Locational Export Capacity Proposal

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NYISO

DRAFT – FOR DISCUSSION PURPOSES ONLY

Overview

- **Potomac Economics' 2015 State of the Market report raised a concern with the treatment of capacity exports from import constrained localities**
  - ***The MMU recommended that the NYISO address the problem before the 2018/2019 capability year***
- **However, a proposed ISO-NE rule change would allow a resource already qualified in a subsequent auction to participate in 2017/2018**
  - ***Therefore, the potential concern was escalated because a generator in an import constrained Locality could qualify for 2017/2018, a year earlier than previously expected***

Overview

- **At the August 2nd ICAP Working Group NYISO:**
  - ***Described a concern with the current capacity market design and its treatment of exports from constrained Localities***
  - ***Notified stakeholders that it agreed, at least in part, with the MMU's concern and would pursue an aggressive schedule to file market design enhancements on a timeline to address potential 2017/2018 inefficient market impacts***
  - ***Indicated that it was filing comments to FERC in ISO-NE's rule change***
- **At the August 23rd ICAP Working Group NYISO:**
  - ***Described its concerns, and its intention to file comments with FERC on the ISO-NE rule changes;***
  - ***Presented proposal to address when a generator exports from a Locality to an External Control Area in broad terms***

Overview

- **On September 9, NYISO filed a limited protest with FERC on ISO-NE's proposed market rule**
- **At the September 19th ICAPWG NYISO:**
  - ***Presented a power point and draft tariff revisions on the topics of: Locality Exchange Factor, capacity export processes, obligations for Locality exports, and mitigation***
  - ***Described the limited protest it filed in the ISO-NE Section 205 docket***
  - ***Presented its consumer impact analysis***
- **At the October 7th ICAPWG NYISO:**
  - ***Presented its final proposal and revised draft tariff revisions***
  - ***Described market power mitigation issues and presented further draft Attachment H tariff revisions***

NYISO Comments to FERC

- **NYISO filed a motion to intervene and limited protest* of a single aspect of the Forward Capacity Market Enhancements proposed by ISO-NE in Docket No. ER16-2451. The filing**
  - ***Requested that the Commission defer the implementation of ISO-NE's import aspects of its proposal for one capability year with respect to generators located in NYCA Localities***
  - ***Explained that this would enable the NYISO to work deliberately to adopt a solution to prevent significant market inefficiencies and adverse consumer impacts***
  - ***Described that if this request is denied, the NYISO would attempt to fashion an immediate market rule change to try to avoid pricing inefficiencies***
- ***Expected (60 day) timing of FERC Order on ISO-NE's 205 is 10/18***

Available on the NYISO's website at:
https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1181/Attachments/20160909_NYISO_Motion_Lmtd_Prtst_ER162451_cmplt.pdf

Background

- **Roseton was awarded an obligation of 511 MW in ISO-NE's FCM for 2018/2019**
- **The MMU's 2015 SOM report included a recommendation for NYISO to modify the treatment of Capacity exports from import constrained zones (SOM Recommendation #8)**
- **The MMU's recommendation was being prioritized as part of the NYISO's project prioritization process for 2018**

Background

- **ISO-NE stakeholders approved rules that would allow importing resources to participate in reconfiguration auctions for 2017/2018**
  - ***Under its current rules (i.e., absent the proposed change) only resources qualified for the 2017/2018 FCM could participate in reconfiguration auctions for 2017/2018***
- **ISO-NE's filing with FERC requested an effective date in October 2016**
- **If the new rule is accepted by FERC, an export from a Locality could occur as early as June 2017**
  - ***ISO-NE posts the results of its 3rd reconfiguration auction on March 17th, which is when the NYISO would know if there was going to be an export from an import constrained Locality***

Background

- **Under the NYISO's current ICAP market construct, when a capacity sale to ISO-NE occurs, there would be a matching decrease in supply in that Locality**
- **That reduction may drive an inefficient cost increase of at least $144 million per year***

Available on the NYISO's website at:

http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2016-09-19/CIA%20-%20Capacity%20Exports%20from%20Localities.pdf

NYISO Proposal

- **The pricing outcomes under the current market design construct will not produce efficient market signals in the Locality**
  - ***Given that the generator supporting the export continues to operate in the Locality the market signals should reflect that the generator still helps satisfy the capacity requirements. Therefore, there is not a need to send a price signal equivalent to that of a generator Mothballing or that Retires***

NYISO Proposal - Overview

- **The NYISO's proposal is designed to be implementable before 2017/2018 and address market inefficiencies by accurately reflecting, in the ICAP market, the continued operation of a resource that exports capacity from an import constrained Locality over an AC interface**
  - ***Import Constrained Localities will be Zone J and the G-J Locality***
- **The NYISO will commit in its 205 filing to continue stakeholder discussion during 2017 to explore whether additional changes to the proposal are warranted**

NYISO Proposal

- **Reflect the portion of locational export capacity that must be replaced in the Locality and the portion that can be replaced in ROS while maintaining the same level of reliability**
  - ***The draft Tariff revisions use the term "Locality Exchange Factor" for the percentage (or LE Factor in this presentation)***
- **Decrement the Locality ICAP requirement by the portion that can be replaced in ROS**
- **The proposal does not apply to exports over UDRs**

Locality Exchange Factor Analysis

- **Locality Exchange Factors for each Locality will be determined annually**
- **NYISO will post on its website the LE Factors for applicable Import Constrained Localities in relation to each of its neighboring Control Areas**
  - ***Localities to be included***
    - **G-J Locality and Zone J**
    - **This proposal does not consider Zone K**
  - ***Neighboring CAs to be included***
    - **ISO-NE, PJM, HQ, and IESO**

Locality Exchange Factor Analysis

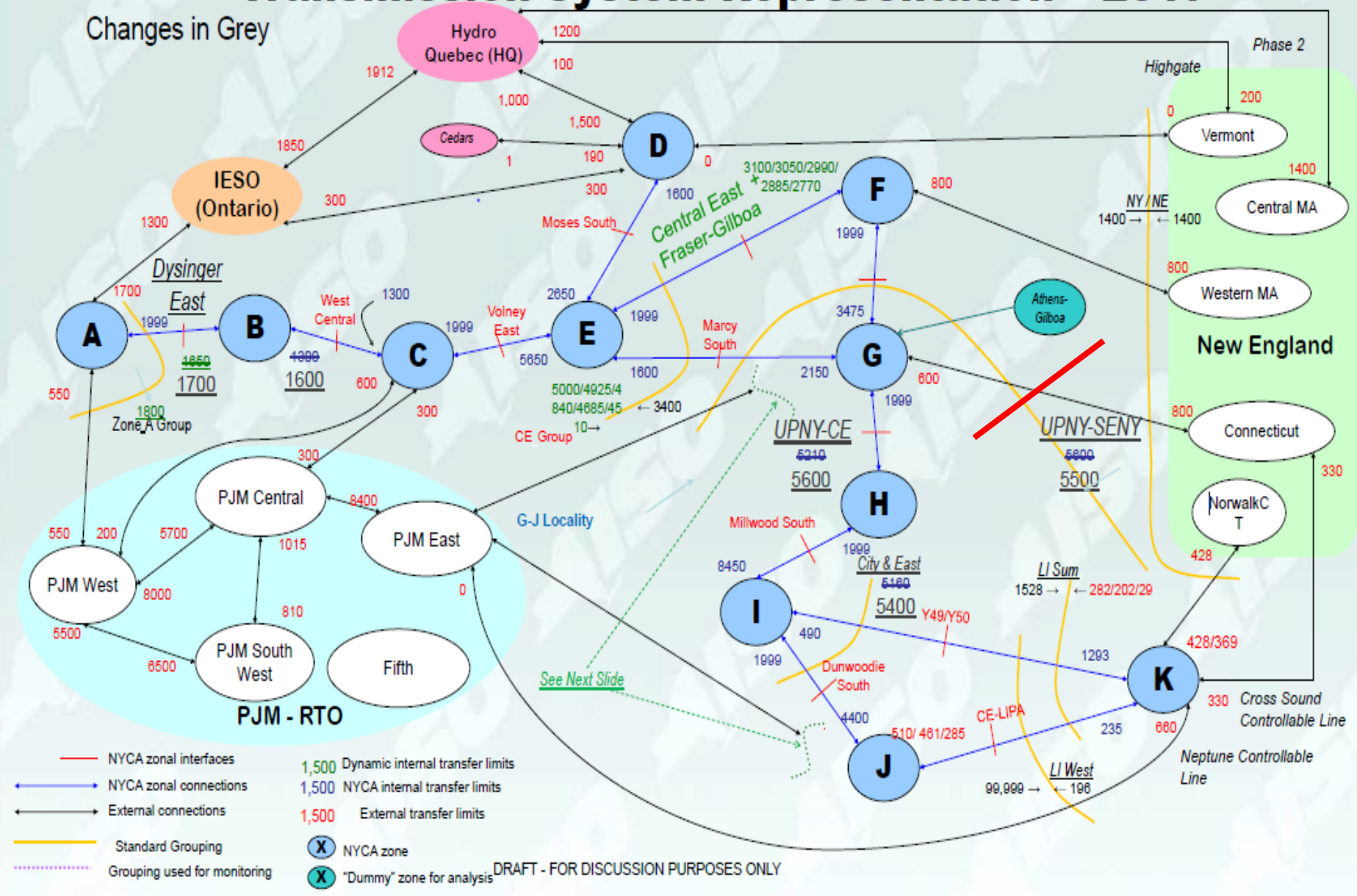
- **Determining the LE Factor**
  - ***Conduct a power flow analysis according to applicable transmission system planning practices used for the resource adequacy topology and incorporating base case data from the most recent reliability planning process to determine the amount of ROS generation that can be brought into the Locality given the constraint relief provided by the export***

Locality Exchange Factor Analysis - Example

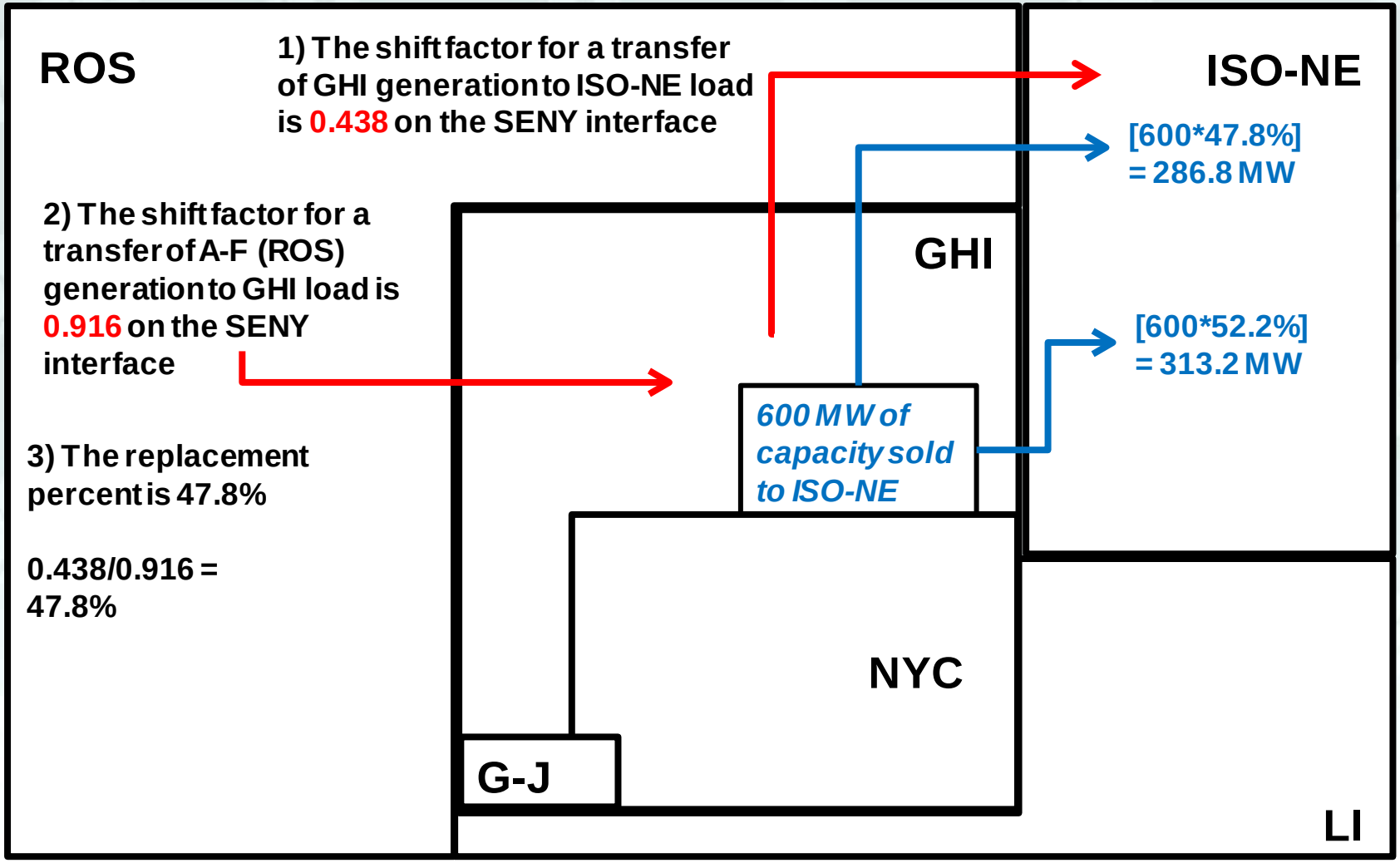
- **Determining the LE Factor**
  - ***Power flow analysis used to determine the shift factor on the SENY interface in this example***
    - **SENY interface defined as only the internal NY transmission component of the UPNY-SENY interface**
    - **The shift factor for a transfer of GHI generation to ISO-NE load is 0.438***
    - **The shift factor for a transfer of A-F (ROS) generation to GHI load is 0.916***
  - ***The LE Factor between G-J and ROS will be determined by the ratio of the shift factors on the SENY interface for the transfer from GHI to ISO-NE over the transfer from ROS to GHI***
    - **0.438 / 0.916**
  - ***The LE Factor between G-J and ROS for a G-J export to ISO-NE is then 47.8% using the formula:***
    - **LE Factor = Locality gen to external control area load shift factor / ROS gen to Locality load shift factor**

*** Values based on analysis performed to date**

Transmission System Representation – 2017



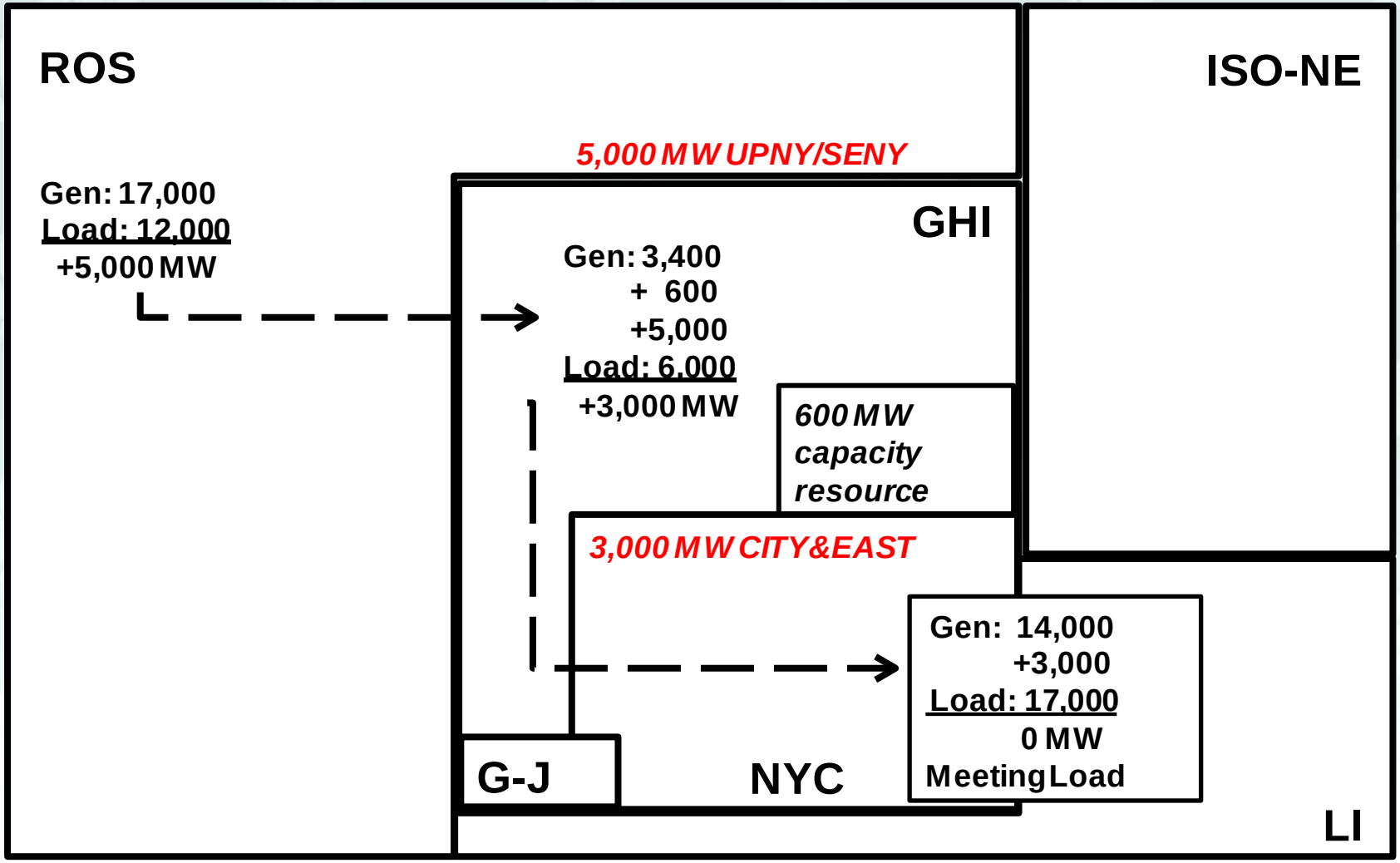
Determining LE Factor



Locality Exchange Factor Analysis

- **Balanced Load and Generation (next slide)**
  - ***ROS has 17,000 MW of generation and 12,000 MW of Load***
    - **Excess generation of 5,000 MW flows across the UPNY/SENY interface into GHI**
  - ***GHI has 4,000 MW of generation, 5,000 MW flow across UPNY/SENY and 6,000 MW of Load***
    - **Excess generation of 3,000 MW flows across the CITY&EAST interface into J and K**
  - ***J and K have 14,000 MW of generation, 3,000 MW of flow across CITY&EAST and 17,000 MW of Load***
  - ***All interfaces in the base case example are fully utilized and total load is fully balanced with total generation***

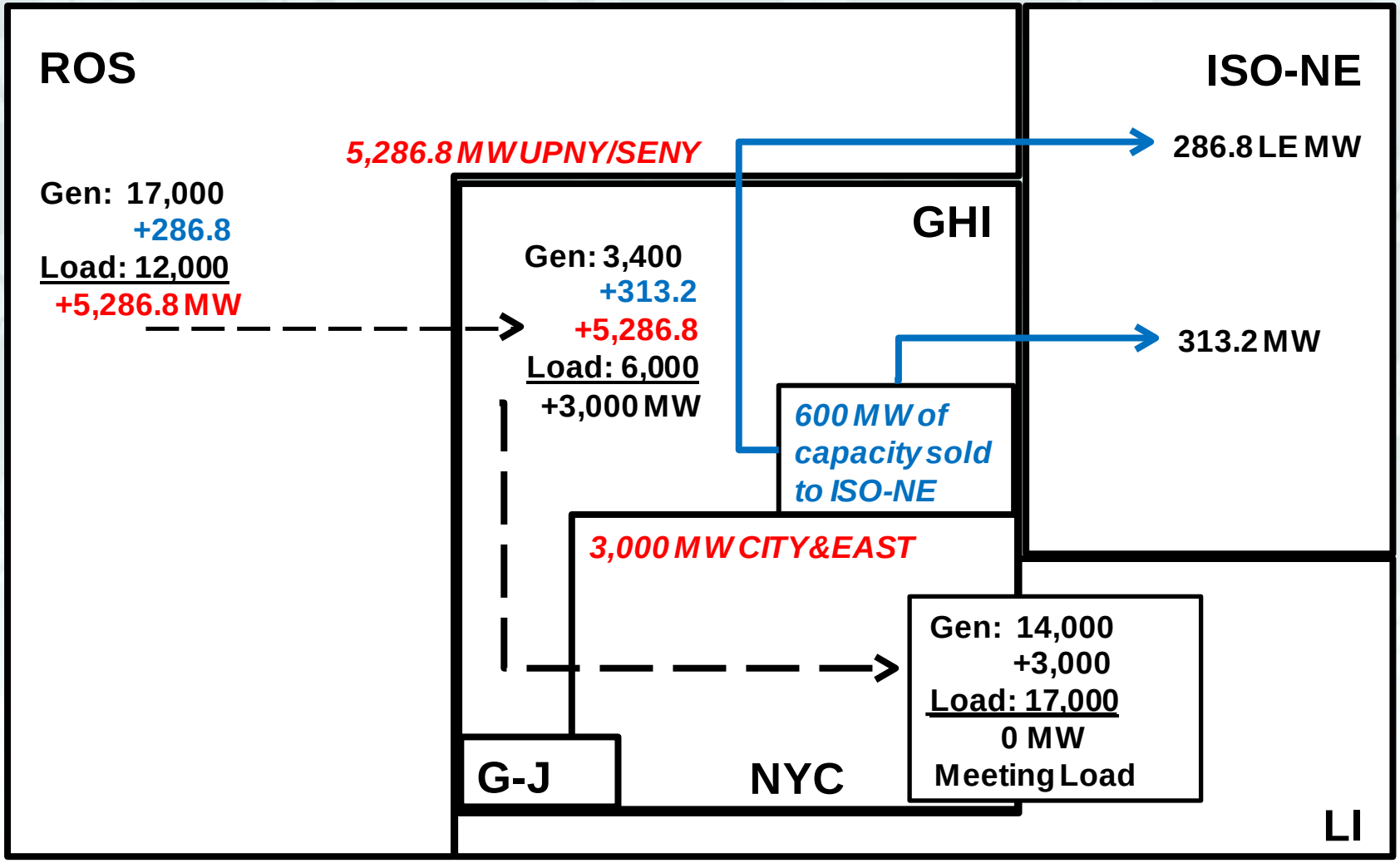
Balanced Load and Generation



Locality Exchange Factor Analysis

- **Applying the Locality Exchange Factor (next slide)**
  - ***ROS has 17,000 MW of generation, a price signal to build an additional 286.8 MW, and 12,000 MW of Load***
    - **Excess generation of 5,286.8 MW flows across the UPNY/SENY interface into GHI**
    - **Counter-flow increases the effective interface capability from 5,000 MW to 5,286.8 MW**
  - ***GHI has 3,400 MW of generation, a price signal to build an additional 313.2 MW, 5,286.8 MW of flow across UPNY/SENY and 6,000 MW of Load***
    - **Excess generation of 3,000 MW flows across the CITY&EAST interface into J and K**
  - ***J and K have 14,000 MW of generation, 3,000 MW of flow across CITY&EAST and 17,000 MW of Load***
  - ***All interfaces are fully utilized and total load is fully balanced with total generation***

Locality Exchange Factor Analysis



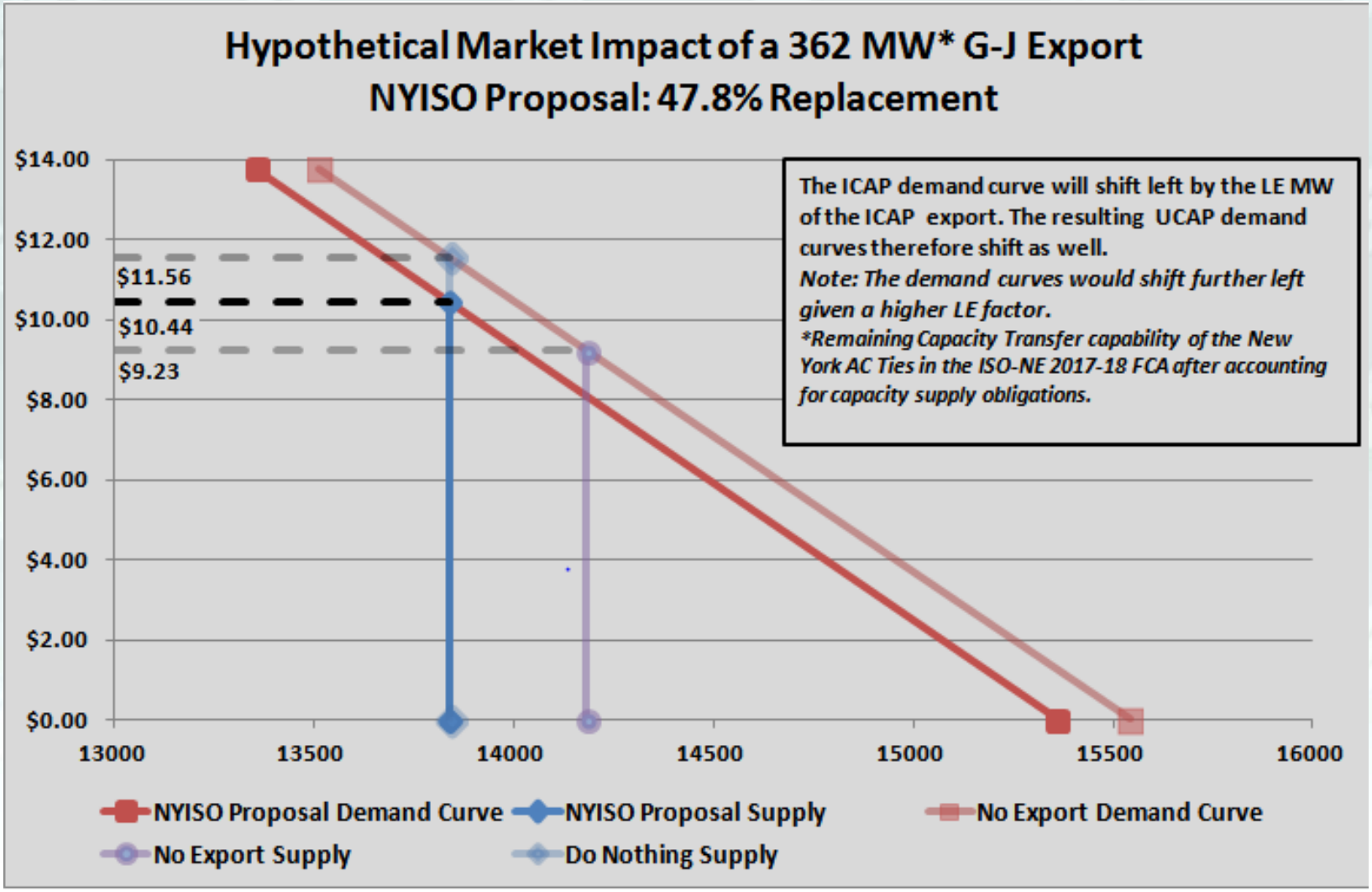
Locality Exchange Factors

** Determined to date*	**ISO-NE***	**PJM**	**IESO**	**HQ**
G-J Locality *	47.8%	TBD by January 31st	TBD by January 31st	TBD by January 31st
Zone J*	47.8% (J to G-J was determined to be 100%)	TBD by January 31st	TBD by January 31st	TBD by January 31st

Potential Market Outcome

- **Under the proposal, here are the market impacts that would result given a G-J resource that has an export obligation to ISO-NE**
  - ***The LE Factor is 47.8%, which means a price signal to replace 52.2% of a G-J export to ISO-NE in the G-J Locality is efficient***
  - ***The Locality ICAP requirement will be decremented by the LE Factor of the ICAP export, or 47.8% in this case***
    - **The remaining 52.2% of the ICAP export will directly impact the G-J clearing price as a loss of supply**
  - ***The replaceable portion of the export (47.8% of the MW) does not create any additional reliability need in the Locality and therefore a price signal to replace that portion in the Locality would be inefficient***
  - ***Market Impacts:***
    - **G-J market clearing price will rise by 52.2% of the ICAP export**
    - **NYCA market clearing price will rise by 100% of the ICAP export**

Potential Market Outcome



Capacity Export Mechanics

- **The NYISO requires that a resource exporting ICAP to an External Control Area must submit an MIS Transaction ID**
- **Neighboring Control Areas also request valid data for such resources from the NYISO including, but not limited to**
  - ***DMNC***
  - ***GADS data***
  - ***MIS Transaction ID***
- **The above data is necessary for ICAP Market Operations (IMO) to flag the transaction in the Market Information System (MIS) as capacity backed in real-time and for System Operations to treat it as such. Therefore, if the exporting resource does not provide the above 3 items, the NYISO can cut the transaction.**
- **An exporter would submit the data above in accordance with the ICAP Event Calendar and inform IMO of the MIS Transaction ID by the certification deadline for the delivery month**
  - ***Locational export capacity will require an earlier submittal, prior to the establishment of LSE UCAP Capacity Requirements***
- **IMO flags the MIS Transaction ID as capacity backed prior to the delivery month**

Capacity Export Mechanics

- **An exporter would behave similarly to a non-exporting ICAP Supplier in order to meet its supply obligation if an External Control Area calls on the capacity backed transaction in real-time**
- **It would bid both the resource and transaction into the MIS economically such that both are scheduled by NYISO's economic dispatch software**
  - ***Failure to bid either the resource or transaction economically would result in the NYISO cutting the transaction at checkout***
- **If the resource and transaction are bid economically, then the Desired Net Interchange (DNI) would reflect the contract amount at the External Control Area's proxy bus**

Capacity Export Mechanics

- **NYISO's economic dispatch software would then re-dispatch the system and increase the base point of the marginal resource such that internal load and DNI are met**
  - ***This occurs without directly impacting the base points of the resource backing the ICAP transaction, in other words the capacity backed transaction is not directly served by the resource in real-time dispatch although the resource status is tied to the capacity obligation***
- **The resource must be on line and scheduled by NYISO dispatch software in order for the transaction to flow, if those conditions are met and barring it aggravates transmission security constraints, the export capacity backed transaction will not be cut by NYISO**
  - ***If quick start resources export capacity they must only be available and do not need to be online***

Locality Export Obligations

- **The following obligations apply to exports from all Localities (and not just Import Constrained Localities)**
  - ***The NYISO requires that a Locality resource exporting ICAP to an External Control Area submit an MIS Transaction ID***
  - ***Neighboring Control Areas request valid data for such resources from the NYISO including, but not limited to***
    - **DMNC, GADS data, MIS Transaction ID**
- **Provided with the above data for a Locality export transaction, ICAP Market Operations will flag the transaction as capacity backed in the MIS**
  - ***If the exporting resource does not provide the necessary data, the NYISO will not mark the transaction as capacity***
- **Locality exports will submit the necessary data above in accordance with the ICAP Event Calendar**
  - ***Locational export capacity is required to submit their external obligation on or before the first business day of the month prior to the capacity export***

Locality Export Obligations

- **Provide notice to the NYISO approximately one month before the certification period, identifying the ICAP MW to be exported**
- **Respond to an SRE**
  - ***Entitled to Bid Production Costs including valid lost opportunity costs***
- **Comply with existing obligations under the NYISO's Tariffs and Manuals**

Export Obligations

- **In their CTS filing, ISO-NE noted changes to the ISO-NE Forward Capacity Market rules**
- **Section VI.F of the "ISO New England Inc. and New England Power Pool, Market Rule 1 Revisions Relating to Coordinated Transaction Scheduling" FERC Docket No. ER12-000 states:**
  - ***"a New England Import Capacity Resource associated with a supply resource (e.g., a generator) physically located in New York will be obligated to offer the resource and participate in the NYISO day-ahead and real-time energy markets, consistent with the obligations of a New York capacity resource."***
- **ISO-NE Transmission, Markets, and Services Tariff Section III.13.6.1.2.3.b**
  - ***"Where the Import Capacity Resource is physically located in a Control Area with which the New England Control Area has implemented the enhanced scheduling procedures in Section III.1.10.7.A, the resource must comply with all offer, outage scheduling and operating requirements applicable to capacity resources in the native Control Area."***

Timeline

- **For ISO-NE's June 2017 Auction Month**
  - ***ARA 3 for 2017-2018 Capability Period***
    - **Opens March 1st, closes March 3rd, results posted March 17th**
  - ***Monthly Bilateral Period***
    - **Opens April 11th, closes April 12th, results posted April 19th**
  - ***Monthly Auction***
    - **Opens April 20th, closes April 21st, results posted April 28th**
- **NYISO will post the Locality Exchange Factors by January 30; i.e., the same timeframe as the NYSRC files the IRM and the NYISO establishes the LCRs values**

Timeline

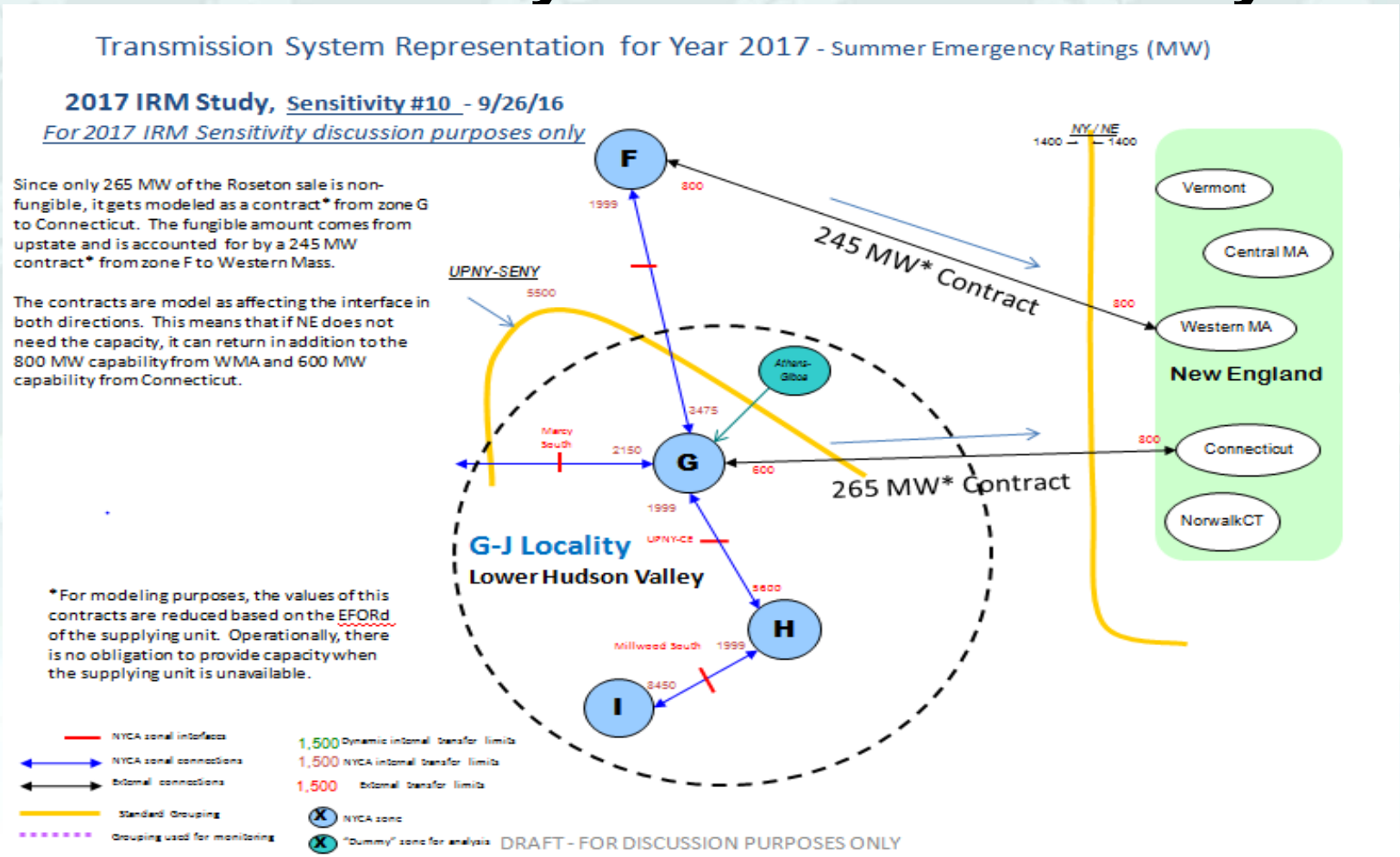
October	January	March	April	May
•The NYISO will provide the ICS with preliminary Locality Exchange Factor(s)	•The IRM is filed and LCRs are established •By January 30 the Locality Exchange Factors will have been determined and will be posted on the NYISO's website	•NYISO runs the strip auction for the upcoming Capability Year. •ISO-NE opens the offer period and posts the results of ARA 3 for its upcoming capability year.	•NYISO runs the first monthly and spot auctions for May, the first month of the upcoming capability year. •ISO-NE runs bilateral and monthly auctions for June, the first month of its upcoming capability year. •Locality exports provide NYISO with external obligation(s) for June	•NYISO runs the monthly and spot auctions for June. The spot auction will run using a UCAP value based on an adjusted ICAP requirement in Localities where there is locality export capacity

NYSRC

- **2017/2018 Capability Year: The NYISO's understanding is ;**
  - ***Forward auction sales to ISO-NE for the 2017/2018 Capacity Year will not be modeled in the 2017 IRM base case***
    - **The IRM will still model long-term contracts to ISO-NE**
  - ***The NYSRC ICS will conduct a sensitivity to begin understanding the impacts of a locality capacity export on the IRM and LCR's***
    - **The methodology was discussed at the October 5th ICS meeting and the NYISO will be available at the November 2nd ICS for further discussion**

NYSRC

ICS – sensitivity for 2017/2018 study



Tariff Revisions

- **Market Services Tariff**
  - ***Section 2.1 Definitions***
    - **Import Constrained Locality**
    - **Locality Exchange MW**
    - **Locality Exchange Factor**
    - **Locational Export Capacity**
      - The NYISO updated the tariff section cross reference in this definition based on stakeholder input at the ICAP Working Group meeting (changed 5.9.2 to be 5.9.2.2)
  - ***Section 5.9.2 Provisions applicable to Locational Export Capacity***
    - **Based on stakeholder input at the ICAPWG meeting, the NYISO**
      - Corrected a typographical error in 5.9.2.2.1 (eliminating unnecessary "earlier of" language)
      - Clarified 5.9.2.3, because the definition of "Locational Export Capacity and 5.9.2.2 defines and describes what constitutes Locational Export Capacity
  - ***Section 5.11.4***
  - ***Section 23/Attachment H – described in a separate presentation today***
    - **Section 23.2**
    - **Section 23.4.5**

Next Steps

- **October 26th – MC**
- **November 2nd – ICS**
- **November 14/15th – Board Approval**
- **November 16th**
  - ***NYISO 205 filing with FERC***
- **January 16th**
  - ***FERC ruling on NYISO 205 filing***
- **February 2017**
  - ***Software implementation ahead of 2017/2018 Strip Auction***

The mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

- ***Maintaining and enhancing regional reliability***
- ***Operating open, fair and competitive wholesale electricity markets***
- ***Planning the power system for the future***
- ***Providing factual information to policy makers, stakeholders and investors in the power system***

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