM's own congestion analysis, it ignores the role that ETRACOM itself played in causing increased levels of congestion at New Melones. ETRACOM's own analysis does not show increasing congestion in early May. It shows congestion in mid-April that was relatively consistent for the rest of that month, and all of early-to-mid May. Only in mid-May did congestion further increase - but that was attributable to ETRACOM's own conduct.¹²⁹ Increasing day-ahead congestion in late May is consistent with staff's finding that ETRACOM's virtual trades were placed to relieve export congestion and cause increased import congestion.¹³⁰

Below is a graph of daily total day-ahead congestion from March 2011 to mid-May, when ETRACOM initiated its virtual trading scheme.¹³¹ It is similar to ETRACOM's graph but the daily total includes both import and export congestion and does not include late May when ETRACOM was engaged in virtual trading that impacted congestion. As in ETRACOM's graph, overall import congestion (shown here as negative numbers) appears in March, and increases in mid-April. However, this is not when ETRACOM initiated its strategy. There is no significant increase in early May that could have signaled to ETRACOM that a change in market conditions was imminent. It is only after May 16 that a clear trend of increasing import congestion appears – a trend that is attributable to ETRACOM's own virtual bidding strategy.

¹²⁹ ETRACOM Response to 1b.19 at 9.

¹³⁰ Additionally, ETRACOM initially targeted hours with export congestion (not import congestion that it now claims was a significant signal) for its strategy.

¹³¹ Staff's Daily Total Congestion on the New Melones Intertie graph includes daily total net congestion, as opposed to ETRACOM's graph which only includes import congestion and does not account for export congestion. Staff selected daily total net congestion because ETRACOM placed offers in all 24 hours; therefore, its expected profits must consider congestion in all 24 hours.



ii. Magnitude of a hydro event

ETRACOM's claimed reliance on upward revisions to NOAA's water supply forecasts does not make sense.¹³² Each spring, NOAA projects and reports how much water the melting snow will supply to hundreds of river basins in the western United States. While NOAA revised its already high forecasts at the New Melones reservoir upward in May, the increased runoff associated with the water supply projections in 2011 were forecasted to occur gradually over a four-month period, rather than the sudden or multiple-day event that ETRACOM cites.¹³³ This is precisely why potential profits from hydro runoff are best captured by CRRs, a longer term product. Staff finds nothing in the NOAA forecasts to suggest that a large scale hydro event was poised to begin in mid-May.

¹³² ETRACOM Response to 1b.19 at 19-20 and Att. G-I.

¹³³ This is shown in the NOAA Seasonal Trend Plot cited by ETRACOM. *Id.* Att. I. As the title suggest, this is a seasonal projection for April to July. An upward adjustment in May was not indicative of an immediate event, but rather an increase in water supply for the entire 4 month period.

An unscheduled dramatic increase in hydro generation, causing significant congestion persisting for several hours or days, was highly unlikely. The Bureau of Reclamation manages the New Melones reservoir to prevent this outcome. Dam managers are constantly monitoring and adjusting water levels to account for water rights, environmental impacts and generation profitability. They forecast inflows in advance and adjust throughout the spring and summer to ensure they maintain safe and appropriate water levels. Only under extreme flood conditions would dams be operated unexpectedly at full capacity or above (spilling water). In May 2011, the Bureau of Reclamation operated the New Melones Dam at roughly 50 percent of capacity and maintained the reservoir at high levels, but still with capacity available to accommodate net inflows.¹³⁴

Rosenberg's claimed expectation that an event similar to a 1997 hydro event known as the Pineapple Express is implausible.¹³⁵ When the Pineapple Express occurred, a winter storm coming from Hawaii brought warm rain to California, which triggered a massive snow melt over several days.¹³⁶ This event led many reservoirs throughout the Sierra Nevada region to flood quickly and unexpectedly, resulting in prodigious hydro generation.¹³⁷ The key to this event was the combination of warm rain and high snow pack. Without warm rain to melt the snow at an accelerated rate, even heavy snow melt over the course of several months can be controlled by dam managers. While snow pack and water levels at New Melones in 1997 and 2011 were similar, there is no evidence that an event like the Pineapple Express, and the associated accelerated snow melt, could reasonably be expected.

ETRACOM's citation of numerous Instant Messages and emails regarding hydro expectations do not change this conclusion.¹³⁸ First, staff does not dispute that

¹³⁴ Bureau of Reclamation New Melones Dam Hydraulics & Hydrology (http://www.usbr.gov/projects/Facility.jsp?fac_Name=New+Melones+Dam&groupName=Hydraulics+%26+Hydrology) (showing 8,300 cubic feet per second as outflow capacity); U.S. Army Corps of Engineers, Sacramento District Water Control Data System (<http://www.spk-wc.usace.army.mil/cgi-bin/getplot.py?archive=true&plot=nmlr&length=wy&interval=d&wy=2011>) (showing outflow at approximately 4,000 cubic feet per second in mid-May 2011 and 200,000 acre feet of storage available in mid-May).

¹³⁵ Tr. 140:20-141:17 (Rosenberg); *see also* ETRACOM Response to 1b.19 at 12.

¹³⁶ NOAA Storm Summary (http://www.cnrfc.noaa.gov/storm_summaries/jan1997storms.php).

¹³⁷ *Id.*

¹³⁸ ETRACOM Response to 1b.19 at 24.

ETRACOM was interested in spring hydro conditions and related impacts on the market. It is very common for traders to consider seasonal changes in supply and demand. In fact, that is the basis for the purchase of ETRACOM's CRR positions at New Melones.¹³⁹ None of the Instant Messages or emails cited by ETRACOM demonstrate an expectation of an immediate and significant hydro event. If anything, they demonstrate ETRACOM's general understanding of hydro conditions during the spring and early summer. With such knowledge, ETRACOM would have known that the likelihood of a significant event was virtually impossible.

iii. Payout of a hydro event

Without the ability to predict the exact hours of a hydro event, losses from uneconomic bidding prior to the event can quickly outweigh potential gains. Rosenberg acknowledges it is impossible to predict the exact timing of a hydro event.¹⁴⁰ Therefore, it was ETRACOM's purported goal to be in the market at the start of the event because of the predicted limited duration and the risk that other market participants would quickly respond to price signals that would converge the HASP and day-ahead prices and limit the profitability of additional virtual supply.¹⁴¹ ETRACOM claims it viewed its trading on a day-to-day basis, viewing the prior day's losses as "sunk costs."¹⁴² Rosenberg testified that he expected to recoup his losses.¹⁴³ However, it is difficult to imagine how Rosenberg could have viewed this strategy as potentially profitable after several days of repeated and accumulating losses.

Rosenberg was also uncertain of the expected payout and did not conduct any return calculations or risk analysis.¹⁴⁴ At most he had a vague and wide ranging expectation that if a hydro event occurred, it would lead to negative HASP prices below his offer price.¹⁴⁵ Essentially he had no idea what the potential returns would be from this very expensive strategy. Because Rosenberg failed to run any return calculations, he cannot provide any contemporaneous evidence to support his claims that ETRACOM could have profited from this strategy. He also cannot provide any evidence to justify

¹³⁹ Tr. 114:21-115:5 (Rosenberg).

¹⁴⁰ *Id.* at 142:11-17.

¹⁴¹ *Id.* at 320:6-321:5.

¹⁴² ETRACOM Response to 1b.19 at 21.

¹⁴³ Tr. 315:2-9 (Rosenberg).

¹⁴⁴ *Id.* at 306:9-308:12.

¹⁴⁵ "...it could be hundreds, hundreds of dollars. You look at -- it could be \$1,000 or thousands of dollars, more than \$1,000, right, for LMP at that location." *Id.* at 306:11-13.

how long he thought he could afford to keep his position on and still profit had a hydro event had actually occurred. While his potential gains were uncertain, his losses were evident immediately. Between May 16 and May 31, ETRACOM's virtual supply strategy cost the company an average of about \$2,600 per day.¹⁴⁶ Given the difficulty in predicting the timing of an event, the uncertain payout, and the fact that a significant hydro event was not likely to occur at all – staff finds ETRACOM's claimed motivation behind its trading strategy to be implausible.

ETRACOM and Rosenberg's argument that their hydro event predictions were borne out by their post-hoc observation that modestly negative LMPs appeared at New Melones sporadically in mid-July – six weeks after abandoning the position – is not persuasive.¹⁴⁷ Reservoir levels were only slightly higher in July than in May and still below max levels. The outflow rates at New Melones remained at roughly 50 percent of capacity.¹⁴⁸ These physical conditions are not indicative of the large-scale, unprecedented pricing event ETRACOM purportedly predicted. Consistent with these physical conditions, prices during the July 8-22 period isolated by ETRACOM also do not indicate an unprecedented event. HASP prices at New Melones were only below -\$30/MWh (ETRACOM's virtual supply offer price from May) in fewer than 7% of hours.¹⁴⁹ While a few of these hours had significantly negative HASP prices, those hours are heavily outweighed by hours with a \$0 HASP. When one views HASP prices on each day during this period as a whole, as ETRACOM must because its strategy had been to bid 24 hours a day, and were therefore exposed to pricing in all 24 hours, the daily HASP prices were only negative on July 14. And that price, -\$47/MWh¹⁵⁰ is only a fraction lower than ETRACOM's -\$30/MWh offers; it was nowhere close to the multitudes of -\$100s to -\$1,000s/MWh lower that Rosenberg allegedly predicted.

ETRACOM argues its scheme would have netted approximately \$25,000 between July 8 and 22 from 5 MW of virtual supply.¹⁵¹ But this is misleading. Most importantly, ETRACOM's calculations assume that day-ahead LMP would not be set by its negative supply offers, as in May. Instead ETRACOM used published prices that were not

¹⁴⁶ Hourly Virtual PNL_March-July2011_NM.xlsx (May 2011 Daily Summary, Column E, Row 4).

¹⁴⁷ ETRACOM Response to 1b.19 at 13 and 20.

¹⁴⁸ U.S. Army Corps of Engineers, Sacramento District Water Control Data System (<http://www.spk-wc.usace.army.mil/cgi-bin/getplot.py?archive=true&plot=nmlr&length=wy&interval=d&wy=2011>).

¹⁴⁹ LMPs_July_2011_NM.xlsx (LMP Data Tab, Column H).

¹⁵⁰ *Id.* (Daily Summary Tab, Row 17).

¹⁵¹ ETRACOM Response to 1b.19 at 13.

artificially lowered by its manipulative conduct. ETRACOM's calculation also assumes it would clear 5 MW, which is more than it was able to consistently clear in May. Lastly, its calculations isolate the July 8-22 period without justifying how ETRACOM would know to trade during that specific period. Losses from before or after that period could quickly reduce ETRACOM's potential \$25,000 profit.

In sum, nothing about physical or market conditions in July reasonably supports ETRACOM and Rosenberg's claim that their virtual trading strategy in May was motivated by the expectation of a significant hydro event. Instead, the record consistently supports the conclusion that ETRACOM's motivation was to increase the value of its CRR positions.

iv. Location of a hydro event

Other factors undermine ETRACOM's argument that it was implementing a legitimate, fundamentals-based strategy. For one, ETRACOM failed to offer a plausible explanation of why it expected a hydro event to occur at New Melones, as opposed to other similar locations in CAISO that are also impacted by hydro flows. Staff finds that ETRACOM's virtual strategy would have been potentially more profitable at other similar locations where the day-ahead LMP was typically positive.¹⁵² Consequently, ETRACOM likely could have cleared positive (as opposed to negative) supply offers. That would have lessened its losses on non-event days because the spread between the day-ahead LMP and HASP would have been smaller. However, at those locations ETRACOM did not hold CRR positions that were unexpectedly declining in profitability.

ETRACOM argues that New Melones was the dominant constraint in the region and that it had not yet observed HASP congestion.¹⁵³ Price data shows this assertion to be incorrect. Congestion levels at New Melones and similar locations were comparable in April and early May, except in a few isolated hours.¹⁵⁴ Further, in those hours the congestion was largely driven by a high internal price in CAISO rather than supply fundamentals. As a result, virtual supply was not particularly profitable because the congestion was largely negated by a high internal energy price resulting in modest real-time (or HASP) LMPs. Even if this did suggest that hydro had come in at these points, it should have further demonstrated to ETRACOM the unlikely nature of a significantly

¹⁵² Hourly_Charts_Hydrnodes.pdf (graphs of price spreads and real-time congestion at comparable hydro nodes generated from CAISO LMP data available in lmps_hydrnodes_2011.csv).

¹⁵³ ETRACOM claims its strategy need not be optimal to be legitimate. ETRACOM Response to 1b.19 at 33-34.

¹⁵⁴ Hourly_Chart_Hydrnodes.pdf.

negative priced event lasting for more than a few isolated hours. Lastly, ETRACOM's alleged belief that hydro had already come in at these locations is not credible. It was still in the early part of what was predicted to be a record hydro season and they knew significant snow melt was still to come.¹⁵⁵ The only reasonable explanation for why ETRACOM engaged in virtual trading at New Melones was to impact the LMP and benefit its CRR positions.

2. Market design flaws are not responsible for ETRACOM's conduct or market harm

ETRACOM argues that because CAISO eventually stopped offering CRRs at New Melones, and ceased virtual bidding at all interties, the market was "dysfunctional" and the direct cause of the harm to the market.¹⁵⁶ ETRACOM also blames a software error for incentivizing its virtual supply offers at New Melones.¹⁵⁷ These arguments have no bearing on the matter before the Commission. The issue in this case is whether ETRACOM entered into intentional manipulative conduct. Despite ETRACOM's exhaustive discussion of what they classify as market flaws, it does not and cannot link these flaws to a legitimate explanation for its trading.

CAISO's decision to discontinue offering CRR positions and virtual trading at New Melones occurred after ETRACOM's conduct in May 2011 and is irrelevant to ETRACOM's conduct. As ETRACOM admits in its response, the substantive concern underlying CAISO's decision to stop offering CRR positions at New Melones was based on revenue inadequacy.¹⁵⁸ Due to the fully encumbered nature of the line (physical flows were limited to one entity and perfectly hedged) there simply were not enough funds from physical transactions to pay the congestion fees to CRR holders. ETRACOM fails to argue why revenue inadequacy justifies its conduct. Similarly, CAISO terminated virtual trading at New Melones in August 2011 due to inefficiencies related to the fully encumbered nature of the line. CAISO eventually determined that virtual trading at all interties created an undesirable incentive to arbitrage the structural difference between congestion prices in the day-ahead and the 15-minute market (successor to the HASP

¹⁵⁵ In fact, Mike Davis noted in an Instant Message on May 14, 2011 that "ski resorts are still open" indicating that snow melt had not yet occurred. ETRACOM Response to DR 6, 5/14/2011 1:45:21 PM Instant Message from Mike David (Bates No. ETR01496-98).

¹⁵⁶ ETRACOM 1b.19 Response at 15-17 and 38-42.

¹⁵⁷ *Id.* at 39.

¹⁵⁸ DMM 2011 Annual Report at 152, *available at* <http://www.caiso.com/Documents/2011AnnualReport-MarketIssues-Performance.pdf>; ETRACOM 1b.19 Response at 15-16.

market) to the detriment of market efficiency.¹⁵⁹ This inefficiency is unrelated to ETRACOM's intent to lower day-ahead LMP by submitting uneconomic virtual supply to benefit its CRR positions.

ETRACOM also argues that a software pricing error at New Melones, disclosed by the DMM in its referral, resulted in false price signals in early May 2011, leading ETRACOM to believe it must place \$0 or negative offers to clear virtual supply at New Melones.¹⁶⁰ The software error was present when virtual trading began in Feb. 2011 and was not corrected until after July 2011. In some hours, the software set the LMP at \$0 when it should have been a positive amount. Specifically, it set LMP to \$0 if the lowest-priced virtual supply offer, which should have set LMP, was positive.¹⁶¹ ETRACOM argues these price signals, not an intent to manipulate the market, influenced its bidding strategy.

The logic underlying ETRACOM's argument is flawed. First, ETRACOM fails to explain why this error influenced its bidding behavior for two weeks in May, but not during the other five and a half months that it was present during which ETRACOM was active in the market. Moreover, during the two weeks when this error supposedly did influence its behavior, at best, this argument could only explain why ETRACOM's offers were zero or negative. ETRACOM's low offers, including offers at the bid floor, demonstrate its willingness to transact at any cost regardless of the price signal. The software error fails to explain why ETRACOM submitted virtual offers to begin with, nor does it explain why ETRACOM persisted in sustaining money-losing virtual trades. Even if in some hours the software error misled ETRACOM, an economic strategy to sell at negative prices would only make sense if there was significant negative pricing persisting in the HASP, which ETRACOM could not have reasonably expected. Indeed, the software error should have signaled to ETRACOM that its virtual trading was more costly and potentially less profitable.¹⁶²

¹⁵⁹ *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,234 at P 42 (2015).

¹⁶⁰ ETRACOM Response to 1b.19 at 39-40.

¹⁶¹ DMM Referral, Attachment 1 at fn. 2.

¹⁶² With regard to these claims, ETRACOM also argues staff has withheld exculpatory or potentially exculpatory information from ETRACOM. ETRACOM Response to 1b.19 at 46-47. This is based on ETRACOM's fundamental misunderstanding of the Commission's Policy Statement on Disclosure of Exculpatory Materials, 129 FERC ¶ 61,248 (2009). Staff has no exculpatory material to provide ETRACOM. The vast majority of evidence gathered in this investigation was provided by ETRACOM or is publically available, and therefore not subject to the policy. Additionally, while not exculpatory, staff has provided other factual material in staff's possession, such as market data and documents produced by the DMM. What little staff has not provided is in the

3. ETRACOM was not responding to price signals and its trading was uneconomic

ETRACOM argues that its virtual supply offers are a legitimate response to export congestion that appeared beginning May 8.¹⁶³ This argument fails for several reasons.¹⁶⁴ First, this rationale is not supported by contemporaneous documents or testimony obtained during the investigation. It was introduced after the fact by ETRACOM's expert economist. Moreover, it is inconsistent with ETRACOM's hydro event explanation. ETRACOM maintained throughout the investigation that it placed its virtual supply offers to be profitable in a hydro event that would be reflected in *future* prices. It cannot at the same time argue that it placed the virtual supply offers in response to *current* price signals. Furthermore, had ETRACOM been trying to capture potential profits available due to export congestion, it would not have continued to bid when it became evident it was a losing position. Lastly, there was no reason for ETRACOM to expand its strategy to 24 hours if it was only responding to price signals from export congestion that only occurred in some off-peak hours.

Staff also disagrees with ETRACOM's argument that because it did not set price in every hour it bid, its offers were not solely responsible for the low LMP during the end of May and therefore its trading was economic.¹⁶⁵ First, ETRACOM need not set the price in every hour to engage in manipulation. Second, ETRACOM's behavior drove market conditions during the entire May 14 to 31 period, regardless of whether its offers set price. Virtual demand bids increased in late May in response to low day-ahead prices caused by ETRACOM's bidding.¹⁶⁶ Virtual demand bids were quite profitable because ETRACOM's negative offers broadcast the signal that it was willing to pay up to \$30/MWh to provide supply to a virtual demand bidder. By the end of May, ETRACOM had attracted more virtual demand bids than it was offering in supply; therefore, in some

nature of notes and analysis that reflect attorney work product and mental impressions, and again, it is not exculpatory. ETRACOM's argument that the production of non-exculpatory evidence somehow establishes that staff has additional evidence it has not provided is without foundation.

¹⁶³ ETRACOM Response to 1b.19 at 10 and 29-30.

¹⁶⁴ ETRACOM also argues that other participants were also incentivized to submit virtual supply. *Id.* at 22. In fact, only one other entity placed virtual supply offers at New Melones in early May 2011 and its offers were mostly at positive prices. When ETRACOM was bidding virtual supply that entities offers did not compete with ETRACOM's. CAISO_bid_data_May2011_NewMelones.xlsx.

¹⁶⁵ ETRACOM Response to 1b.19 at 21-22.

¹⁶⁶ *Id.*

hours the uncleared virtual demand bids set the clearing price because they were the next increment.¹⁶⁷ Absent ETRACOM's negative virtual supply offers, fewer virtual MWs would have cleared and the LMP would have been higher.

4. ETRACOM understood and intended its virtual trading to impact its CRR positions

ETRACOM argues it was unaware that virtual transactions could impact the value of CRR positions and that its virtual trading was evaluated without regard for its CRR profitability.¹⁶⁸ To support this contention, ETRACOM: 1) argues it was inexperienced at trading virtuals; 2) blames numerous characteristics of the market for the market outcomes; 3) argues because its offers were within the CAISO established position limits it could not have known its virtual trades could move LMP or impact CRR positions; 4) argues that its profits from the New Melones CRR position were unremarkable, not extraordinary; and 5) argues that had it understood the relationship it would not have bid virtual demand in June 2011. These explanations are implausible.

ETRACOM tracked the relationship between its virtual bid prices and cleared LMP and was aware its negative bids set the day-ahead price.¹⁶⁹ Moreover, it had to know that the negative LMPs at New Melones benefited the profitability of its CRR positions: the relationship between the day-ahead price (including congestion) and the profitability of CRR positions is fundamental to the product's value, and Rosenberg understood this concept.¹⁷⁰ To a trader with Rosenberg's educational background and sophisticated understanding of market dynamics this would be basic knowledge. ETRACOM prepared daily profitability reports, which Rosenberg reviewed frequently.¹⁷¹ From these reports, Rosenberg would have quickly seen the dramatic increase in the profitability of ETRACOM's CRR positions at New Melones and, because of the obvious relationship between day-ahead price and CRR profitability, realized it was ETRACOM's virtual trading behavior that was causing that dramatic increase.

¹⁶⁷ CAISO_bid_data_May2011_NewMelones.xlsx.

¹⁶⁸ ETRACOM Response to 1b.19 at 14-15 and 34-37; Tr. 140:1-13 (Rosenberg).

¹⁶⁹ Tr. 139:14-18 (Rosenberg); *see, e.g.*, Spreadsheet. ETR03140.xlsx (20110522_20110522_PRC_LMP_DAM_2 Tab).

¹⁷⁰ ETRACOM Response to DR 6, e-mail from Michael Rosenberg to AK, Joseph Bryngelson and Mike W. Davis on March 30, 2011 (Bates No. ETR01284); Tr. 140:1-2 (Rosenberg).

¹⁷¹ Tr. 111:13-21 (Rosenberg); *See* Spreadsheet ETR00706 (Sheet 5).

Furthermore, ETRACOM's tracking of bids to cleared LMPs undermines ETRACOM's argument that it was "inexperienced." It demonstrates that it understood how its bids could set LMP and knew how the market functioned. Even if staff could reasonably conclude that Rosenberg was inexperienced – and we do not – that is not a valid defense to market manipulation.¹⁷²

ETRACOM next argues that the fully encumbered nature of the line allows very small virtual bids (relative to the physical capacity of the line and within the established position limits) to have a disproportionate impact on congestion prices at the intertie.¹⁷³ ETRACOM argues that because it was not aware of the line's characteristic, it could not have known that its virtual transactions would impact congestion prices and consequently its CRR positions. Staff does not dispute that ETRACOM may not have known the line was fully encumbered. However, the unique characteristic of the line is irrelevant. The line was congested before ETRACOM placed its virtual supply offers, so ETRACOM knew that the line was at its limit (regardless of what the limit was), and, consequently, that small virtual transactions would have an effect on pricing. If the line was not at its limit, congestion would not have been present. Moreover, ETRACOM also had reason to believe that small virtual transactions could affect pricing because it was aware of the maximum permitted virtual supply and demand position.¹⁷⁴ These position limits are set at 5% of a transmission line's Operating Transfer Capacity (OTC). The OTC at New Melones was set to 384 MW (the physical capacity of the intertie) in the import direction, but was set at only 15 MW in the export direction.¹⁷⁵ While ETRACOM's supply offers between 1-5 MW are a small portion of the import OTC, they are up to one-third of the export OTC. Because ETRACOM was aware of the small position limits in the export direction at New Melones, it was clear that it would only take a small MW amount of imports to counter export congestion.

ETRACOM's argument that its CRR profits were not extraordinary and therefore it would not notice the positions' gains as a result of ETRACOM's virtual trading also fails to persuade staff. ETRACOM's CRR positions sourced at New Melones were two of its most profitable CRR positions at the time.¹⁷⁶ The on-peak CRR position was over

¹⁷² See *Varljen v. H.J. Meyers, Inc.*, No. 97 Civ. 6742(DLC), 1998 WL 395266 (S.D.N.Y. July 14, 1998) (holding a trader's inexperience not only failed to excuse manipulation but established that they were reckless for the purpose of determining their scienter).

¹⁷³ ETRACOM Response to 1b.19 at 35-36.

¹⁷⁴ Tr. 256:24-259:5 (Rosenberg).

¹⁷⁵ DMM Referral, Attachment 1 at 2.

¹⁷⁶ *Etracom_CRR_profit_by_contract_Jan-July2011.xls* (Jan-July 2011 Tab, Column W, Rows 2 and 4).

twice as profitable as the next most profitable position between January and July 2011.¹⁷⁷ Additionally, New Melones was a frequent topic for discussion among ETRACOM's employees throughout May.¹⁷⁸ In fact, Davis even referred to ETRACOM's profits at New Melones as a "windfall."¹⁷⁹

Lastly, ETRACOM's June virtual demand trading does not validate its May virtual supply trading.¹⁸⁰ Staff does not argue that ETRACOM's June trading was part of its manipulative scheme. ETRACOM's June CRR positions sourced at New Melones were significantly smaller (approximately 21% of the May on-peak and 31% of the May off-peak);¹⁸¹ therefore, the incentive to manipulate CRR profits was significantly less. Additionally, ETRACOM's June virtual demand trading is inconsistent with its hydro event theory. ETRACOM offers no explanation for trading on May 31 based on a purportedly imminent hydro event that would lead to significantly negative HASP prices, only to contradict that expectation the following day, betting that virtual demand bids would be profitable because day-ahead prices are lower than those same HASP prices it predicted to be significantly negative.

5. Trading strategy characteristics

ETRACOM disputes staff's conclusion that May 14 and 15 served as a test period for ETRACOM's scheme. Instead, ETRACOM argues the selection of HE 1-6 and 23-24 for May 14 and 15 were consistent with its general practice of limiting the exposure of new strategies and the fact that off-peak hours were cheaper.¹⁸² When it was successful in those hours, it expanded the scope of its trading. Additionally, if ETRACOM really believed a hydro event was imminent, by its own logic it would have started its strategy by bidding in all 24 hours to ensure it was in the market when the event occurred in order to capture as much profit as possible from a potentially short-lived event. ETRACOM also argues that the addition of hour ending 7 for May 15 was not a "control hour" as staff suggests.¹⁸³ However, it provides no additional explanation why this hour was

¹⁷⁷ *Id.*

¹⁷⁸ *Supra* note 102.

¹⁷⁹ ETRACOM Response to DR 6, 5/21/2011 10:09:57 PM Instant Message from Mike Davis (Bates No. ETR01512).

¹⁸⁰ ETRACOM submitted 1 MW virtual demand bids for all hours from May 1-7. It only cleared on some hours on June 7. ETRACOM also argues its June trading demonstrates it had no intent to engage in market manipulation. ETRACOM Response to 1b.19 at 25.

¹⁸¹ ETR0001 (DR7).csv.

¹⁸² ETRACOM Response to 1b.19 at 29.

¹⁸³ *Id.* at 29.

chosen for May 15 and not May 14. The only reasonable explanation is that it provided an ETRACOM an opportunity to see the impact its virtual supply offers had on eliminating export congestion.

ETRACOM also argues the expansion of its scheme to 24 hours a day for May 16 through 31 is not evidence of manipulation because, in July 2011, congestion occurred primarily during peak hours.¹⁸⁴ As explained above, the July event was not the significant hydro event ETRACOM had predicted and did not influence the decisions ETRACOM made in May. In addition, ETRACOM argues that the decrease in its offer price after May 16 was an attempt by ETRACOM to clear more MWs and be inframarginal (offer low so that higher priced offers set the price).¹⁸⁵ Staff does not dispute that ETRACOM was attempting to clear more MWs. Indeed, ETRACOM was trying to clear more MWs because clearing more MWs, and at the lowest price possible, served to lower LMP further, thereby increasing the benefits to ETRACOM's CRR position.

Lastly, ETRACOM argues that implementing its trading scheme at New Melones in the middle of May 2011, and applying it to all hours of the day, was not anomalous compared to its trading at other locations. Specifically, ETRACOM points to subsequent occasions, primarily after May 2011, when it placed bids mid-month and for all hours for sequential days.¹⁸⁶ It also points to other strategies that had a test period.¹⁸⁷ However, ETRACOM admittedly relies on trading data from *after* May 2011. Staff's observation is that the New Melones trades were anomalous at the time the manipulation occurred. ETRACOM's later trading behavior does not refute this point.

D. The conduct is in connection with a jurisdictional transaction

The Commission has jurisdiction over trading activity conducted within Commission-approved RTOs/ISOs such as the CAISO. Therefore, ETRACOM's virtual supply offers and the CRR positions affected were jurisdictional transactions. ETRACOM's virtual trades also affected physical prices. ETRACOM's scheme, therefore, was conducted "in connection with the purchase or sale of ... electric energy or ... transmission of electric energy subject to the jurisdiction of the Commission,"¹⁸⁸ meeting the third element of the Anti-Manipulation Rule.

¹⁸⁴ *Id.* at 30.

¹⁸⁵ *Id.* at 10-11.

¹⁸⁶ *Id.* at 31-33.

¹⁸⁷ *Id.*

¹⁸⁸ Order No. 670, FERC Stats. & Regs. ¶ 31,202 at P 49.

IV. Sanctions

A. Harm and unjust profits

Staff conducted an analysis to determine what unjust profits ETRACOM received as a result of its manipulative conduct. Between May 14 and 31, ETRACOM earned \$517,417 on its CRR positions sourced at New Melones as a result of congestion on the intertie.¹⁸⁹ Staff calculated that \$202,345 was earned from non-manipulative trading.¹⁹⁰ Therefore, ETRACOM received unjust profits of \$315,072 and Enforcement staff recommends disgorgement of this amount, plus interest, to CAISO for distribution to market participants affected by ETRACOM's conduct.¹⁹¹

Staff also estimates that ETRACOM's manipulation resulted in the market overpaying all New Melones CRR source holders, including ETRACOM, \$1,514,207 between May 14 and 31, 2011.¹⁹² This overpayment was funded by New Melones CRR sink holders and revenue inadequacy. To calculate this amount, staff took the total amount paid to source holders between May 14 and 31 and subtracted what staff estimated to be the earnings based on non-manipulative trading. CRR positions sourced at New Melones were profitable prior to the implementation of ETRACOM's scheme; however, the profitability of the positions decreased between May 8 and 13 because WAPA had scheduled 1 MW of export at New Melones in off-peak hours. WAPA continued to schedule 1 MW of export in most off-peak hours throughout the end of May. Therefore, staff determined that the average profits earned between May 8 and 13 provide a reasonable measure of what profits would have been for the rest of the month had ETRACOM not engaged in manipulation. Staff used those averages to estimate what portion of the payment to source holders was legitimate. Staff concluded that of the total \$2,122,947 paid to source holders, \$608,740 was legitimate gain and \$1,514,207 was due to ETRACOM's manipulation.¹⁹³

¹⁸⁹ Etracom – Unjust Profits.xlsx (Etracom Unjust Profits Tab, Column B, Row 5). The value of congestion at the intertie is marginally (approximately \$6) less than CRR revenue based on the difference between the LMP congestion components of ETRACOM's source and sink locations.

¹⁹⁰ *Id.* (Etracom Unjust Profits Tab, Column C, Row 5).

¹⁹¹ *Id.* (Etracom Unjust Profits Tab, Column D, Row 6).

¹⁹² Etracom – Market Harm.xlsx (Market Harm Summary Tab, Column L, Row 6).

¹⁹³ *Id.* (Market Harm Summary Tab, Columns F, K and L, Row 6).

B. Civil penalties

ETRACOM's violation falls under the Penalty Guidelines' Chapter Two category guideline for tariff and regulatory violations.¹⁹⁴ (§ 2B1.1) In applying the Penalty Guidelines staff considered that ETRACOM's manipulative trades led to \$1,514,207 in harm to the market and lasted for more than 10 days. Staff also considered that ETRACOM cooperated with the investigation. Staff recommends the Commission impose a civil penalty on ETRACOM of \$2,400,000 consistent with the application of the Penalty Guidelines.

Staff also recommends the Commission impose a civil penalty on Rosenberg of \$100,000. Staff finds this to be an appropriate range given Rosenberg's primary responsibility for developing and implementing ETRACOM's manipulative scheme and the seriousness of the violation.

C. ETRACOM's arguments and staff's responses

ETRACOM has argued that staff overestimates market harm and unjust profits. Specifically, it argues staff should not consider: 1) hours in which WAPA scheduled 1 MW of exports because that sent a price signal to incentivize virtual supply, and 2) hours where ETRACOM's bids were inframarginal or did not clear.¹⁹⁵ Staff finds incorporation of these hours appropriate because ETRACOM's trading was not responding to price signals from WAPA's scheduled export; its trades were placed with an intent to lower prices to benefits its CRR positions. ETRACOM's intent to manipulate prices occurred in all hours it bid, whether or not it was inframarginal or cleared. ETRACOM's behavior drove market conditions the entire May 14 to 31 period. As stated above, when ETRACOM was inframarginal or failed to clear it was because demand bids prompted by ETRACOM's negative supply offers set the price.¹⁹⁶

¹⁹⁴ *Revised Policy Statement on Penalty Guidelines*, 132 FERC ¶ 61,216 (2010).

¹⁹⁵ ETRACOM Response to 1b.19 at 42-44.

¹⁹⁶ In ETRACOM's response to staff's preliminary findings letter, it proposed an extrapolation method for calculating harm and unjust profits that yielded lower values than staff's calculation. Specifically, ETRACOM's method averaged profits between May 1 and May 13, as opposed to May 8 through 13, then extrapolated profits between May 14 and May 31 based on that average. Staff finds ETRACOM's inclusion of average profits from May 1 through 7 inappropriate. Export congestion caused by WAPA's physical schedules beginning May 8 lowered ETRACOM's legitimate profits, therefore an average including profits from days in which there was no export congestion inflates ETRACOM's legitimate profits and decreases its unjust profits. ETRACOM did not make this argument in response to staff's 1b.19 letter.

ETRACOM also argues that even if the Commission finds it to be in violation, the Commission should assess no civil penalty.¹⁹⁷ ETRACOM argues the Commission should deviate from the Penalty Guidelines because of the market design flaws it argues are responsible for its conduct and the associated market harm. Staff disagrees. Nothing about ETRACOM's conduct or underlying market conditions suggests a departure from the Penalty Guidelines is appropriate. As staff has stated above, the market design flaws noted by ETRACOM do not explain or excuse ETRACOM's manipulative conduct. ETRACOM cites two settlements from 2011 to support its case; however, these are not comparable.¹⁹⁸ The facts of these cases are significantly different; the conduct in those settlements was not cross product manipulation, and did not cause harm to the market.¹⁹⁹ Here, staff estimates ETRACOM harmed the market by \$1,514,207.

Lastly, ETRACOM argues that the Commission lacks authority to bring an enforcement action against Rosenberg in his individual capacity. Section 222 of the Federal Power Act prohibits "any entity" from using a "manipulative or deceptive device or contrivance" in connection with the purchase or sale of wholesale electric energy or transmission services.²⁰⁰ ETRACOM argues the plain meaning of the term "entity" includes organizations, and does not include natural persons.²⁰¹ This is contrary to Order 670, Commission precedent, and federal district court precedent.²⁰² ETRACOM also argues it would be unfair to penalize Rosenberg because as a 75% owner of the company,

¹⁹⁷ ETRACOM Response to 1b.19 at 46.

¹⁹⁸ *In re Holyoke Gas and Electric Dept.*, 137 FERC ¶ 61,159 (2011) (order approving settlement finding that a failure to report and schedule generator outages with ISO New England, Inc. (ISO-NE) violated section 1c.2); *Dartmouth Power Associates LP*, 134 FERC ¶ 61,085 (2011) (order approving settlement finding that a failure to schedule a generator outage prior to taking a unit of service for repairs violated 18 C.F.R. § 35.41(b), and various provisions of ISO-NE's tariff).

¹⁹⁹ *Holyoke*, 137 FERC ¶ 61,159 at P 14; *Dartmouth*, 134 FERC ¶ 61,085 at P 19.

²⁰⁰ 16 U.S.C § 824v (2015).

²⁰¹ ETRACOM Response to 1b.19 at 45.

²⁰² Order 670, FERC Stats. & Regs. ¶ 31,202 at P 18; *City Power Marketing, LLC, et al.*, 152 FERC ¶ 61,012 (2015); *Houlian Chen, et al.*, 151 FERC ¶ 61,179 (2015); *Maxim Power Corporation, et al.*, 151 FERC 61,094 (2015); *Barclays Bank PLC, et al.*, 144 FERC ¶ 61,041 (2013); *Richard Silkman*, 144 FERC ¶ 61,164 (2013); *Federal Energy Regulatory Commission v. Barclays Bank PLC*, No. 2:13-cv-2093-TLN-DAD, 2015 WL 2448686, at *20-21 (E.D. Cal. May 22, 2015) ("Thus, the Court does not conclude that "entity" as used in FPA § 222 prevents FERC from bringing claims against the individual Defendants.").

he will be affected by any penalty assessed against ETRACOM.²⁰³ Staff finds an individual penalty is appropriate. As an owner of ETRACOM, while Rosenberg might be impacted by a civil penalty, he also stood to benefit personally, according to his ownership interest, from any profits or distributions made as a result of ETRACOM's manipulation.²⁰⁴

V. Conclusion

ETRACOM and Rosenberg violated the Commission's Anti-Manipulation Rule and the Federal Power Act by placing uneconomic virtual transactions at the New Melones Intertie with the intent to benefit related CRR positions between May 14 and 31, 2011. Therefore, for the reasons discussed above, Enforcement staff recommends that the Commission issue an Order to Show Cause and Notice of Proposed Penalty to ETRACOM and Rosenberg requiring them to show cause why: (i) they did not violate the Anti-Manipulation Rule, 18 C.F.R. § 1c.2 (2015) and section 222 of the Federal Power; (ii) ETRACOM should not pay a civil penalty in the amount of \$2,400,000; (iii) Rosenberg should not pay a civil penalty in the amount of \$100,000 and (iv) ETRACOM should not disgorge \$315,072 plus interest in unjust profits.

²⁰³ ETRACOM Response to 1b.19 at 45.

²⁰⁴ Tr. 51:11-20 (Rosenberg).