BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of US Magnesium, LLC for Determination of Long-Term Rates, and Terms and Conditions of Interruptible/DSM Electric Service Between It and Rocky Mountain Power	Docket No. 21-035-53

REDACTED DIRECT TESTIMONY

AND EXHIBITS

OF

ROGER J. SWENSON

On behalf of

US Magnesium, LLC

September 21, 2021

Introduction

Q. Please state your name and business address.

A. My name is Roger Swenson. My business address is 1592 East 3350 South, Salt Lake City, Utah.

Q. What is your educational background?

A. I have a B.S. degree in physics and a M.S. degree in Industrial Engineering specializing in energy management work.

Q. What is your experience in this matter?

A. I have worked as a consultant for US Magnesium and its predecessor MagCorp for over 20 years managing the energy and regulatory efforts. In those efforts I have participated in numerous hearings involving interruptible rate determinations for US Magnesium and also QF pricing for US Magnesium and also for other parties.

Q. By whom are you employed and what is your position?

A. I am employed by E-Quant Consulting LLC as a consultant in energy matters. In this matter I am providing testimony on behalf of US Magnesium, LLC ("USMag").

Q. What is the purpose of your testimony in this docket?

A. My testimony supports USMag's Application in this docket. In my testimony, I describe the interruptible service that is currently and has in the past been provided by PacifiCorp dba Rocky Mountain Power ("PacifiCorp" or "RMP" or "Company") and its predecessors to USMag and its predecessors. I also discuss the past orders of this Commission in which the Commission has repeatedly acknowledged USMag's value to the system as an interruptible resource and has required RMP to provide interruptible service to USMag. I also discuss various task forces that have been formed over the years to discuss the value

of special contracts to certain large customers like USMag, and the value of interruptible service to the system. I also discuss the value of USMag as a demand side resource and its ability to provide operating reserves and emergency reserves. Finally, I discuss USMag's proposal for the rates, terms, and conditions by of interruptible/DSM electric service that USMag requests the Commission order RMP to provide to USMag.[1]

Q. Please provide a summary of your conclusions and recommendations.

A. In this direct testimony, I offer the following conclusions and propose the following recommendations:

Since locating to Utah more than 50 years ago, USMag and its predecessor companies have always been an interruptible electric customer at a rate that is lower than the full firm cost-of-service rate. USMag would not have located to Utah without such a rate. The justification for this rate is that USMag enables more efficient use of the electric system: it uses resources that are not being used by firm customers and, during times when no excess capacity is available, outside market resources are directed to USMag.

This Commission has on numerous occasions issued orders setting rates, terms, and conditions for interruptible service to USMag. This Commission has also convened task force work groups that include all relevant stakeholders to investigate the basis for interruptible rates. That work has provided guidance that the interruptible rate should cover its variable costs and make a contribution of at least 5% to the fixed cost of resources used to provide interruptible service. USMag provides a contribution well above this 5% threshold and contributes approximately [redacted] per year towards the Company's system fixed costs. The cost-of-service derived rate associated with directing USMag's

[1] USMag's proposal is set forth in USMag Exhibit 1.1.

curtailment to avoid system coincident peaks makes USMag an important demand side resource for the state of Utah.

USMag proposes that the basis of the rates, terms and conditions of RMP's electric service remain a cost-of-service based rate directed at avoiding system coincident peaks and also providing other curtailment for RMP's operating reserve needs and for emergency conditions. USMag does not believe that it would equitable or logical to base its rates, terms and conditions of interruptible service on a comparison to an imaginary basis with a full firm cost minus some assumed peaking resource like a battery or a gas fired peaking plant that carries with it gas cost and environmental risks. USMag proposes curtailment conditions that will allow USMag to bear more direct responsibility and accountability for avoiding system coincident peaks.

Q. Is the USMag operation an important resource to the State of Utah providing jobs and other economic contributions to the State's economy?

A. Yes. The economic viability of Utah industry should be of significant concern to all state agencies, including this Commission. USMag pays high wages to hundreds of current employees and has a significant impact on the Utah economy. In an analysis prepared by the Tooele County Economic Development Corporation in 1996, at then-current employment levels the impact on the State economy was estimated at over $123 million. There is no reason to believe that USMag's impact on the State economy has changed significantly in the last 25 years. The economic health and vitality of Tooele County and the State of Utah would be seriously and adversely affected if USMag were not producing magnesium at its operations in Utah.

Q. Does USMag request expedited consideration in this matter?

A. Yes. USMag's existing contract with RMP expires on December 31, 2021 and both USMag and RMP will require clarity about the rates, terms, and conditions for electric service to USMag after that point. For example, January is one of the months that USMag is currently subject to curtailment and the parties will need to know before January 1, 2022 whether that arrangement will continue and, if so, whether USMag can "buy through" the curtailment at market rates and what other rates, terms, and conditions apply to RMP's service to USMag. As such, USMag requests that the Commission issue an order on these matters before the end of the year.

USMag believes that its proposal in this docket represents improvements over existing or historical arrangements, but understands that parties may need more time to evaluate the proposals than a current year-end deadline would allow. As such, USMag suggests that the Commission issue an interim order that extends the terms of the existing agreement between USMag and RMP through December 31, 2022, and that the Commission address issues raised by all parties to this proceeding in a separate order that would go into effect on January 1, 2023.

Q. Are there any other concerns that require expedited consideration of this matter?

A. Yes. US Mag faces critical decisions involving contracts for sales of its product that are entered into on annual terms. For USMag to negotiate those sales contracts and plan for production to meet contractual commitments, it is imperative that it know its costs to produce its product, which are driven to a large degree by its costs of electricity. USMag has been frustrated by the lack of progress made in discussions with RMP and USMag can

no longer wait to move this process forward. USMag's business operations require clarity on future power costs.

Summary of USMag Interruptible Electric Service

Q. Can you provide a brief summary of the interruptible electric service that has been provided by RMP and its predecessors to USMag and its predecessors in the past?

A. Interruptible electric service was first provided pursuant to an agreement dated May 13, 1968 ("1968 Agreement") between an RMP predecessor, Utah Power & Light Company ("UP&L") and a USMag predecessor called the Magnesium Project. That agreement was for the supply of 80 MW of interruptible power, with an option to increase by 40 MW. The basis for this initial agreement was an order of the Public Service Commission of Utah ("Commission"), in Cases No. 5639 and 5640, which required the utility to provide interruptible electric service.[2] Given the extremely competitive nature of the global magnesium market (then and now) and the electric intensity of the electrolytic process involved (then and now), USMag cannot operate economically at firm electric service prices. Recognizing the economic value of this business to Tooele County, the State of Utah and hundreds of employees, the Commission held that it was in the public interest for RMP to provide interruptible electric service to USMag from system reserves and available market sources. Little has changed in that regard since 1968. The pricing provisions and rates reflected in the 1968 Agreement and in subsequent contracts over the past 50+ years call for delivery of non-firm excess system generation resources or market resources to

[2] *See* Case Nos. 5639 & 5640, Report, Findings and Conclusions (April 19, 1968) ("1968 Order"). A copy of the 1968 Order is attached hereto as USMag Exhibit 1.5.

USMag if and when they are available. In the event that neither system generation resources nor market purchases are available, USMag could be physically intenupted.

Q. **Can you provide a graphic depiction of how USMag's load is served from excess system capacity?**

A. Yes. Figure 1 below is a depiction of PacifiCmp system generation resources and furn loads on an average day when USMag is operating:

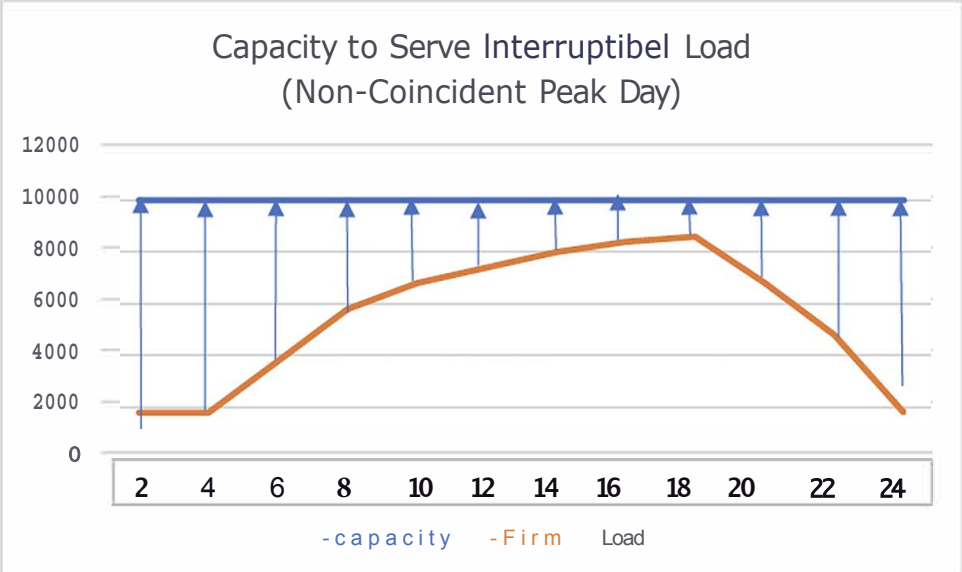


Figure 1. Service from excess system resources

The blue line represents PacifiCmp system capacity and the orange line PacifiCorp furn load in any given hour. The difference between the lines, depicted by aiTows throughout the day, represents excess system capacity that is available to serve USMag's intenuptible load. This is the circumstance on most days during the year, except for certain high furn load days when there is no excess system generation capacity available.

Q. What happens on those high load days when no excess system generation capacity is available?

A. Figure 2 depicts the circumstance when system generation resources are completely utilized for firm customers during a coincident system peak load event:

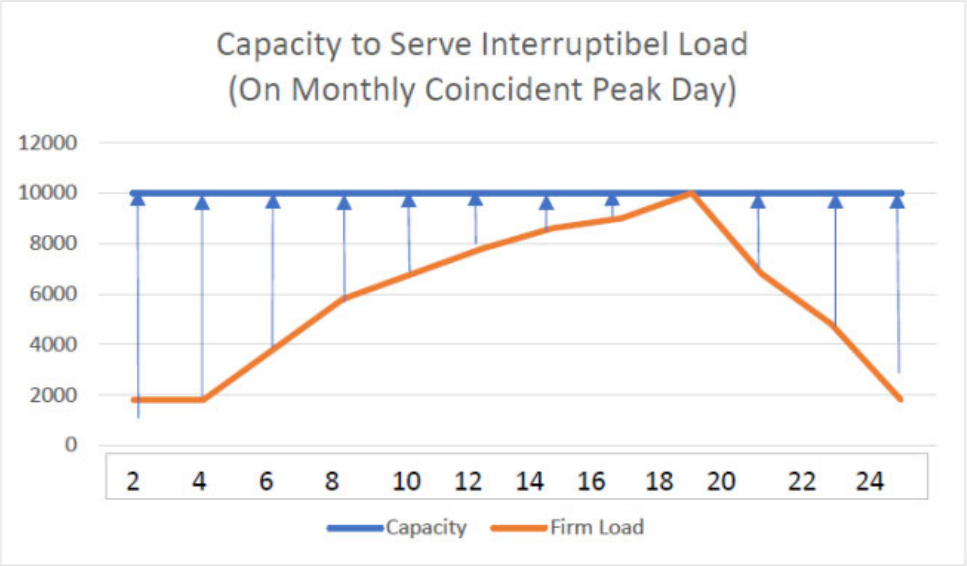


Figure 2. Resource availability on a coincident peak load day

Again, the blue line represents system generation capacity and the orange line firm load. Figure 2 shows that, at peak, the system does not have extra resources to provide interruptible service. In those hours, the service arrangements allow the utility to not supply system resources to USMag, and USMag has an option to ask RMP to secure and deliver available market resources, at USMag's risk and expense. If market resources are not available, USMag's load is physically curtailed.

Q. Has USMag's rate for interruptible service based on available excess system generation resources and market purchases or physical curtailment been lower than what its rate would have been on cost of service basis for a full firm customer?

A. Yes, USMag's rates over the decades have been lower than a full firm cost of service-based rate would have been. Again, this has been the basis and intent of the Commission-ordered interruptible service from the beginning. Firm electric service is not economically feasible for USMag's electrolytic operations and it is in the public interest to allow USMag to continue to operate with interruptible service from excess system generation resources or available market sources.

Q. Has RMP examined the cost of service to USMag and, if so, are USMag's rates consistent with its cost of service?

A. Yes. RMP regularly evaluates the cost of service to USMag as an interruptible customer. RMP performs this analysis utilizing its usual cost of service model with modifications that address the fact that USMag can be interrupted in certain months. That is, to determine the cost to serve USMag, RMP does not include USMag's load during the system coincident peaks in the months in which USMag is subject to interruption. For example, if USMag is subject to interruption in the summer months of June, July, August, and September, and in the winter months of January and February, RMP's cost of service evaluation does not include USMag's load during the system coincident peaks during those months because USMag is not expected to be operating during the coincident peaks in those months. This reduces the inter-jurisdictional allocation to Utah ratepayers from the Company's system.

Using this method of determining the cost of service, USMag's service is and has been at or very close to its cost of service for many years.

Commission Dockets Regarding USMag Interruptible Service

Q. Have RMP and USMag previously filed petitions with this Commission regarding the terms and conditions of electric service to USMag?

A. Yes, the rates and terms of electric service provided by RMP and its predecessors to USMag and its predecessors have been the subject of numerous dockets before the Commission, including the following:

Case Nos. 5639 and 5640. These cases resulted in the 1968 Order and the 1968 Agreement, as discussed above. The parties successfully negotiated eight amendments to the 1968 Agreement, each of which were approved by the Commission. The last amendment terminated on December 31, 2001.

Docket No. 01-035-38. PacifiCorp filed this docket two weeks prior to the scheduled termination date of the amended 1968 Agreement, requesting that the Commission require USMag to receive firm electric service at firm service rates. The matter proceeded to a contested hearing, after which the Commission ordered RMP to continue to provide interruptible electric service to USMag. The term of this service was to terminate on December 31, 2004. I will discuss this docket further below.

Docket No. 03-035-09. USMag filed this docket prior to the termination of the agreement that resulted from Docket No. 01-035-38, requesting that the Commission set rates, terms, and conditions for interruptible electric service for a new agreement between the parties. During the course of the docket, RMP and USMag negotiated a new five-

year agreement for interruptible electric service, which this Commission subsequently approved. This agreement was scheduled to terminate on December 31, 2009.

Docket No. 09-035-20. RMP filed this docket prior to the termination of the agreement approved in Docket No. 03-035-09, requesting that the Commission set rates, terms, and conditions for electric service for a new agreement between the parties. During the course of the docket, RMP and USMag negotiated a new four-year agreement for interruptible electric service, which this Commission subsequently approved. This agreement was scheduled to terminate on December 31, 2014.

Docket No. 14-035-143. Prior to the termination of the agreement approved in Docket No. 09-035-20, USMag and RMP negotiated a new three-year agreement for interruptible electric service. RMP filed this docket seeking approval of the new agreement, which this Commission granted. This agreement was scheduled to terminate on December 31, 2017. The parties subsequently agreed to an extension to this agreement as they negotiated a new electric service contract. The parties then sought and received Commission approval of that extension. With the extension, the agreement was scheduled to terminate on April 30, 2018.

Docket No. 17-035-71. Prior to the termination of the agreement approved in Docket No. 14-035-71, USMag and RMP negotiated a new agreement for interruptible electric service. RMP filed this docket seeking approval of the new agreement, which this Commission granted. The agreement was scheduled to terminate on December 31, 2019, subject to automatic one-year renewals if neither party serves a notice of termination. Neither party served a notice of termination in 2019, thus extending the term through December 31, 2020.

Docket No. 20-035-47. Prior to the termination of the agreement approved in Docket No. 14-035-71, USMag and RMP negotiated a new agreement for interruptible electric service. RMP filed this docket seeking approval of the agreement, which the Commission granted. RMP has served a notice of termination of this agreement, triggering termination of the agreement after December 31, 2021.[3]

Q. Has the Commission ordered RMP to provide interruptible electric service to USMag over the years?

A. Yes, the Commission has twice, after contested hearings, ordered the utility to provide interruptible service to USMag to allow for efficient utilization of system generation resources, while ensuring that USMag will make incremental contribution to system fixed costs to reduce costs for other customers. In both cases, RMP had sought to require USMag to receive firm service at firm tariff rates. Those dockets are 1) Case Nos. 5639 and 5640, which resulted in the 1968 Order discussed briefly above, and 2) Docket No. 01-035-38. I will briefly summarize these orders.

Q. Can you provide a summary of these two Commission rulings after contested proceedings?

A. Yes.

1968 Order. As discussed above, this Commission issued an order on April 19, 1968 ("1968 Order") requiring RMP (through its predecessor UP&L) to provide to USMag (through its predecessor the Magnesium Project) interruptible electric service from system reserves and available market sources at prices below firm cost of service and under terms and conditions designed to permit the USMag facilities to be constructed

[3] A copy of RMP's notice of termination is attached hereto as USMag Exhibit 1.10.

and to operate on an economical basis. The 1968 Order rejected RMP's proposal to require USMag to accept firm electric service on tariff rates.

The 1968 Order set rates for interruptible service below firm service rates and included terms and conditions for interruption that allowed RMP to curtail electric service to USMag during times of system coincident peak and allowed USMag to buy-through electricity at market rates during those system peak times when it was subject to interruption. The parties entered into a long-term power supply agreement ("1968 Agreement") for interruptible electric service with rates, terms, and conditions that were consistent with the 1968 Order.

Over the ensuing decades, USMag and RMP successfully negotiated eight separate amendments to the 1968 Agreement, each of which updated the price of interruptible service and utilized similar interruptible service terms and conditions as those set forth in the original agreement. The last such amendment terminated on December 31, 2001.

2002 Order. RMP and USMag began negotiations prior to the termination of the 1968 Agreement but did not reach agreement on a new contract. Two weeks before the scheduled expiration of the amended 1968 Agreement, RMP filed a petition in Docket No. 01-035-38 seeking to force USMag to switch to firm service at firm tariff prices. This proposal, if adopted, would have increased USMag's rates dramatically and would not have allowed USMag to continue to operate. The matter was intensely litigated and was ultimately resolved after a contested hearing. In its May 24, 2002 Order ("2002 Order"), the Commission recognized that "[a]ll parties agree that large customers who are willing to receive interruptible service under certain conditions impose less cost on the

utility than do firm customers, and therefore warrant special pricing consideration,"[4] though each offered differing views as to the value of interruptible service and the conditions necessary to achieve that value, and each made recommendations of the rate, terms and conditions of service.[5]

The 2002 Order set the rate for electrical service to USMag at $21 per MWh and ruled that USMag could be interrupted for the duration of up to six hours per day, five days per week during the weekday peak hours of 1pm to 9pm in the summer months—time periods that were most likely to reduce system costs and Utah's jurisdictional allocation by reducing monthly coincident peak demand. The advance notice period for an interruption was two hours. The Commission also ordered that the contract between the parties must contain a buy-through provision that allows USMag to choose whether to cease operations during an interruption or to purchase available market electricity at a rate based on a published index.

The Commission ruled that the term of the new agreement was to conclude on December 31, 2004.[6] The parties ultimately entered into an agreement that complied with the provisions of the 2002 Order ("2002 Agreement").

A separate dispute arose about the rate to be applied to USMag's use of electricity from the period after the termination of the amended 1968 Agreement (Jan. 1, 2002) to the date of the 2002 Order (May 24, 2002). The Commission ruled that the rate set in the 2002 Order would apply to interruptible service provided to USMag for that period.[7]

[4] *See* Docket No. 01-035-38, Order (May 24, 2002) at 3. A copy of the 2002 Order is attached hereto as USMag Exhibit 1.6.
[5] *Id*. at 3-4.
[6] *See id*. at 7.
[7] *See* Docket No. 01-035-38, Order Setting Rate for January 1, 2002 through May 24, 2002 Time Period (Nov. 13, 2003). A copy of this Order is attached as USMag Exhibit 1.7.

Agreements Between RMP and USMag

Q. Please identify the various agreements entered into between RMP and USMag over the years.

A. The parties have entered into the following agreements over the years:

1968 Agreement. As noted above, the 1968 Order resulted in the 1968 Agreement, which set a rate for interruptible service and identified various terms and conditions for interruption. This agreement, as amended, terminated on December 31, 2001.

2002 Agreement. The 2002 Order resulted in a new agreement that set a rate for interruptible service that became effective on January 1, 2002 and identified various terms and conditions for interruptible service. Interruptions were limited in duration and frequency. This agreement terminated on December 31, 2004.

2005 Agreements. In 2004, the parties entered into an Electric Service Agreement to go into effect on January 1, 2005 ("2005 ESA"), which set a rate for interruptible electric service to USMag that was subject to escalation and identified the terms and conditions of interruption. The parties also entered into an Operating Reserve Interruption Agreement ("2005 ORIA"), which set the terms and conditions upon which RMP could call on USMag to curtail its operations to obtain non-spin operating reserves. Interruptions were limited in duration and frequency. The parties also entered into a power purchase agreement ("2005 PPA") for power and energy from USMag's on-site qualifying facility. Each of these agreements went into effect on January 1, 2005 and terminated on December 31, 2009.

2010 Agreements. In 2009, the parties entered into a new Electric Service Agreement to go into effect on January 1, 2010 ("2019 ESA"), which set a rate for interruptible electric service to USMag that was subject to escalation and set terms and conditions for interruptible service. The parties also entered into an Operating Reserve Interruption Agreement ("2010 ORIA"), which allowed RMP to purchase operating reserves from USMag by calling on USMag to curtail its operations. The 2010 ESA and 2010 ORIA went into effect on January 1, 2010 and terminated on December 31, 2014. Interruptions were limited in duration and frequency. The parties also entered into a one-year power purchase agreement ("2010 PPA") for power and energy from USMag's on-site qualifying facility. The parties have since entered into various one-year PPAs.

2015 Agreements. In 2014, the parties entered into a new Electric Service Agreement to go into effect on January 1, 2015 ("2015 ESA") and provided for interruptible service at a variable rate depending on time of use and set terms and conditions for interruptible service. The parties also entered into an Operating Reserve Interruption Agreement ("2015 ORIA"), which allowed RMP to purchase operating reserves from USMag by either by calling on USMag to curtail its operations or by purchasing power and energy from USMag's on-site generation resources. Interruptions were limited in duration and frequency.

2018 Agreements. In 2017, the parties entered into a new Electric Service Agreement to go into effect on January 1, 2018 ("2018 ESA") and provided for interruptible service at a variable rate depending on time of use and set terms and conditions for interruptible service. The parties also entered into an Operating Reserve Interruption Agreement ("2018 ORIA"), which allowed RMP to purchase operating

reserves from USMag by either by calling on USMag to curtail its operations or by purchasing power and energy from USMag's on-site generation resources. Interruptions were limited in duration and frequency. These agreements were scheduled to terminate on December 31, 2019, subject to automatic one-year renewals absent a notice of termination by either party. Neither party served a notice of termination of either agreement in 2019, thus extending the term through December 31, 2020.

2020 Agreements. In 2020, the parties entered into a new Electric Service Agreement to go into effect on January 1, 2021 ("2021 ESA") and provided for interruptible service at rates based on the 2018 ESA, with upward adjustments for increases to RMP's revenue requirements approved in RMP's 2020 general rate case (Docket No. 20-035-04). The 2021 ESA also set terms and conditions for interruptible service. The parties also entered into an Operating Reserve Interruption Agreement ("2021 ORIA"), which allowed RMP to purchase operating reserves from USMag by either by calling on USMag to curtail its operations or by purchasing power and energy from USMag's on-site generation resources. Interruptions were limited in duration and frequency. RMP served a notice of termination of the 2021 agreements and, as a result, they are scheduled to terminate on December 31, 2021.

Q. In the various agreements between USMag and RMP, have the terms and conditions remained basically consistent?

A. Yes. Each of the agreements referenced above have included rates, terms, and conditions for interruptible service to USMag. The rates have increased over the years just as RMP's rates to other customers has increased and during some periods were escalated at

higher rates of increase to push USMag to its cost of service based rate. Those rate increases have ensured that USMag pays at or very near its full cost of service.

The terms and conditions of interruptible service have remained largely the same. The agreements have all identified the times and dates that USMag is subject to interruption, the idea being to subject USMag to interruption at the times most likely to coincide with the system peak load. The agreements have each also limited the frequency and duration of interruption to limit the negative impacts of interruption on USMag's operations and equipment. The agreements have also provided USMag the option to purchase available market replacement power, or "buy-through," at an indexed market price during times of curtailment.

Finally, the agreements have also permitted RMP to physically curtail USMag, with no "buy-through" option, when necessary for system reliability purposes.

Q. Can you describe the current terms and conditions contained within the 2021 ESA and 2021 ORIA?

A. The terms of the current agreements are confidential. USMag will work with RMP to safeguard any commercially sensitive information and will produce the agreements to those parties in this docket that require them and that comply with Commission rules regarding confidential information.

I will attempt to describe the terms and conditions of the current agreements in a general way that can be publicly disclosed. The current agreements allow RMP to curtail USMag's load at the time of system coincident peak during six months of each year. This makes US Magnesium an important demand side management ("DSM") resource that benefits all Utah ratepayers. As with all prior agreements, the duration and

frequency of curtailments are limited. RMP also retains the ability to physically curtail USMag when necessary to address system reliability issues.

Interruptible Service Task Forces

Q. Have parties discussed the value of special contracts and interruptible service in any sort of meaningful way over the years?

A. Yes. Over the years, this Commission has convened task forces to address eligibility for special contracts and how to value interruptible resources like USMag.

Q. Did USMag or its predecessor participate in any Commission-ordered task forces on Special Contract pricing?

A. Yes. In 1999 USMag representative Lee Brown participated in a Special Contracts Task Force with stakeholders to evaluate important considerations in pricing special or interruptible contracts. A copy of the Task Force report from that 1999 effort is attached as USMag Exhibit 1.8. In essence, the report concluded that a Special Contract customer should cover variable costs and make a contribution of at least 5% to the fixed cost of resources used to provide interruptible service. The Report also concluded that these types of special or interruptible contracts should be available only to large customers with significantly different load and service characteristics. The Task force report did not delve into specific pricing mechanisms for special or interruptible contracts.

Q. Does USMag's current rate provide a contribution to fixed costs in excess of 5%?

A. Yes, the current rate includes a significantly higher contribution to fixed costs than 5%.

Q. Can you give a reasonable estimate of the contribution above incremental costs now being made by USMag towards fixed costs?

A. Yes. The current rates paid by USMag contribute an estimated [redacted] toward system fixed costs, significantly reducing the fixed cost obligation of other customers.[8] This fixed cost contribution can be estimated from data provided in the Company's cost-of-service model from the last electric rate case, along with an estimate of variable costs from the USMag QF contract filing this year (Docket No. 21-035-27).[9] US Mag's QF pricing is derived from two grid model runs, one assuming USMag's QF generation is in the system and one assuming no USMag QF generation; the difference provides a reasonable estimate of the value of power that will make other ratepayers indifferent. That price from USMag's QF contract is approximately [redacted] per MWh.[10] USMag's current interruptible contract price, based on revenue from USMag reflected in the Company's rate case cost-of-service model, escalated by the overall Utah percentage rate increase from that rate case, results in an existing rate to USMag of [redacted] per MWh. Under a separate agreement, USMag receives monthly credits for operating reserve that produces a net rate that USMag is currently paying for interruptible service (without consideration of the cost of market purchases during periods of curtailment) of [redacted] per MWh. Based on RMP cost of service information from the last rate case, a full firm cost of service rate for USMag would be approximately [redacted] per MWh. After subtracting the variable cost estimate of [redacted] per MWh, it leaves a full fixed cost component for firm service of [redacted] per MWh. USMag's net rate of [redacted] per MWh, minus the [redacted] per MWh estimated variable cost, leaves a [redacted] per MWh contribution towards fixed costs, or roughly [redacted] of the full firm fixed cost component, producing a USMag

[8] *See* CONF USMag Exhibit 1.3, attached hereto.
[9] *See* CONF USMag Exhibit 1.2, attached hereto.
[10] *See id.*

contribution of about [redacted] towards fixed cost every year.[11] That is well above the 5% minimum suggested in the 1999 task force report.

Q. Have there been other historical reports that discuss the USMag contract?

A. Yes. After the conclusion of Docket No. 01-035-38, the Commission ordered the creation of a task force to examine the benefits and costs of the USMag contract that resulted from the 2002 Order. The DPU filed a report regarding that examination. A copy of that report is attached as USMag Exhibit 1.9. In the report, the DPU stated as follows:

> "In sum, the Taskforce explored numerous approaches for quantifying the interruptibility value provided by USM, but did not identify a particular approach as definitive. Additionally, it is the DPU's assessment that the analyses do support that large interruptible customers offer value to the system and to Utah ratepayers, as realized through power costs adjustments and reduced contributions to the CP leading to lower revenue requirement allocations."[12]

Critically, the report also concluded:

> "Additionally, we support that providing interruptible rates and service for large special contract customers is consistent with the Division's focus on the need to further pursue demand side options for managing Utah's load growth."[13]

[11] *See* CONF USMag Exs. 1.2 & 1.3.
[12] USMag Exhibit 1.9, p. 12.
[13] *Id.* at p. 13.

USMag as a Demand Side Resource

Q. How do the current terms of service for USMag make it a significant Demand Side Resource for the benefit of the System, and Utah in particular?

A. The current USMag contract provisions provide a mechanism whereby PacifiCorp generation resources are not needed or utilized to provide interruptible electric service to USMag at the time of system coincident peak for six months each year. This makes USMag an important demand side management resource for the system and for Utah. The contract specifies the expected highest use peak hours during those six months in which RMP can choose to curtail USMag's use of RMP generation resources. As noted in the above task force reports, the system and the other Utah customers benefit from USMag being required to curtail its use of system generation resources during those peak hours chosen by the Company.

Q. Can you further describe the types of benefits that this arrangement provides to Utah and the system?

A. In its resource planning efforts, the Company need not, and should not, plan generation resources to serve USMag's load during system coincident peak hours. As Figures 1 and 2 show graphically, interruptible electric service to USMag is intended to always be from surplus system resources that are not needed for service to firm customers, or from outside market power if and when it is available. USMag has always been an interruptible customer and no system generation resources should ever be built to serve its load. USMag efficiently utilizes excess system generation capacity when available and otherwise, outside market resources if and when available, at market prices.

Q. Does this approach maximize the value of excess system resources when they are not needed to meet firm customer demand?

A. Yes. During buy-through hours the contractual structure requires USMag to pay a market-based rate, scaled by EIM-based scaling factors determined by RMP, which ensures that the revenue received by RMP from USMag from excess generation capacity during those hours is market-based and comparable to or greater than the revenue it would receive if it sold the excess capacity into the energy imbalance Market ("EIM").

Q. What other benefits does this USMag arrangement provide to Utah customers of RMP?

A. Utah benefits from the fact that this methodology efficiently utilizes the USMag load as a large demand side resource, resulting in a reduction in system costs allocated to Utah. The Division report referenced above acknowledges this fact:

> "[Th]e costs of the load served during the buy through period should not be assigned as part of the revenue requirement; rather, this is a cost directly paid by USMag for purchasing replacement power during the curtailment period. The power used during this period is assumed to come from the market and not from the PacifiCorp system *per se*. In short, Utah's revenue requirement should reflect only the cost of service imposed by USMag on the PacifiCorp system. Additionally, the inter-jurisdictional allocation should reflect a reduction in Utah's contribution to the system coincident peak, to the extent that the USMag interruption results in this offset."[14]

The existing 2021 ESA between USMag and RMP is explicit that the intent of the

[14] USMag Exhibit 1.9, at p. 4.

curtailment provisions is to reduce system coincident peaks. [redacted]

Q. What is your understanding as to why this approach has been used in USMag rate determinations?

A. Missing coincident peaks provides a direct tie to the cost-of-service model and provides a pricing basis for interruptible service. As acknowledged in the task force reports referenced above, it is difficult to come up with a specific cost-based approach for interruptible service rates. Reducing the coincident peak allocation factor provides a reasonable cost basis for pricing interruptible service.

Q. What other methodologies could be used for pricing interruptible service?

A. An alternative approach referenced in the task force report is to start with full firm cost of service and reduce it by the cost of a proxy resource like a peaking power plant or a battery.

Q. Do you see any problems with using that type of approach?

A. Yes. The first problem is that an inherent underlying assumption for that type of approach is incorrect; USMag has never been and cannot be a firm cost-of-service-based

customer. Interruptible service is the only economic option for the USMag electrolytic operations. Second, in order to come up with a reasonable proxy value you would need to identify a resource that can do all the things that the USMag load can do as a demand side resource. While one could make assumptions about the cost and operation of a peaking plant or a battery, it would be very difficult to identify a proxy resource that can provide a demand side resource that also makes a substantial contribution to fixed system costs like USMag does. A battery or a peaking plant could provide some revenues if extra output were sold into the EIM, but if that were done the resources could no longer provide operating reserves, system integrity back-up, or other valuable services. The USMag plant is available for meeting those needs when it is operating, while also providing substantial fixed cost contributions from the rates it is paying.

Q. Do QF avoided cost rates offer reasonable comparisons for the value a peaking plant could derive by selling output into the market and providing a fixed cost contribution similar to what USMag provides?

A. Yes. If a peaking plant were operated during all 1,750 on-peak hours at the average USMag load level of [redacted] and received the QF on-peak rates in summer and winter provided to USMag, it would generate revenue of [redacted] per year.[15] However, if we assume a 10,000 btu per kWh heat rate, a $3/MMbtu gas cost and a $5 per MWh variable O&M cost, the expenses would total roughly $5 million, so the peaking plant would not have contributed anything towards covering its fixed costs but would have imposed a [redacted] cost on the system in addition to capital costs.[16] Also, during the

[15] *See* CONF USMag Exhibit 1.4.
[16] *See id.*

1,750 on-peak hours the peaking plant could not provide operating reserves or emergency reserves.

Operating Reserves and Emergency Reserves

Q. You mention that USMag currently provides operating reserves. Please explain.

A. Under current arrangements, USMag provides the system with operating reserves of up to [redacted] per year and for up to [redacted] per day. USMag is paid a reasonable rate for providing these reserves. This arrangement has worked reasonably well and should continue into the future.

Q. Could USMag provide additional operating reserve hours?

A. USMag could theoretically provide more hours of operating reserves, but there are significant economic constraints that would need to be factored in, given the cost of lost production to USMag. Also, it would be a problem if USMag were required to drop its load to zero for long periods in a day. If the plant is down for too long, the molten salt used in the process to make magnesium will cool and become solid and cause significant operational issues and costs. There are also constraints on how fast the plant can drop its load. USMag is willing to discuss with RMP providing additional operating reserve hours under certain conditions, but it would take additional time and expense to prepare the plant to withstand longer duration outages or more outages per year and the compensation for the same would need to be reasonable.

Q. You also said that USMag provides value as a system emergency reserve. Please explain.

A. USMag's current arrangements include a provision for system reliability curtailments (in addition to operating reserve curtailments) in the event of certain system emergency

conditions. The terms and conditions for calling on this emergency resource has not been clearly defined in the past and no specific value has been placed on this service, presumably because the value is hard to quantify. However, the value that this system emergency resource provided by USMag has clearly helped support the rate that USMag has paid in the past for interruptible service.

US Mag Proposal for Ongoing Interruptible Service

Q. In this docket, USMag has asked the Commission to establish rates, terms and conditions of interruptible service for USMag beginning January 1, 2022. Is USMag asking the Commission to order a continuance of the same type of interruptible supply arrangements that currently exist?

A. Yes, USMag is asking for a continuation of the fundamental concepts underlying the original and all subsequent USMag interruptible electric supply arrangements over the past five plus decades that have allowed USMag to continue its operations. However, we also propose some improvements to the current arrangements that we believe are fair and reasonable to USMag, to RMP, and to other Utah customers.

Q. What are the rates, terms and conditions of interruptible electric service that you are proposing?

A. Attached as USMag Exhibit 1.1 is an outline of material terms and conditions that USMag proposes the Commission approve. In brief summary, USMag requests that its current rates, terms and conditions of service continue for two years, during which time RMP will begin supplying USMag with peak load data to give USMag the data and time it needs to be in a position to manage load curtailments to avoid coincident system peaks. After two years, we propose that USMag's rates be adjusted each year to reflect a

demand charge based on USMag's actual use of PacifiCorp system generation resources at the time of each monthly system coincident peak. We propose that the existing operating reserve and emergency reserve arrangements continue, subject to possible options for more daily and annual operating reserve products if desired by RMP.

Q. You have explained the value of USMag to the system as a demand side resource that can reduce system coincident peaks. Do you know how well the USMag load has actually been used by RMP for that purpose?

A. For the most part, RMP has successfully used the current curtailment provisions to ensure that USMag is not utilizing system generation resources at the time of the monthly coincident peak for six months each year. We were, however, surprised recently to learn that RMP elected not to ask USMag to curtail during certain coincident peak periods in the past.

Q. Does that fact diminish the demand side value of the USMag load?

A. No. It is RMP, not USMag, that issues a notice of curtailment that includes specified curtailment hours. It is not clear why RMP elected on a few occasions not to curtail at the time of a potential system coincident peak.

Q. Have you investigated the circumstances of the few times when the USMag load was not curtailed by RMP to miss system coincident peaks?

A. Yes, but the reasons for the same are unclear. Perhaps RMP concluded at the time that keeping USMag's full load on the system during those periods would likely be more valuable than requiring USMag to curtail production or buy available market resources. Another possibility is that RMP failed to fully recognize changes occurring in peak hours on its system.

Q. Please explain.

A. My record of curtailment notices shows that in the summer months of 2017 the hours in which RMP consistently called for curtailment were the four hours ending 14-17. However, the actual system coincident peak occurred in hour ending 18 in those months. It is not clear why the Company did not change the curtailment hours to include the hour ending 18. Based on five years of data provided by RMP to USMag, the hour ending 14 has never been the time of system coincident peak.

Q. Does this suggest an issue with the current mechanism for ensuring that the USMag load is curtailed in order to miss monthly coincident peaks?

A. Yes, I believe this is a circumstance where the party with responsibility to determine the specific curtailment hours has no real accountability for achieving the desired outcome, i.e., an avoided coincident peak.

Q. Are you suggesting a change to create a direct tie between responsibility and accountability?

A. Yes, I believe that USMag should have the responsibility for identifying the specific days and hours for curtailment, after it is given access to and has had experience with actual coincident system peak and curtailment data for a reasonable period of time. After a transition period, a portion of USMag's rates should have a direct tie to its success or failure in missing system coincident peaks.

Q. What kind of transition period are you suggesting?

A. I believe that USMag will need a transition period of at least two years after it gets access to relevant data to move to direct responsibility for missing system peaks. We propose continued use of the current arrangements, based on RMP calling for curtailment during

six months, for two years. In the third year, a demand charge could be applied for any month in which USMag failed to miss the coincident peak in corresponding month from the previous year, either through physical load curtailment or buying available market resources.

Q. What do you propose the Company be required to do to provide greater transparency on the supply and demand balance for its resources?

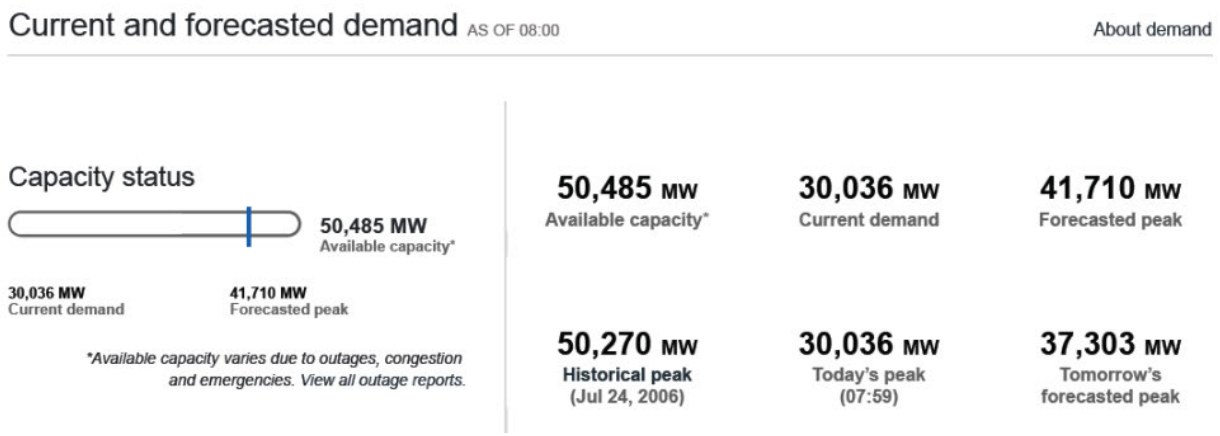
A. We would want to work more closely with the Company to understand the supply and demand balance and the prospect of a coincident peak being established. The circumstance would be helped with the company providing a forecast of supply and demand for the day ahead circumstance. That way USMag could understand the likelihood of an event that will require action to miss a coincident peak.

Q. Is this something out of the ordinary for a utility to provide?

A. No. The California ISO provides an online resource for its system projections that can be accessed by anyone at any time. The link is:

http://www.caiso.com/todaysoutlook/pages/index.html#section-demand-trend.

A portion of the online report is shown below with a forecast for a specific day. The Company can just utilize the same format that is provided to California customers in developing its report.



California ISO Forecast for September 10, 2021

Q. Can you explain what help that information would provide?

A. Yes. With that information in hand, it would provide a basis to see how close to a system peak with resources being utilized would be for the next day for planning. It would then give USMag a clearer idea of when it needs to be ready to be off-line or ready to pay market-based costs for power. It would also give a basis to see how accurate the Company is in its forecast basis by tracking differences. With that information a better need for curtailment will be established.

Q. Please explain how your curtailment proposal would work.

A. We propose that, rather than the Company sending USMag a notice of specific curtailment hours, after reviewing the information provided on supply and demand projected for the day ahead period by 8 a.m. then USMag should send RMP a notice of curtailment before noon of the prior day, listing the hours that USMag will curtail use on the next day. RMP should then provide USMag with the applicable market index price for buy-through power by 2 p.m. of that day, and US Mag should notify RMP of its final physical curtailment/market purchase decisions by 5 p.m. that day.

Q. What do you propose with respect to emergency curtailment arrangements?

A. USMag is willing to continue to provide the Company with a limited number of hours each year of system emergency curtailment, so long as the curtailments are limited to legitimate emergency conditions and they last no more than three hours, with a minimum of three hours of USMag being back in operation before another emergency curtailment can be called, in order to keep molten salt from cooling and destroying process systems.

Q. What do you propose with respect to operating reserves?

A. USMag can reasonably tolerate the current arrangement, for up to [redacted] of operating reserves per year. This arrangement has worked reasonably well and should continue in place. To the extent the Company would like to be able to call on more operating reserves, we might be able to accommodate it given sufficient compensation and time to prepare the plant to withstand additional interruption hours.

Q. Please explain.

A. USMag could potentially tolerate more curtailments in a given day as long as there is a period of at least three hours after each operating reserve interruption to allow the plant to operate and recover before another operating reserve interruption is called. Also, to the extent the Company wants more than [redacted] of Operating Reserve per year, USMag could potentially accommodate such a request, but only if adequate compensation is paid to account for lost production and USMag is given sufficient time to add more production or onsite generation capacity to allow it to continue to meet its market commitments. I believe it would take at least two years for USMag to be able to build up a more robust means of dealing with higher requirements for operating reserve curtailment. We would consider an arrangement in which USMag has an option to supply a higher level of

operating reserves at a specified price after two years, assuming USMag is able to find an economic means to allow the plant to withstand the requested level of curtailment.

Q. What term of agreement does USMag request?

A. USMag requests an agreement with a term of ten years, which will provide long-term certainty on these matters to USMag, RMP, and other RMP ratepayers.

Q. Does this conclude your direct testimony?

A. Yes.