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To: Clean Energy Transmission Working Group
Co-chairs Jason Marshall and Jamie Van Nostrand
Members

EXECUTIVE SUMMARY & RECOMMENDATIONS

As the Clean Energy Transmission Working Group ("CETWG") prepares its report to the legislature, including recommendations for legislative and regulatory actions at the state, regional, and federal level, JERA Americas requests that the CETWG acknowledge a new, expeditious and cost-efficient transmission alternative, Surplus Interconnection Service ("SIS"), which can be used to facilitate the rapid addition of more than a gigawatt of new, zero emission generation at Canal Generating Station ("Canal") in Sandwich. A key advantage of using SIS at Canal is that new renewable energy can reliably access the grid by repurposing existing infrastructure with minimal network upgrade costs, virtually no constraints, and minimal environmental or host community impact.

While JERA can speak specifically to the value and use of SIS at its facilities, SIS is not limited to use at JERA facilities, nor is it limited to use with offshore wind generation. SIS is a broadly applicable service created by the Federal Energy Regulatory Commission because of its potential to reduce costs for interconnection customers by increasing the utilization of existing interconnection facilities. As we discuss below, SIS is an approved, tariffed option newly available anywhere in the region where surplus interconnection capacity exists. SIS offers untapped value that should be captured for the benefit of ratepayers by modifying the overly restrictive interconnection requirements of the electric utilities.

JERA also requests that the CETWG recommend that the legislature authorize SIS or its functional equivalent be accepted as a qualifying interconnection option in future procurements or, in the alternative, act on the suggestion of the Department of Public Utilities[1] ("DPU") to assess practical and ready-to-implement options to incorporate an alternative interconnection standard by directing the Department of Energy Resources ("DOER") to confer with stakeholders to assess the benefits of SIS as an interconnection option.

Lastly, JERA notes that the requirement to interconnect at a Capacity Capability Interconnection Standard ("CCIS") and complete the ISO-NE Forward Capacity Auction Qualification ("FCAQ") process drives up the cost of bids. JERA urges the Working Group to recommend that the legislature eliminate these overly restrictive requirements and replace them with sensible policies that balance costs and benefits and ensure operational and market realities are appropriately reflected.

[1] D.P.U. 23-42, at 66.

I. INTRODUCTION

Massachusetts has a long history of taking dedicated action to address climate change. More recently, in December 2020, the Executive Office of Energy and Environmental Affairs issued the Massachusetts 2050 Decarbonization Roadmap ("Roadmap"), finding that meeting the Commonwealth's decarbonization goals would require a comprehensive plan focused on a *rapid* deployment of renewables, reliable balancing, and planning for limited land and bioenergy resources. The analysis underlying the Roadmap sought to understand the physical requirements and technical options to design smart policy where flexibility and optionality were key goals.

The Massachusetts Clean Energy and Climate Plan, issued in June 2022, highlights the anticipated tremendous growth of the clean energy industry, anchored by offshore wind generation. And, most recently, the legislature mandated the procurement by the electric distribution companies of approximately 5,600 MW of offshore wind energy under *cost-effective* long-term contracts.

Despite the efforts of the Commonwealth, significant obstacles have emerged that threaten the availability of offshore wind. The most recent offshore wind procurements in New England, in Massachusetts, Connecticut and Rhode Island, failed to produce viable and cost-effective projects. The Roadmap noted that bringing large volumes of offshore wind onshore and delivering it to demand centers would require substantial upgrades to the onshore bulk power grid. It also noted that existing, onshore transmission infrastructure originally built to carry electricity from large thermal power plants could be repurposed as interconnection sites for offshore wind farms.[2] Unfortunately, the interconnection requirements in the Request for Proposal documents issued in the current Section 83C IV solicitation will prevent ratepayers from receiving the low cost benefits offered by SIS. As set forth below, future RFPs should be required to permit SIS or its functional equivalent as a transmission option for offshore wind or other clean or renewable sources of energy.

II. COMMENTS

On May 2, 2023, the Massachusetts Department of Energy Resources ("DOER"), in coordination with Fitchburg Gas and Electric Light Company d/b/a Unitil, Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, and NSTAR Electric Company d/b/a Eversource Energy (collectively, the "Distribution Companies"), jointly filed a petition with the Massachusetts Department of Public Utilities ("Department" or "DPU") for approval of a proposed timetable and method for a fourth solicitation and execution of long-term-contracts for offshore wind generation resources and associated renewable energy certificates ("Draft RFP").[3] Pursuant to the Notice of Filing and Request for Comments issued by the Department on May 10, 2023, JERA Americas Inc. ("JERA"), the owner of Canal Station, a generating facility located on the Cape Cod Canal in Sandwich, MA. ("Canal"), submitted initial, reply and sur-reply comments urging the DPU to mandate that SIS be an acceptable interconnection alternative for qualifying for

[2] Roadmap at 59.

[3] DOER and the Distribution Companies filed the Draft RFP with the Department pursuant to Section 83C of An Act Relative to Green Communities, St. 2008, c. 169, as amended and supplemented by St. 2016, c. 188, § 12, St. 2018, c. 227, s. 21(a), St. 2021, c. 24, s. 69, and St. 2022, c. 179, s. 60-6.

the 83C IV RFP and direct that proposed changes to the draft RFP be adopted.

Citing precedent, in its order approving the draft RFP, the DPU granted DOER and the utilities discretion with respect to RFP terms and provisions. On August 30, 2023, the electric utilities and DOER issued an RFP that retained the restrictive interconnection requirements used in prior solicitations.

On April 19, 2018, the Federal Energy Regulatory Commission ("FERC") overhauled its pro forma Large Generator Interconnection Procedures ("LGIP") and pro forma Large Generator Interconnection Agreement ("LGIA")[4] through a Final Rule ("Order 845"),[5] as clarified on February 21, 2019 by Order 845-A.[6] The issuance of Order 845 was the culmination of a rule-making process triggered by a petition filed by the American Wind Energy Association[7] on June 19, 2015.[8] Order 845 was an attempt by FERC to address the rapidly increasing costs and enormous delays associated in part with trying to interconnect the new generation of renewable resources needed to meet federal and state decarbonization goals.

Accordingly, in Order 845, FERC adopted multiple reforms designed to reduce costs and undue delays in the interconnection process. Among such reforms was the establishment of a new interconnection option called Surplus Interconnection Service.[9] FERC noted that for various reasons existing interconnection capacity was not being fully utilized and that a process should be developed to allow parties other than the original interconnecting customer to make efficient use of any surplus interconnection capacity. As a result, FERC established the new concept of Surplus Interconnection Service because of its potential to "reduce costs for interconnection customers by increasing the utilization of existing interconnection facilities and network upgrades rather than requiring new ones..."[10]

A. ISO-NE Has Adopted Surplus Interconnection Service.

On May 22, 2019 and July 17, 2020, ISO-NE submitted proposed revisions to Schedule 22 to the ISO-NE Tariff to implement the LGIP and LGIA reforms (including the establishment of Surplus Interconnection Service) adopted by FERC in Orders 845 and 845-A.[11] FERC accepted ISO-NE's

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[4] The pro forma LGIP and pro forma LGIA establish the terms and conditions under which public utilities that own, control, or operate facilities for transmitting energy in interstate commerce must provide interconnection service to large generating facilities.

[5] Reform of Generator Interconnection Procedures and Agreements, Order No. 845, 163 FERC ¶ 61,043 (2018).

[6] Order on reh'g, Order 845-A, 166 FERC ¶ 61,137 (2019).

[7] Now known as the American Clean Power Association.

[8] Order No. 845 at P. 15; American Wind Energy Association, Petition for Rulemaking of the American Wind Energy Association to Revise Generator Interconnection Rules and Procedures, Docket No. RM15-21-000 (June 19, 2015).

[9] Order No. 845 at P. 467.

[10] Order No. 845 at P. 467.

[11] ISO New England Inc., et al., Docket No. ER19-1951-000 (filed May 22, 2019 and July 17, 2020).

proposed revisions on March 19, 2020 and September 17, 2020.[12] The terms of Surplus Interconnection Service are set forth in Section 3.3 of the ISO-NE LGIP. In summary, Section 3.3 of the ISO-NE LGIP permits an interconnection customer (Original Interconnection Customer) to utilize or transfer to a third party any surplus interconnection capability (Unused Capability of Interconnection Service[13]). The Surplus Interconnection Service is formalized in a new form LGIA that sets forth the terms of the sharing arrangement.

It is important to note that Surplus Interconnection Service is available only if no "Network Upgrades"[14] are needed to implement the Surplus Service arrangement. Section 3.3.1 of the LGIP requires that ISO-NE conduct the studies necessary to demonstrate that no Network Upgrades are required. There is no limit on the amount of surplus interconnection capability that can be shared with a third party so long as the total output from the site does not exceed the total amount of Interconnection Service granted to the Original Interconnection Customer at the site.[15]

B. Canal Station Offers a Unique Opportunity for a Low-Cost, Reliable Interconnection for an Offshore Wind Facility.

Canal consists of three units -- two very old oil-fired units ("Canal 1" and "Canal 2") and a new dual fuel peaking plant ("Canal 3").[16] Canal has a total interconnection capacity of approximately 1479 MW, of which nearly 1200 MW (1149) is allocated to Canal 1 and Canal 2.[17] This 1149 MW of Interconnection Capability is an ideal candidate to provide Surplus Interconnection Capacity with an offshore wind project. Over the previous seven years, the capacity factor of Canal 1 and Canal 2 has averaged less than 1% (0.945%) and has never exceeded 3% in any single year.[18] For that same time period, the capacity factor of Canal 1 and 2 during the winter months was 1.86%. *See* **Attachment A**.

This is expected given the way Canal 1 and 2 fit into the current resource mix. Because of high dispatch and operating cost, and the long startup times associated with steam turbines, the facilities typically only run when the system is stressed, and other resources on the system are unavailable.

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[12] ISO New England Inc., 170 FERC ¶ 61,209 (2020); Order on Order No. 845 and 845-A Compliance Filing
(September 17, 2020).

[13] Capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the ISO-NE LGIP, LGIA or Tariff, as the case may be.

[14] "Network Upgrades" are defined in Schedule 22 to the ISO-NE Tariff as "additions, modifications, and upgrades to the New England Transmission System required at or beyond the Point of Interconnection to accommodate the interconnection of the Large Generating Facility to the Administered Transmission System."

[15] Control technology may be installed to ensure that the total output from the site does not exceed the amount of the Interconnection Service.

[16] Canal 1 went into service in 1968, Canal 2 in 1978, and Canal 3 in 2019.

[17] Canal 1's interconnection capability is 573 MW and Canal 2's is 576.4 MW.

[18] In the four years of operation prior to 2016, Canal 3 had an average capacity factor of approximately 7%. However, much of that additional operation was related to special oil programs, and local needs in the Cape Cod area; those local needs have since been resolved with additional transmission into the area, so that operation at that time is not representative of now or the future.

Currently, the dominant generation resources in New England are natural gas-fired and, in a gas constrained region such as New England, they are often unavailable during periods of gas shortages due to extreme low temperatures. That's when Canal 1 and 2 typically operate – and even then, usually for very short periods of time. The goal of all the New England State offshore wind RFPs is to have offshore wind replace natural gas-fired generation as the dominant resource. This would necessarily mean, unless these plans to procure sufficient offshore wind fail (as they have in the recent solicitations), that the Canal 1 and 2 dispatch profile will no longer occur during periods of winter gas shortages when generation from offshore wind will likely be plentiful. Rather, Canal 1 and 2 will dispatch only when offshore wind generation is scarce (winter or summer). Thus, Canal 1 and 2 will likely have surplus interconnection capacity of at least 1149 MW, 98% of the time.[19] Moreover, the addition of thousands of megawatts of zero energy cost offshore wind to the grid will drive Canal 1 and 2 to dispatch most often when wind is unavailable. Accordingly, it is quite reasonable to assume that with the build out of offshore wind (i) the capacity factors of Canal 1 and 2 will remain at these low levels for the foreseeable future or even decrease, (ii) the timing of Canal 1 and 2 dispatch will be asynchronous with offshore wind generation, and (iii) requiring additional CCIS facilities for both Canal 1 and 2 and offshore wind will offer a negligible benefit.

This already fully built out interconnection capacity can be made available to an offshore wind facility through a Surplus Interconnection Service agreement without the need for any Network Upgrades.[20] An interconnection option that avoids Network Upgrades has the potential to create enormous cost savings for ratepayers. As more offshore wind capacity comes online, the transmission system becomes more saturated and the cost of Network Upgrades increases geometrically.[21] Indeed, one proposed offshore wind facility interconnecting in Barnstable, MA. is facing estimated Network Upgrade costs of nearly two hundred million dollars ($200,000,000).[22] Recent analysis[23] by Lawrence Berkeley National Labs showed mean interconnection costs for projects in ISO-NE between 2018-2021 of $422/kW, an increase of 88% when compared to mean interconnection costs in ISO-NE of $225/kW for projects between 2010-2017. In ISO's 2nd Cape Cod Resource Integration Study update[24], they find that the next set of offshore wind connections to the Cape (beyond the first 2800 MW that is already largely through the interconnection process), would likely need a new undersea HVDC cable from the Cape to Boston. While that study did not provide cost estimates, we know such lines typically cost as much as $1 billion or more. While JERA can make no representations about any particular bidder's potential upgrade costs, it is clear that the ability to avoid Network Upgrade costs will save ratepayers tens, if not hundreds, of

[19] As referenced above, the combined output of Canal 1 and 2 and an offshore wind facility cannot exceed 1149 MW.

[20] A transmission line will still be needed to connect the offshore wind facility to Canal. In addition, Canal will likely need to implement certain on-site modifications to facilitate the offshore wind interconnection.

[21] The Department has seen this on a more local scale with the recent CIP proceedings. As more solar PV capacity comes on-line, the distribution system becomes saturated and interconnection costs increase dramatically.

[22] Park City Wind, approved by ISO-NE on 12/16/20.

[23] Kemp, Julie Mulvaney, et al. "Interconnection Cost Analysis in ISO-New England." Electricity Markets and Policy Group, June 2023

[24] September 21, 2022, posted at:https://www.iso-ne.com/static-assets/documents/2022/09/a03_second_cape_cod_resource_integration_study_status_update.pdf

millions of dollars. Based on the Lawrence Berkeley study, we estimate that a 1200 MW offshore wind project could save over $500 million in project costs, if it could find a site with an existing interconnection to share (like Canal).

Moreover, the Surplus Interconnection Service option offered by Canal is uniquely positioned to assist an offshore wind project to meet the general criteria for approval of long-term contracts established by the legislature in Section 83C and codified in 220 C.M.R.23.05. One of these criteria is to minimize transmission costs and prevent transmission cost overruns. Surplus Interconnection Service from Canal is likely the only interconnection option available with no Network Upgrades needed, thereby substantially mitigating transmission costs. Minimizing transmission costs will certainly enhance the overall cost effectiveness of any offshore wind project, another key criterion.

In addition, utilizing existing Network Capacity avoids the environmental impacts of constructing new Network Upgrades. Minimizing environmental impacts is another important Section 83C criterion. As the legislature and CETWG well know, these kinds of environmental impacts often fall disproportionately on environmental justice populations and communities. Finally, Surplus Interconnection Service also has the potential to bring an offshore wind facility on-line much earlier, given the time required to permit and build expansive Transmission Network upgrades.[25] This enhances project viability (another criterion) and allows an offshore wind facility to come on-line sooner and begin to displace carbon emissions.

In sum, 1149 MW of interconnection Unused Capability currently reserved for two oil-fired plants, fifty-five and forty-five years old respectively that seldom run, can be used efficiently with far less cost by a new offshore wind facility or other clean energy resource. The economic and environmental benefits of Surplus Interconnection Service are both clear and substantial. Unfortunately, the current solicitation interconnection requirement deprives the Commonwealth of the many benefits that Surplus Interconnection Service would provide.

C. The Current RFP Precludes the Option of Surplus Interconnection Service.

Section 2.2.1.8 of the RFP requires each bid proposal to interconnect at a Capacity Capability Interconnection Standard ("CCIS") equivalent and complete the ISO-NE Forward Capacity Auction Qualification ("FCAQ") process. Section 2.2.1.9 of the RFP further provides that each bid proposal must meet the Network Capability Interconnection Standard ("NCIS"). Meeting the CCIS and NCIS standards in order to satisfy the FCAQ process requires a Capacity Network Resource Capability Service ("CNR") Interconnection.[26] The Surplus Interconnection Service that Canal can provide is Network Resource Capability Service ("NR") and would not qualify the offshore wind facility for the Forward Capacity Auction.

In its Order in D.P.U. 17-32 dated March 27, 2017[27] ("83D Order"), the Department addressed the issue of whether a previous RFP should include the requirement to interconnect at the NCIS Standard and obtain CNR Interconnection Service. Although several parties, including the

[25] The CIP proceedings demonstrate that far more localized distribution upgrades will take four years to complete.

[26] See, Section 3.2.1.1 of the LGIP.

[27] Long-Term Contracts for Renewable Energy Generation, D.P.U. 17-32 (2017).

Massachusetts Attorney General, argued that a less stringent interconnection requirement was appropriate, particularly because the RFP was not procuring capacity, the Department approved the CCIS requirement. 83D Order at 83. The Department reasoned that the CCIS requirement was appropriate "both to include transmission costs in bids and to increase project viability." Id.

The Department's analysis could not have included a consideration of Surplus Interconnection Service because Order 845 was not issued until more than a year after the 83D Order. Thus, the issue of whether Surplus Interconnection Service should be a permissible option in an offshore wind RFP was an issue of first impression before the Department in D.P.U. 23-42.[28] As described below, applying the two criteria set forth in the 83D Order makes it clear that Surplus Interconnection Service must be an allowable option in future RFPs.

The first criterion is the necessity of including all transmission costs in bids. Based on that criterion, Surplus Interconnection Service is arguably the best option. Specifically, because Canal already holds CNR Interconnection Service for 1479 MW, no additional Network Upgrades will be required to provide Surplus Interconnection Service up to that amount. Contrast this level of certainty about Network Upgrades with the transmission cost uncertainty associated with other bids. At the time bids are submitted, some bidders may not have received System Impact Studies and estimated costs for Network Upgrades. Moreover, System Impact Studies typically identify only Energy (NRIS)-related upgrades. Network Upgrades required for CNRIS are not definitively identified until the FCM process is complete — which few, if any, bidders will have completed prior to submitting bids for an RFP.[29] Even if such studies have been completed, any estimates are just that, as the actual cost of the Network Upgrades will not be known until the construction is completed years in the future. Certainly, cost overruns for large-scale transmission projects are not unheard of – and if recent Transmission Cost Allocation requests being made at the NEPOOL Reliability Committee are indicative, they are in fact becoming the norm.

The second criterion, project viability, "is an important element of the RFP process." 83D Order at 83. JERA agrees and poses the question of which option provides a more certain promise of project viability: (a) a fully constructed CCIS interconnection, needing no Network Upgrades, that is available 98-99% of the time,[30] or (b) a new CCIS Interconnection at a cost of tens or even hundreds of millions, and requiring at least four years and likely much longer to permit and construct. Merely to ask the question provides the answer.

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[28] JERA acknowledges that it did not file comments with DOER regarding the Draft RFP prior to its filing with the Department. JERA's purchase of Canal is relatively recent, and it is working hard to familiarize itself with the myriad of regulatory issues in Massachusetts. That said, it seems clear that the issue of the suitability of Surplus Interconnection Service must be resolved by the Department in light of the precedent established in the 83D Order.

[29] Beginning later this spring, even the FCA will not be able to identify CNR-related upgrade requirements. That will have to take place through new, lengthy, cluster studies under FERC's recent Order 2023 requirements.

[30] This projection is based on the historical capacity factor of Canal 1 and 2. It is difficult to imagine that the units will operate more frequently after 1200 MW of new renewable energy comes on-line at the same location. In fact, the most logical outcome is that Canal 1 and 2 would only operate when the wind units are themselves not available.

If the DPU applies the two criteria used in the Order, the option of Surplus Interconnection Service must be available in the RFPs. Excluding Surplus Interconnection Service from RFPs would be detrimental to the Commonwealth's decarbonization goals and would constitute the elevation of form over substance. This is particularly so because the solicitation will not procure Capacity and bidders are not required to participate in the Forward Capacity Auction. Although the actual Surplus Interconnection Service Agreement would be for NR Capability under ISO-NE rules, the practical reality is that what is made available to a potential offshore wind facility are existing CCIS interconnection facilities pursuant to an existing CNR Interconnection Agreement. In the case of Canal, those very limited times when Canal 1 and 2 operate[31] would be greatly reduced by the $0/MWH dispatch price of the offshore wind asset. Accordingly, Canal would be essentially providing existing CCIS-level interconnection to the offshore wind resource 100% of the time when the wind resource is operating, and firm power available to maintain grid reliability when it's not. Moreover, once the offshore wind facility goes into service, it will continue to erode the capacity factors of Canal 1 and 2.[32] The Canal 1 and 2 units will likely run only in high load, scarcity conditions when the offshore wind facility is not available. Thus, Surplus Interconnection Service from Canal will provide a high degree of cost certainty, improved reliability and greatly enhance an offshore wind project's viability.

Order 845 provided a new mechanism for the more efficient use of existing interconnection facilities in the form of Surplus Interconnection Service, and Canal provides an ideal example of the potential benefits of this option. The nearly 1200 MW of firm interconnection capacity that is currently reserved for two old oil-fired generating plants that seldom operate can be productively used by a new offshore wind facility of similar size. This existing infrastructure can be made available immediately with no Network Upgrade costs and virtually no constraints.

D. Given its Potential to Save Hundreds of Millions of Dollars in Transmission Costs, the Legislature Should Mandate that Surplus Interconnection Service is an Acceptable Interconnection Alternative for RFP qualification

JERA is only seeking the opportunity for the Surplus Interconnection Service at Canal to be an acceptable interconnection option under future RFPs. **Attachment B** to these comments contains proposed redline changes submitted to the DPU following issuance of the last Draft RFP that could have been adopted to ensure Surplus Interconnection Service is an acceptable interconnection option for bidders. Whether Surplus Interconnection Service at Canal ("Canal Option") is one of the best options will ultimately be determined by the Evaluation Team. However, denying the Canal Option an opportunity to participate in future RFPs and receive that evaluation is illogical, as it would deprive the Commonwealth of what might prove to be among the most cost effective and environmentally benign interconnection options. See, Long-Term Contracts for Offshore Wind, D.P.U. 17-103 (2017) at 39-40 ("In reviewing the method for solicitation, the Department seeks to

[31] The RFP contemplates the possibility of constraints and/or curtailments even with new CCIS Equivalent Service. Bidders must include these constraints/curtailments in the development of its Offshore Wind Energy Generation Profile. See RFP Section 2.2.1.9. JERA asserts that the Bid Evaluation Team can carefully assess the availability of Surplus Interconnection Service at Canal and compare it with other bid options. All JERA requests is that it be able to receive that evaluation, an opportunity that is denied by the current RFP.

[32] The fact that the offshore wind facility will not be able to participate in the Forward Capacity Auction is irrelevant for purposes of the RFP.

avoid limiting the consideration of proposed contracts or evaluation models. In fact, inclusion of a wide and varied method of solicitation options is more likely to yield a robust range of proposals for the consideration of the Evaluation Team, and potentially result in greater benefits to ratepayers") (internal citations omitted).

III. CONCLUSIONS

JERA appreciates the opportunity to submit these comments and respectfully requests that the CETWG

- acknowledge Surplus Interconnection Service (SIS) as a new, expeditious and cost-efficient transmission alternative;
- recommend that the legislature authorize SIS or its functional equivalent be accepted as a qualifying interconnection option in all future procurements, whether for offshore wind or other clean energy resources; or, in the alternative, recommend that the legislature direct DOER to confer with stakeholders to assess the benefits of SIS as an interconnection option and to assess any other practical and ready-to-implement options; and
- recommend that the legislature eliminate the overly restrictive requirements requiring bidders to secure additional unnecessary capacity rights and put in place sensible policies that balance costs and benefits and ensure operational and market realities are appropriately reflected.

Lastly, JERA has attached to these comments a summary prepared by Judy Chang and Paul Hibbard of Analysis Group, "Using Surplus Interconnection Service to Accelerate Decarbonization in Massachusetts". *See* **Attachment C**.

Sincerely,

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