SPP Southwest Power Pool
MARKET MONITORING UNIT

MARKETS+ GREENHOUSE GAS DESIGN PROPOSAL

SPP MARKET MONITORING UNIT COMMENTS

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COMMENTS ON PROPOSED GREENHOUSE GAS DESIGN

INTRODUCTION

The Southwest Power Pool Market Monitoring Unit ("MMU") provides these comments in response to requests from voting stakeholders for a written summary of its position on the Markets+ greenhouse gas ("GHG") design mechanism. The MMU's interest in this process is advisory and non-voting, and these comments reflect a fundamental desire to assist in the creation of a market design that: 1) works as intended; 2) produces efficient and competitive market outcomes; and 3) possesses sufficient safeguards against the exercise of market power.

The MMU's comments focus on three areas: regulatory uncertainty, opportunities for gaming and inefficiency, and interactions with other market design elements, to the extent that these three areas implicate the above-stated interests in the function, efficiency, and protections of the proposed Markets+ design.

Normative policy questions, such as those concerning the purpose or level of taxes or credits for GHG emissions, or the appropriate amount of cost and complexity needed to address "leakage," are best left to the involved stakeholders, regulators, and market operator to consider. These comments should not be interpreted as an endorsement or rejection of the GHG design as a whole, and points regarding particular design features are not indictments of the project's fundamental purpose or necessity.

REGULATORY UNCERTAINTY

Markets+ GHG pricing design discussions occur against a backdrop of significant regulatory uncertainty. The State of Washington's Department of Ecology ("Ecology") has yet to provide sufficient clarity on key areas of the implementation of the State's cap-and-invest program, such as leakage. As such, Markets+ stakeholders point to the need for rulemaking and guidance from Ecology, while Ecology points to the "unsettled" and "in-flux" nature of the Markets+ design. The Markets+ project timeline has the tariff language completed and filed before Ecology publishes its formal guidance.

Regulatory uncertainty has tangible impacts on the choices and associated risks of the proposed market design. There are outstanding questions on several key topics. Questions concerning leakage compliance obligations directly inform the nature and complexity of the core GHG clearing and pricing mechanisms. Questions concerning the compliance treatment of imports directly inform the decisions to create and specify an array of import "types" with varying privileges and obligations. Finally, questions concerning the administration of funds collected by

SPP and the treatment of emissions credits directly inform settlements and monitoring functions within the overall market design.

Other states have also indicated with varying degrees of probability that they will adopt additional GHG policies in the near future. These additional policies will themselves come with varying degrees of similarity to Washington's program, and may demand future revisions to market design to integrate into clearing and pricing. These speculative future policy scenarios in other states have not influenced the GHG design discussions to the same degree or with the same urgency as the policies adopted by Washington. Expectations of future policies have justified, however, specific design choices like the resource operator surplus threshold designation approach and Type 1A import classification, which introduce increased participant discretion in market participation scope and strategy to accommodate these potential future GHG policies.

While policy durability is an important consideration, it should be weighed against the degree to which the accompanying optionality introduces risks to both market efficiency and protections. It should be assumed that profit-maximizing market participants will take full advantage of the strategic and discretionary tools at their disposal, even if those tools were introduced to reflect pre-market business practices. Increased optionality could also make it harder to predict broad market outcomes or quickly assess the causes of acute market situations. Specific design features are discussed further below.

GHG DESIGN ELEMENTS

TYPE 1A SPECIFIED SOURCE IMPORTS

"Type 1A" refers to specified source imports from resources with what have been characterized as "all or nothing" obligations to Washington load. In the proposed design, Type 1A resources do not participate in the Type 2 surplus identification and optimization processes. Instead, the full quantity of the contracted output of Type 1A resources is "deemed" as serving the GHG pricing zone at any dispatch, regardless of physical location, transmission rights, or congestion patterns.

While Markets+ already provides options to reflect bilateral arrangements between loads and specific generators, such as self-scheduling or strategic offer behavior, Type 1A categorization could more conveniently incorporate these arrangements while still remaining consistent with cost-informed dispatch principles. 1A functionality could also help Markets+ better accommodate future policy environments in which multiple Western states "deem" it necessary to "deem" produced power to their respective programs.

Notwithstanding these benefits, stakeholders raise several credible concerns with Type 1A that merit discussion. These concerns broadly center on price outcomes, deliverability, and gaming of registration and qualification.

Some have commented that Type 1A specified source imports could be distortionary and raise costs outside of the GHG pricing zone. In the pricing zone, Type 1A resource offers will still compete with offers associated with unspecified source imports. While they are "fully deemed" to the GHG pricing zone, they are still subject to the same dispatch optimization as other offers. If, however, Type 1A resources serve non-pricing-zone load, they could do so at an offer level that reflects a cost (the "GHG adder") that would normally be considered inappropriate for inclusion in the evaluation of non-pricing-zone generation, because non-pricing-zone generation does not have to pay for pricing-zone compliance, (*i.e.* emissions credits).

This could happen, for example, in an oversupply situation, where generation from internal resources along with Type 1A imports is more than Washington's load requirement. Similarly, if there is a situation where a resource must run, and would have run anyways, it could claim Type 1A qualification to receive the GHG price for its full output. Type 1A resources could also be dispatched to serve the broader market and create a situation where the "deemed" output from their dispatch, along with internal load, is greater than the load subject to the pricing program.

Stakeholders also raise deliverability concerns with Type 1A. The proposed language lacks an explicit condition tying Type 1A to deliverability, either as a demonstration made in resource registration or as a real-time component of market dispatch and optimization.

Supporters of the current language argue that contracts for the full output of resources already contemplate deliverability and transmission rights. While this may be true for the types of long-term, high-volume contracts negotiated before Markets+, these reassurances were never codified, and there is no guarantee they will continue to be true with the introduction of Markets+. The introduction of Type 1A itself changes the assumptions upon which Type 1A resources make their contracts. The present language does not consider these incentives.

There is no obligation to disclose the underlying contracts that Type 1A imports are designed to reflect, either. How resources qualify for Type 1A consideration in dispatch, at what frequency, subject to what verification and by whom, are all unanswered questions. Absent tariff language limiting the utilization of or qualification for Type 1A designation, it could foreseeably impose a significant, complex, controversial and costly verification and oversight burden fraught with implications for confidentiality and market efficiency.

For example, an entity could contract with two different Washington loads to provide Type 1A imports. One contract could be for the full output of a resource at all times. The other could be just for peak hours, or particular months of the year, or for only a portion of a resource. Ensuring that only truly contracted resources claim 1A will require verifying contracts, and enforcing time- and quantity-based 1A qualification on a continuous basis requires additional scrutiny.

If the intent of the Type 1A design feature is to reflect a set of known, extant contracts, revised tariff language could limit qualification for Type 1A to those resources with contracts that both match that understanding and already exist at the time of the Markets+ tariff filing.

The MMU also supports changes to the tariff language that incorporate a "handshake method" for verifying Type 1A eligibility. This would require that loads which contract with Type 1A

resources verify with the Market Operator that such contracts exist and that registered values represent the contracted quantity before the resource operator is eligible to make Type 1A offers. If reasonable contracts already contemplate deliverability, the handshake method would reflect that in-market without creating an open door for any resource to self-designate as Type 1A, and without forcing the Market Operator, Market Participants, or Market Monitor to expend time and energy on complex contract interpretation and verification processes.

TYPE 1B SPECIFIED SOURCE IMPORTS

Type 1B specified source imports may be attributed to the GHG zone, but they may also serve the non-GHG pricing zone, without that output being "deemed" to the GHG zone. Type 1B offers more flexibility to the market optimization, and could lead to more efficient and cheaper solutions when compared to situations where the same resources offer as Type 1A.

For example, in the above scenario where 1A dispatches lead to an over-designation of power in excess of GHG zone demand, having some of those 1A resources offer as 1B could prevent that over-designation. Power produced for Washington would reflect the cost of incremental emissions, while power produced outside of that GHG pricing zone would not, avoiding passing emissions costs outside of the pricing zone.

While Type 1B is preferable in the flexibility it provides, it still raises the same concerns about contract verification and qualification as Type 1A. It is unclear if the market implementation of Type 1B reflects the full scope of contracts contemplated to serve GHG load. Similarly with the contracts contemplated by Type 1A, these could reflect "percentage output", time-based output, or seasonal output agreements more sophisticated than the contracts "up to" a MW amount modelled by Type 1B. Consideration should be given to implementing similar handshake and grandfathering provisions to Type 1B that the MMU proposes for Type 1A.

TYPE 2 AND SURPLUS IDENTIFICATION AND OPTIMIZATION

The MMU appreciates the analysis, deliberation, and compromise behind the "enhanced floating surplus" approach in the current proposal. SPP has provided valuable explanations, example scenarios, and results from simulations throughout this process that are aiding stakeholders in their decision-making. As stated above, the MMU views the tradeoff between least-cost optimization and leakage prevention as a policy question best left to those stakeholders and decision-makers.

Still, there is no other area where the need for regulatory guidance is clearer than in answering this question. To the extent that the market must design around uncertainty, it is being forced to introduce features like unconstrained resource operator surplus designation and merit order stacking assumptions that may not reflect reality.

The resource operator surplus threshold designation approach allows Market Participants to designate, on a resource-by-resource basis, the amount of surplus energy available for

attribution to the GHG pricing zone. Similar to Type 1A, this is envisioned as a carve-out to the merit order and counterfactual solve process for surplus identification optimization. Like Type 1A, the mechanism and language surrounding the resource operator designation option does not reflect and is not limited by the exceptional circumstances that justified its design in the first place.

Resource operator designation is not just surplus designation more constrictive than that arrived at by the default Type 2 merit order. There is no requirement that the surplus threshold identified by the resource operator be less than, more than, or equal to (but possibly amongst different resources) than that identified by the default process.

Unbounded resource operator designation could impair the ability of the merit order or counterfactual solve processes to arrive at efficient and fully-informed results, and could provide a means to withhold energy from the GHG pricing process. For example, participants could self-limit their surplus threshold at the minimum, making their entire generation stack eligible to be deemed as serving the GHG zone. This could represent a backdoor to efforts to mitigate leakage by allowing allocation of "green power" to the GHG zone that would have already been produced without the cap-and-invest program. Alternatively, participants could set their surplus threshold to the maximum, on a fleet-wide or resource-by-resource basis, to withdraw capacity from consideration to serve the GHG zone.

The default merit order process applied absent resource operator designation needs refinement as well. The assumptions behind "merit order stacking" are easily gamed, and contradict the heavily interdependent and bilateralized methods of meeting load obligations that stakeholders themselves attest to in justifying the inclusion of Type 1A specified source imports. Market participants can circumvent the merit order stacking by splitting load and generation into different asset owners, without having to use the resource operator designation option. Merit order resource stacking also relies on an assumption that resource operators make "all or nothing" decisions to subject their full stack to the voluntary conditions of GHG pricing, when the market design is clearly based upon the ability to elect participation on a resource-by-resource basis.

Even if the surplus threshold designation executes optimally, optimization still requires a two-pass solve, with the first solve utilizing mixed-integer programming to establish a surplus amount beyond the identified threshold for passing into a second-pass dispatch solve using linear programming.

Hard questions about the complexity, compute time, and reproducibility of these mixed-integer solutions remain. Introducing a second solve before the binding dispatch, itself subject to input from another new process (threshold identification), may make it difficult for the Market Operator to meaningfully evaluate and discriminate between market solutions on a five minute interval basis. The complexity of the process alone may also impede the ability of market observers to glean useful and timely insight from market dispatches. Even with perfect information, mixed-integer solutions are not guaranteed to be reproducible. Counterfactual market solves are an important component of market surveillance, market analysis and forensics,

and market policy evaluation. Non-reproducible solves introduce doubt into all of these processes, as well as a degree of variability with nondeterministic outcomes that may be difficult to quantify, and particularly difficult to justify when making financially binding decisions, disbursements, and collections.

It is also not clear that the first-pass solves will even occur with the same frequency as the five-minute-interval dispatch optimizations. This introduces an element of time-delay and information decay that similarly undercuts faith in the ability of the two-pass method to produce timely and acceptable results.

Finally, there are concerns about the potential composition of the set of voluntary-compliance resources that will avail themselves of the Type 2 mechanism and provide it with the flexibility and liquidity necessary to execute optimally. Resources that anticipate being marginal, or frequently marginal, would receive revenues commensurate to cost whether they participate or not, but would face increased compliance costs in the situation where they do participate. Resources finding it more beneficial to offer as Type 1A will do so as well, further reducing participation absent a limit or qualifying condition to Type 1A eligibility.

INTERACTION WITH OTHER MARKETS+ DESIGN ELEMENTS

Participants should also consider interactions between the GHG design and other market design elements adopted in parallel Markets+ working groups. The transmission opt-out, market monitoring, duty of candor, Seasonal Hydroelectric Offer Curve ("SHOC"), and resource aggregation discussions all have important implications for GHG design.

The frequency with which participants may elect to remove or add transmission to the Markets+ model could create additional uncertainty, risks, and costs in the market for transmission that constrain efficient dispatch to the pricing zone. This uncertainty could also undercut many of the assumptions and assurances about deliverability terms in contracts for external generation.

Similarly, the introduction of the SHOC or an alternative mechanism similar to CAISO's hydroelectric Default Energy Bid may undercut assumptions participants hold about future market offer levels of external and contracted resources. Hydroelectric resources will command a large share of installed capacity in some areas of the Markets+ footprint, and will entertain significant discretion to offer and operate within a wide range of costs and parameters.

The incremental flexibility afforded to hydroelectric resources to aggregate and disaggregate also raises questions about the alignment between these aggregate resources as reflected in the market, and with the resources as represented in relevant bilateral contracts and before emissions compliance authorities. Consideration should be given to the role that GHG requirements may have in determining and verifying permissible resource registrations.

In fact, any aggregation of resources with different emissions factors raises questions about how appropriately to account for aggregate GHG adders or whether such aggregations are suitable at all. Language concerning resource registration and GHG adder requirements needs to be further developed and aligned with the binding compliance assessments of emissions profiles under the cap-and-invest program. Verifying credit acquisitions, costs, and assignment to individual resources within aggregations will be complex, and opportunities to game or misrepresent emissions costs may persist.

Even without resource aggregations, the duty of the MMU to verify the cost-based GHG adders on an ongoing basis has implications for market surveillance systems and staffing, and may require frequent communication with participants, or the establishment of a tool or programmatic process to submit compliance cost verification information. For this reason, the MMU strongly supports the addition of tariff language that sets the default GHG credit cost for all imports to the same index price already used for unspecified source imports. Participants seeking to offer at different levels from the default would then have the option to prove those costs or compliance strategies to the Monitor, in the same manner that they negotiate approved mitigated offer development methodologies with the MMU under existing Attachment B authority.

Finally, decisions about participant disclosure and offer obligations, specifically the duty to register and offer in ways that reflect reality and the duty to make truthful disclosures to the MMU, have operational and economic implications for the execution of the GHG design. Guaranteeing that units offer in ways consistent with physical and operational limits ensures resource dispatch in ways consistent with stated assumptions about emissions characteristics. Requiring truthful disclosures to the MMU similarly ensures that the offered costs for those emissions represent economic reality, and prevents the GHG adder from employment as a tool to manipulate market outcomes.

CONCLUSION

The MMU has commented on regulatory uncertainty, specific market execution mechanisms, and interactions with other Markets+ developments where it feels that further Tariff refinement or discussion is necessary. No market design comes without a need for protections and oversight, and implementing new market products will always raise questions that the MMU is obligated and well positioned to answer. The MMU remains firmly confident that stakeholders will arrive at a design that is functional, efficient, and acceptable to all.