Please score the projects that your organization believes are the most important for the NYISO to pursue in 2019. All Survey responses and comments will be made public and posted with Budget and Priorities Working Group materials after the survey due date of June 26, 2018.

- **You have a total of 100 points to allocate to as many projects as you like. Please only use POSITIVE whole numbers and no decimals. Negative numbers are not accepted.**
- **Click on the project title to display a description. To minimize the description, click on the project title again.**
- **There is an area under each project to add any comments pertaining to that project.**
- **Stakeholders that wish to indicate a preference for the implementation date (2020 or 2021) associated with Carbon Pricing should indicate their preference in the survey comments for Carbon Pricing. An indication that you would like to see implementation in 2020 instead of 2021 signals to the NYISO that schedules of other projects should be adjusted so that Carbon Pricing can be completed sooner.**
- **You may share your link and individual code with your colleagues to work collaboratively on scoring prior to submitting your scores.**
- **Any questions, please reach out to Brian Hurysz at bhurysz@nyiso.com or 518-356-6126.**

The organization you are completing this survey for is: NYISO Test Spare 2

Business and Finance Products

CRM Integration with Chat

This project would enhance the Customer Relationship Management tool that was implemented in 2017. It would improve the customer experience and provide more automation within the system. One of the key enhancements would be the

integration of the Chat feature currently available and in use on the public website, directly with the CRM tool. This will eliminate manual processes currently being employed to link these two channels of customer communication.

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Mobile Functionality

This project would deliver mobile application functionality focused on enhancing customer service by making information and/or convenience features accessible to stakeholders through their smart-phones and tablets.

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Fuel Mix Data Query Enhancement

This project would add functionality to the fuel mix data, currently being made available as a NYISO OASIS posting and being displayed within the Maps and Graphs on the NYISO Public Website. This project would add the functionality of loading this data to the Public Data Mart in DSS and add an additional Custom Report screen, to be available from the Markets & Operations section of the website.

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Capacity Market Products

Treatment of Locality Imports (SOM)

This project will address import issues associated with work being conducted in 2018 that addresses Locality Exchange Factors for exports. The objectives are to study and, if necessary modify, the capacity market and planning processes to better account for capacity that is imported from neighboring Control Areas, including the impacts that imports over AC interfaces have on locational requirements. An update of the ongoing work was presented by General Electric at the March 7, 2018 ICAPWG meeting.

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Dynamic Capacity Zones (SOM)

Evaluate a dynamic locational framework that ensures that locational capacity prices would immediately adjust to reflect changes in market conditions. This project will consider the Market Monitoring Unit (MMU) SOM recommendations regarding a dynamic zone construct. This project will also leverage the prior stakeholder discussions on Zone Elimination and On and Off Ramps.

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Tailored Availability Metric

Evaluate alternative metrics that could improve the measurement of resource performance and availability. Specifically, assess the current structure, which calculates availability using a rolling-average EFORd. This current method may not accurately represent a unit's preparedness during critical operating periods and may not set an appropriate level of accountability for performance. Enhancing these measurements might help NYISO markets accommodate the entrance of significant renewable generation, as well as create a more efficient cost structure for consumers. This project is a product of the work conducted in 2017 and 2018 on Performance Assurance. More information on the Performance Assurance project can be found in the Analysis Group's presentation and report to the October 2017 BIC, and NYISO management's response.

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Competitive Entry Exemption for Increased CRIS

Currently, Class Year projects requesting to increase their CRIS are not eligible to request a Competitive Entry Exemption from buyer-side mitigation. This project would be to discuss with stakeholders how the Competitive Entry Exemption rules might need to be modified or expanded to extend an opportunity for eligibility to these projects.

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Enhanced BSM Mitigation Study Period

This effort would involve continuing discussions with stakeholders to identify what, if any, enhancements can be made to the existing Mitigation Study Period and timelines used to evaluate projects, in order to result in enhanced determinations.

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Review Capacity Physical Withholding Rules

This project would involve reviewing the current physical withholding rules for the capacity market and discussing with stakeholders if the current rule set is still appropriate, or if portions could be enhanced.

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BSM Repowering

While there exists a competitive entry exemption to buyer-side mitigation, that exemption may not be adequate to facilitate the replacement of an existing generating unit with a new unit (sometimes referred to as “repowering”). A focused exemption may be appropriate in order to revise market rules so that they do not discourage or prevent replacements, while adequately protecting the integrity of the wholesale markets. This project would seek to evaluate and develop a proposal for a buyer-side mitigation exemption that specifically addresses the concerns with replacement (repowered) generation projects and encourages private investment. This exemption is intended to provide greater certainty and decrease the risk to generation developers/owners that pursue replacement projects. The exemption would be compatible with market-based principles and would not seek to support or encourage subsidized new entry.

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EDR and UDR Enhancements

This project will consider expanding upon the External-to-ROS Deliverability Right (EDR) participation model that was developed in 2018 (See March 28 Management Committee presentation). As part of this effort, the NYISO will consider rules governing allowing an EDR to sink into a Locality, and the transition between EDRs and Unforced Capacity Deliverability Rights (UDRs). This project would also examine the treatment of Capacity Market Import Rights and External CRIS Rights that sink into ROS but after the creation of a new Locality sink entirely into that new Locality.

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EDRs for External Transmission Upgrades

This project will consider expanding upon the External-to-ROS Deliverability Right (EDR) participation model that was developed in 2018 (See March 28 Management Committee presentation). As part of this endeavor, the NYISO will examine the potential for a Market Participant to receive EDRs to participate in the Capacity market by funding transmission system upgrades external to the NYCA that increase transfer capability at an external interface.

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Explore Locational Reliability Pricing (SOM)

This project will explore the implications of establishing clearing prices for capacity based upon the marginal reliability value of capacity in each Locality.

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External Capacity Performance & Obligations

This effort will build upon the Performance Assurance project developed with stakeholders in 2018. In particular, it was recommended by the consultant (Analysis Group) in its report that the NYISO review the rules by which external resources participate in the NYISO capacity market, including eligibility requirements and offer

obligations and terms. In 2018, the NYISO worked with stakeholders on the "Deliverability Requirements for Capacity Imports" effort. This effort has enhanced the notice regarding required documentation of transmission service for external capacity from PJM into the NYISO. The 2019 effort would continue to evaluate what, if any, additional performance requirements and obligations are needed, including an evaluation of documentation requirements to demonstrate deliverability to the NYCA border at other interfaces. This project will evaluate the potential enhancement of requirements for external capacity resources to improve their comparability to internal resources for grid operations. More information on the Performance Assurance project can be found in the Analysis Group's presentation and report at the November 2017 BIC, and NYISO management's response.

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BSM to Address Other Price Suppression Actions (SOM)

This project will evaluate the market design options throughout the NYCA to enhance Buyer-Side Mitigation measures. For example, the effort will consider expanding mitigation measures that include market design that can address the effects of activities such as uneconomic retention of supply resources and uneconomic transmission investment on capacity market prices.

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Dynamic Setting of Import Rights Limits

The Dynamic Re-allocation of Import Rights project would develop a market construct for adjusting the total Import Rights limits available on each interface on a monthly basis. This process would attempt to shift the then-remaining total Import Right limit from interfaces that have a large amount of Import Rights remaining available to interfaces that have limited remaining Import Rights available, which may allow additional capacity to be imported into NYCA.

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Elimination of Capacity Localities

The Elimination of Capacity Localities project would develop a construct for

evaluating existing Capacity Localities to identify if the Capacity Localities are still needed. Additionally, this project would also develop a construct to eliminate the Capacity Locality from the ICAP market rules if the Capacity Locality is not needed.

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Creation and Elimination of Capacity Localities

The Creation and Elimination of Capacity Localities project would develop a construct for 1) evaluating existing Capacity Localities to identify if the Capacity Localities are still needed, and 2) evaluating potential Capacity Localities to identify if that Capacity Locality is needed. Additionally, this project would also develop a construct to create or eliminate the Capacity Locality from the ICAP market rules as needed.

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External CRIS Right Supply Failure Reset

The External CRIS Right Supply Failure Reset project would examine the intersection of the External CRIS Right renewal rules and the External CRIS Right Supply Failures. Under the current tariff, holders of External CRIS Rights hold such rights for a specified Award Period. In the event of four Supply Failures within an Award Period, the associated External CRIS Rights will be terminated in their entirety with no ability to renew. If, however, an External CRIS Right holder's Award Period is renewed, such renewal being requested prior to the end of the term (i.e., Award Period) for which the External CRIS Rights were awarded, External CRIS Right Supply Failures are reset. This project would examine whether the consequence of four Supply Failures should be applied to all Award Periods equally —to both Award Periods are as short as 5 years and Award Periods as long as 20-years or whether it would be appropriate to adjust that provision should be considered.

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Enhancing Fuel and Energy Security

The Enhancing Fuel and Energy Security project would examine fuel and energy

security for the bulk power system looking over a ten-year horizon in order to assess potential grid resilience concerns. The NYISO also appreciates stakeholder concerns related to a wide range of potential grid resilience risks, including extreme weather scenarios and climate change impacts. The NYISO is concerned that future changes to New York's fuel supply mix as well as the expected increased demands for natural gas may challenge the ability to meet electric system demands under certain stressed system conditions, such as a prolonged cold weather event and/or natural gas supply/transportation disruptions. The study would also report on similar fuel and energy security studies and initiatives underway by other ISOs/RTOs. Depending on the results of the study, the NYISO would facilitate the subsequent development of recommendations for potential operational and/or capacity and energy market enhancements necessary to achieve desired improvements in grid resilience as related to fuel and energy security.

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DER Products

Enabling Technologies for DER

This project will leverage the Map and API software deployed for the 2018 Granular Pricing and Market Price Delivery effort. This project will identify additional NYISO market data, data delivery process improvements, and/or delivery methods that can assist REV development opportunities and DER participation. If additional NYISO market data, data delivery process improvements, and/or delivery methods are deemed to be needed, it is anticipated that a business approved FRS documenting the requirements for this need will be developed.

Links to stakeholder presentations:

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2018 Granular Pricing Updates

2017 Granular Pricing & Market Price Delivery

Energy Market Products

RTC-RTD Convergence Improvements (SOM)

Differences in the ramp assumptions are a principal driver of price volatility between Real-Time Commitment (RTC) and Real-Time Dispatch (RTD). To reduce unnecessary price volatility that results from such differences, Potomac Economics recommends that the NYISO consider one or more of the following enhancements to

improve the modeling of ramp in RTC and RTD:

•Better align the ramp rate assumed in the look-ahead evaluations of RTC and RTD for steam turbine generators with the actual demonstrated performance to account for units that often ramp at a rate that is lower than their claimed ramp rate capability.

•Address inconsistencies between the ramp assumptions used in RTD's physical pass and RTD's pricing pass when units are ramping down from a day-ahead schedule.

•Calculate ramp limits of individual units to reflect that a unit providing Regulation service may not be able to ramp as far in a particular five-minute interval as a unit that is not providing Regulation (since Regulation deployments may lead the unit to move against its five-minute dispatch instruction).

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The NYISO has begun work to evaluate several of these options in 2018. This effort would continue that work with a goal of Market Design Complete in 2019.

Links to stakeholder presentations: January 1, 2018 MIWG, December 5, 2017 MIWG

Review of RACT Compliance Plans (SOM) [Future]

NOx bubble constraints were established by the NYISO in the LRR pass of SCUC for three generator portfolios in New York City based on the compliance plans they filed with the Department of Environmental Conservation. Currently these portfolios use the "System Averaging" compliance option which requires the operation of a steam turbine unit in order to reduce the overall NOx emission rate from a portfolio containing higher-emitting gas turbine units. Owners of generation in NOx bubbles likely have additional RACT compliance options, which may result in lower emissions at lower cost. Since commitments of steam turbines are necessary for the associated gas turbines to operate (or even provide non-spinning reserves), they are categorized as for local reliability and the resulting out-of-market costs are uplifted to the market. If generators select lower cost options to comply with RACT standards, uplift may be reduced, or these units may be committed economically instead of out of market.

Additionally, the MMU assessed that it is likely that NOx bubble commitments had the effect of increasing rather than decreasing overall NOx emissions across electric generating units in New York City. This is because the commitment of steam turbine units typically crowds-out generation from new, fuel efficient generation with selective catalytic reduction capability, and it is rare that these commitments would reduce production from older gas turbines as they were intended. According to the MMU, steam units emit approximately 13 times more NOx per MWh than the newer

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generators with emission-reduction equipment. As part of this endeavor, the NYISO will discuss a review process for RACT compliance plans with impacted stakeholders.

5-minute Transaction Scheduling with HQ

In 2017, the NYISO identified that more frequent transaction scheduling with external control areas could improve convergence between prices in RTC and RTD and offer increased flexibility to the market optimization software as the penetration of intermittent renewables increases. This project would propose a mechanism to enhance the real-time interchange scheduling processes by allowing the economic scheduling of interchange across controllable interties with Hydro-Quebec (HQ) every 5 minutes, using the 5-minute RTD. Interchange scheduling with HQ is currently achieved on either a 15-minute or an hourly basis using the RTC software.

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Model 100+kV Transmission Constraints (SOM)

Market incentives for investment in resources on the 115kV system in upstate New York are inadequate partly because these facilities are not reflected in the NYISO's Energy and Ancillary Services markets. Currently, these constraints are managed through out-of-market actions, which has contributed to the need for cost-of-service contracts to keep older capacity in service. Since these 115kV constraints are not reflected in the market scheduling process, real-time dispatch and day-ahead commitment decisions are sometimes inefficient. This project will continue the implementation of a methodology for managing certain 115kV transmission constraints in the Day-Ahead and Real-Time markets, including mitigation measures for resources that are committed or dispatched to manage these constraints. This effort was identified as beneficial both by the external Market Monitor and the 2017 Integrating Public Policy Market Assessment.

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Links to stakeholder presentations: February 21, 2018 MIWG

Constraint Specific Transmission Shortage Pricing (SOM)

The NYISO currently uses a single graduated transmission constraint pricing mechanism to set prices under many transmission constraint conditions. However, some transmission constraints are not resolved using this graduated mechanism. This project will continue 2018 efforts to develop enhancements to the current graduated transmission pricing mechanism. In 2019, the NYISO will seek stakeholder approval of a completed market design for the proposed enhancements, including any required tariff language revisions. This effort was identified as potentially beneficial by the MMU, the 2017 Securing 100+ kV Facilities whitepaper, and the 2017 Integrating Public Policy Market Assessment report.

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Links to stakeholder presentations: February 21, 2018 MIWG, January 16, 2018 MIWG

Pricing Reserves for Congestion Management (SOM) [Future]

The NYISO is required to maintain flows such that if a contingency were to occur, no transmission facility would be loaded above its Long-Term Emergency (LTE) rating post-contingency. However, in some cases, the NYISO is allowed to use operating reserve capacity to satisfy this requirement. This allows the NYISO to increase utilization of the transmission system into load centers, thereby reducing production costs. Since such operating reserve providers are not compensated for helping manage congestion, the market may not provide efficient signals for investment in new and existing resources with flexible characteristics.

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This project will examine potential ways of improving market signals for resources that are providing congestion relief but are offline.

Carbon Pricing

In 2017, the Brattle Group published a report detailing how pricing carbon into NYISO's wholesale markets could help to harmonize the wholesale markets and New York State's public policies. After the report was published, a NYISO, NYSERDA, and DPS "Joint Staff" team worked with the Integrating Public Policy Task Force (IPPTF), to analyze the mechanics and benefits of incorporating carbon pricing into NYISO's wholesale markets. In 2018, IPPTF work continues with the goal of developing a Joint Staff Carbon Pricing proposal by the end of 2018.

In 2019, this project will continue the vetting of wholesale market concepts for incorporating the cost of carbon into the NYISO's wholesale markets through the NYISO working group process. The goal of the 2019 effort will be a completed market design for stakeholder approval.

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Energy Market Software Performance

The EMS/BMS hardware upgrade will be deployed in 2019, providing a new platform for the market software that is expected to provide significant performance benefits. However, the NYISO has completed a number of complex market design efforts since the EMS/BMS project was initiated, and the performance impact that these projects may have on the market solve time when they are all implemented is unknown. This project will study opportunities to enhance market solution efficiency and will provide more information to the NYISO and its stakeholders about the benefits of potential enhancements.

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More Granular Operating Reserves (SOM)

This effort will pursue a study to determine whether the NYISO should establish and secure a distinct 10-minute reserve requirement for New York City. Exploring load pocket reserves, as well as reviewing and evaluating potential enhancements to current scheduling practices to ensure deliverability of reserves from resources located within load pockets, would further enhance the location-specific value of maintaining short notice responsive resources in desirable locations. This effort has been identified as potentially beneficial in both the 2018 Performance Assurance Management Response and the 2017 Integrating Public Policy Market Assessment report.

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Reserve Procurement for Resilience

This effort will consider enhancements to the current operating reserve shortage pricing construct to facilitate procurement of additional operating reserves beyond

established minimum requirements to incent resource performance and promote grid resiliency. Procurement of additional reserves above minimum requirements could enhance resilience by recognizing the value of resource availability to be responsive to unanticipated real-time operating needs. The additional financial incentives could also encourage procurement of the necessary fuel to meet scheduled obligations and incent improved resource performance. This effort was identified as potentially beneficial by the 2017 Integrating Public Policy Market Assessment report.

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Flexible Ramping Product

In 2018, the NYISO developed a market design concept proposal with stakeholders for a flexible ramping product as part of the Integrating Public Policy initiative. This project will pursue a study to further inform discussions regarding implementation of such a product for the NYISO markets. A flexible ramping product could be necessary for the NYISO to deal with forecast uncertainty and/or increased ramping needs in a future with more intermittent renewable resources, and the flexibility that such a future demands. This effort was identified as potentially beneficial by the 2017 Integrating Public Policy Market Assessment report.

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Links to stakeholder presentations: April 3, 2018 MIWG, March 7, 2018 MIWG

Ancillary Services Shortage Pricing (SOM)

This project will reevaluate the NYISO's current Ancillary Services shortage pricing values in consideration of the relative shortage pricing values for each product. Performance incentives in neighboring ISO/RTO regions indicate that a review of the NYISO’s current shortage pricing values could offer significant value. In addition, the relative value of ancillary services and resources flexibility may increase as the NYISO moves toward a future with more intermittent renewable resources. Further improvements to the current shortage pricing values could enhance the financial incentives for the construction and operation of resources with specific capabilities in desirable locations. This project has been identified as potentially beneficial in the Integrating Public Policy Market Assessment report.

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Real-Time Performance Incentives

As intermittent renewable penetration increases, negative LBMP's are expected to occur more frequently. Today's settlement rules may not adequately incentivize generators to follow NYISO dispatch during negative pricing excursions. This project will continue the review of current performance incentives that was initiated in 2018, with the goal of proposing improvements with a completed market design by Q2 of 2019. This project was recommended in the 2017 Integrating Public Policy Market Assessment.

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LPTs Redesign

This project intends to improve alignment of the Load Pocket Thresholds (LPT) with expected market conditions during transmission-constrained intervals in New York City. General examples of potential improvements include:

•Increasing the frequency of fuel indexing of LPTs to be closer in time to that of the fuel indexing of references.

•Updating and improving the formula that the NYISO uses to predict Load Pocket transmission constraints in an upcoming month.

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These improvements will result in a more appropriate representation of market conditions and, therefore, could result in more efficient market outcomes.

Operations & Reliability Products

E-Tagging Refresh and Performance Improvements

The NYISO E-Tagging software was developed in 2006, and has not been upgraded since deployment. Internal and External Stakeholders have experienced issues with the performance of the E-Tagging approval process, as well as other issues. This effort intends to update the software to improve performance and prepare for

expandability to support future scheduling initiatives. This project will improve NYISO's ability to integrate initiatives pertaining to transactions and make the system more robust.

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Planning Products

Climate Change Impact and Resilience Study

To inform the NYISO's planning, forecasting, and operations, as well as the development of wholesale market mechanisms to enhance grid resilience, the NYISO will undertake a three-phased project to examine issues associated with resilience and reliability and develop potential market solutions. In Phase I, the project would identify and examine impacts to the bulk power system under different climate and extreme weather scenarios and other system events that could potentially impact system stability and resiliency, focusing specifically on the ability of the system to meet NYCA load requirements and facilitate prompt system restoration in the event of an outage or disruption. The study period would be from 2030 to 2050, and current available data would be used and extrapolated to that period. Potential scenarios will utilize existing climate change projections for New York State and may include extreme duration temperature events (e.g., increased frequency and duration of heat waves and/or cold snaps, including potential impacts of such events on access to fuel); coincident and/or consecutive major weather events (e.g., coastal hurricane followed by a heat wave; snowstorm with flooding followed by a cold snap; or consecutive storms as experienced in March 2018); and weather variability affecting intermittent renewable generation. Within these scenarios, the study would consider variants to load shape to reflect changing load patterns (arising from, for example, deeper energy efficiency measures, proliferation of electric vehicles, and expanded electrification though heat pumps and other technologies) in conjunction with changing climate conditions. Phase II would identify the attributes and actions necessary to mitigate the reliability and resilience risks identified in this study. In Phase III, stakeholders would develop market design concepts targeted to provide adequate compensation for attributes needed for resilience and system stability. This could include capacity market reforms, additional ancillary services and revisions to the planning process.

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Total

Please enter any additional comments below:

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