Locational Export Capacity Proposal

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ICAP Working Group
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NYISO

DRAFT – FOR DISCUSSION PURPOSES ONLY

Agenda

- **Overview**
- **NYISO Comments to FERC**
- **NYISO Proposal**
- **Locality Exchange Factor Analysis**
- **Capacity Export Mechanics**
- **Generator Obligations**
- **NYSRC**
- **Tariff Revisions**
- **Next Steps**

Overview

- **August 23rd ICAP Working Group**
  - ***NYISO described its concerns, its intention to file comments with FERC on the ISO-NE rule changes, and a proposal to address when a generator exports from a Locality to an External Control Area in broad terms***
- **On September 9, the NYISO filed a limited protest with FERC on ISO-NE's proposed market rule**
- **Today the NYISO will review its proposal in more detail including:**
  - ***NYISO's market proposal***
  - ***The determination of the percentage that can replaced with MW in Rest of State (i.e. Locality Exchange Factor)***
    - **Previously referred to as "fungibility"**
  - ***How a capacity export participates and would be seen in the Capacity and Energy Markets***
  - ***Obligations of a resource exporting capacity from a Locality to an External Control Area***

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 NYISO requested that the Commission defer the implementation of ISO-NE's Import Proposal for one capacity year with respect to generators located in NYCA Localities***
  - ***This would enable the NYISO to work deliberately to adopt a solution to prevent significant market inefficiencies and adverse consumer impacts***
  - ***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

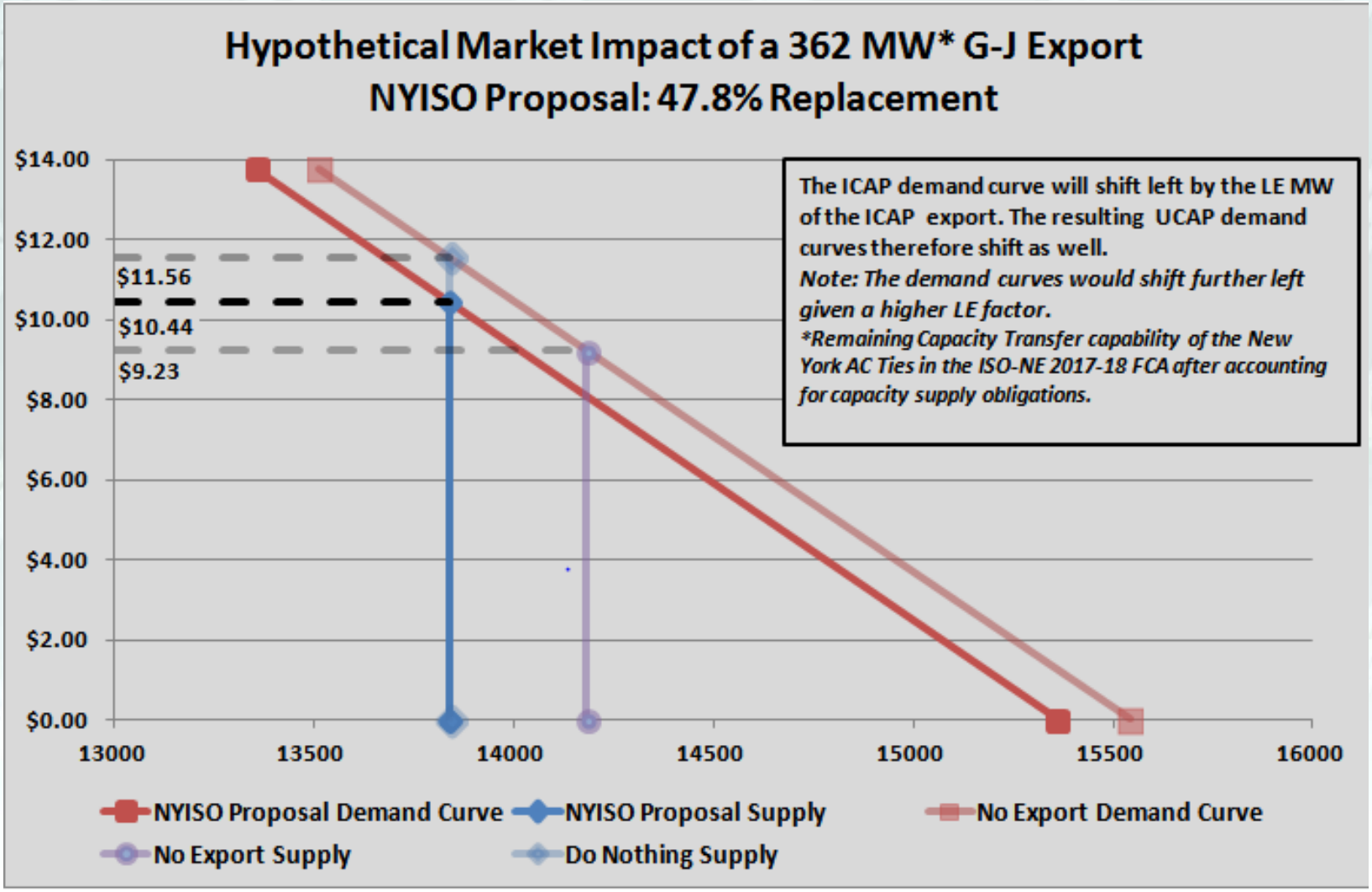
NYISO Proposal

- **The NYISO's proposal is designed to address market inefficiency by accurately reflecting in the ICAP market the continued operation of a resource that exports capacity from a Locality**
  - ***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 (LE Factor in this presentation)**
  - ***Decrement the Locality ICAP requirement by the portion that can be replaced in ROS***
    - **The draft Tariff revisions uses the term "Locality Exchange MW" (LE MW in this presentation)**

NYISO Proposal

- **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 methodology for determining the LE Factor will be explained later in the presentation**
  - ***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**

NYISO Proposal

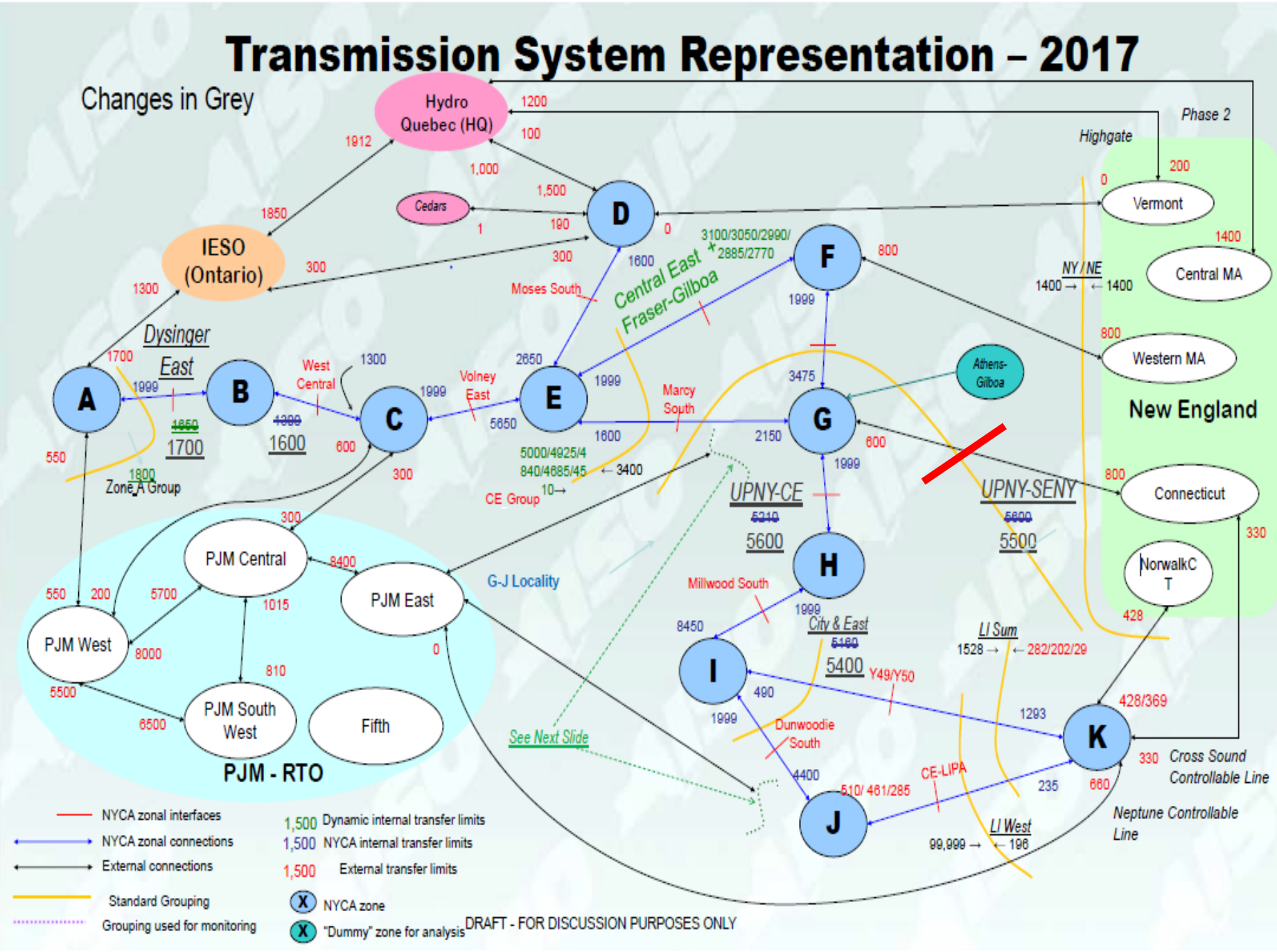


Locality Exchange Factor Analysis

- **Determining the Replaceable MW Percent**
  - ***Conduct a power flow analysis at peak load conditions to determine the amount of ROS generation that can be brought into the locality given the constraint relief provided by the export***
  - ***Power flow analysis used to determine the shift factor on the SENY interface***
    - **SENY interface defined as only the internal NY transmission component of the UPNY-SENY interface (slide 12)**
    - **The shift factor for a transfer of GHI generation to ISO-NE load is 0.44**
    - **The shift factor for a transfer of A-F (ROS) generation to GHI load is 0.92**
  - ***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***
    - **0.44 / 0.92**
  - ***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**

Locality Exchange Factor Analysis

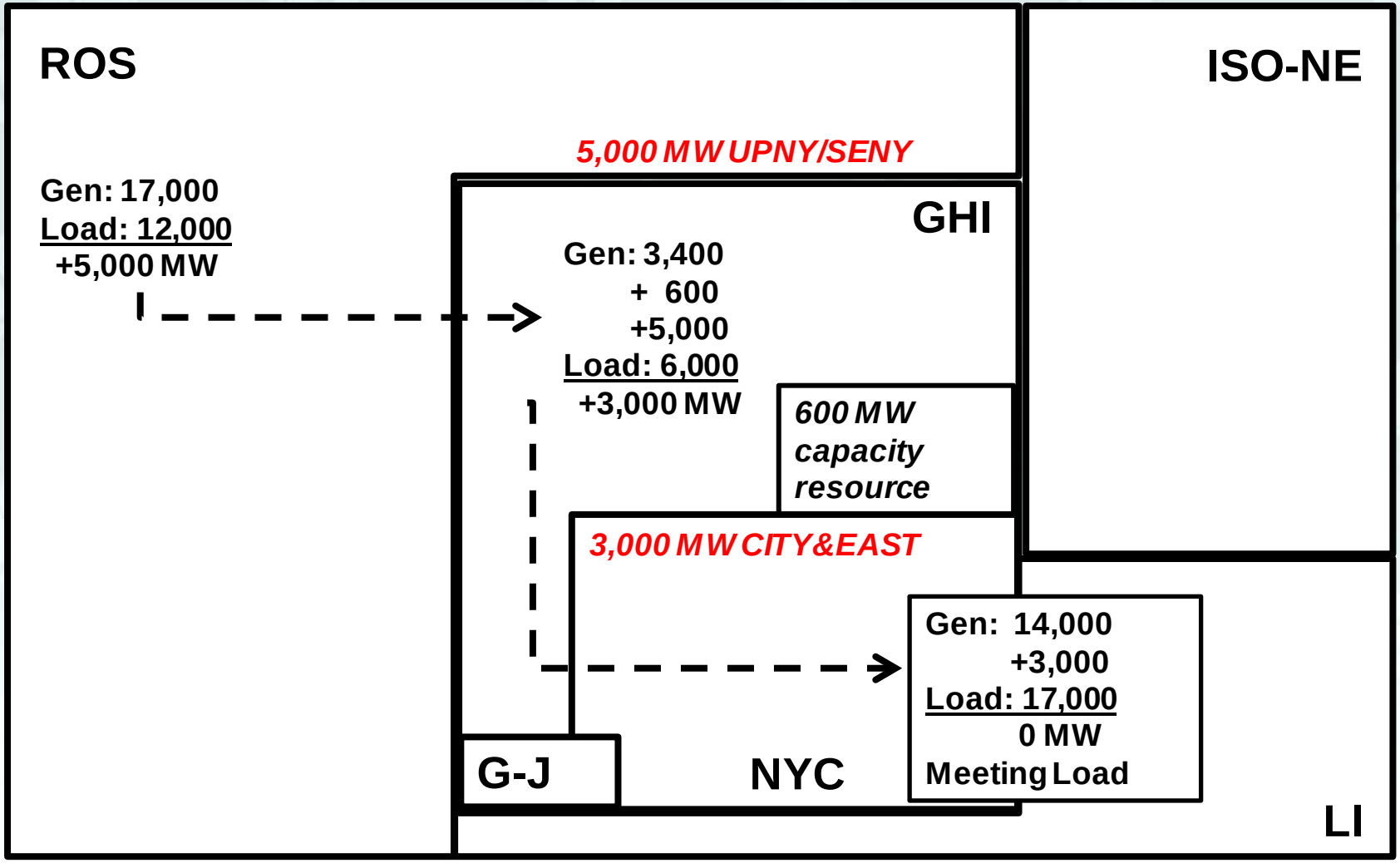
- **LE Factors for each Locality will be determined annually**
  - ***Prior to the Summer Capability Period***
  - ***Updates are normally made available in the AMS around March 15th***
- **NYISO will post on its website the LE Factors for each of the Localities in relation to External Control Areas**
  - ***Localities to be included: (G-J, J)***
    - **The NYISO is continuing to evaluate whether the rule should also apply to Zone K exports**
  - ***External CAs to be included: (ISO-NE)***
    - **Evaluating PJM, HQ, and IESO**



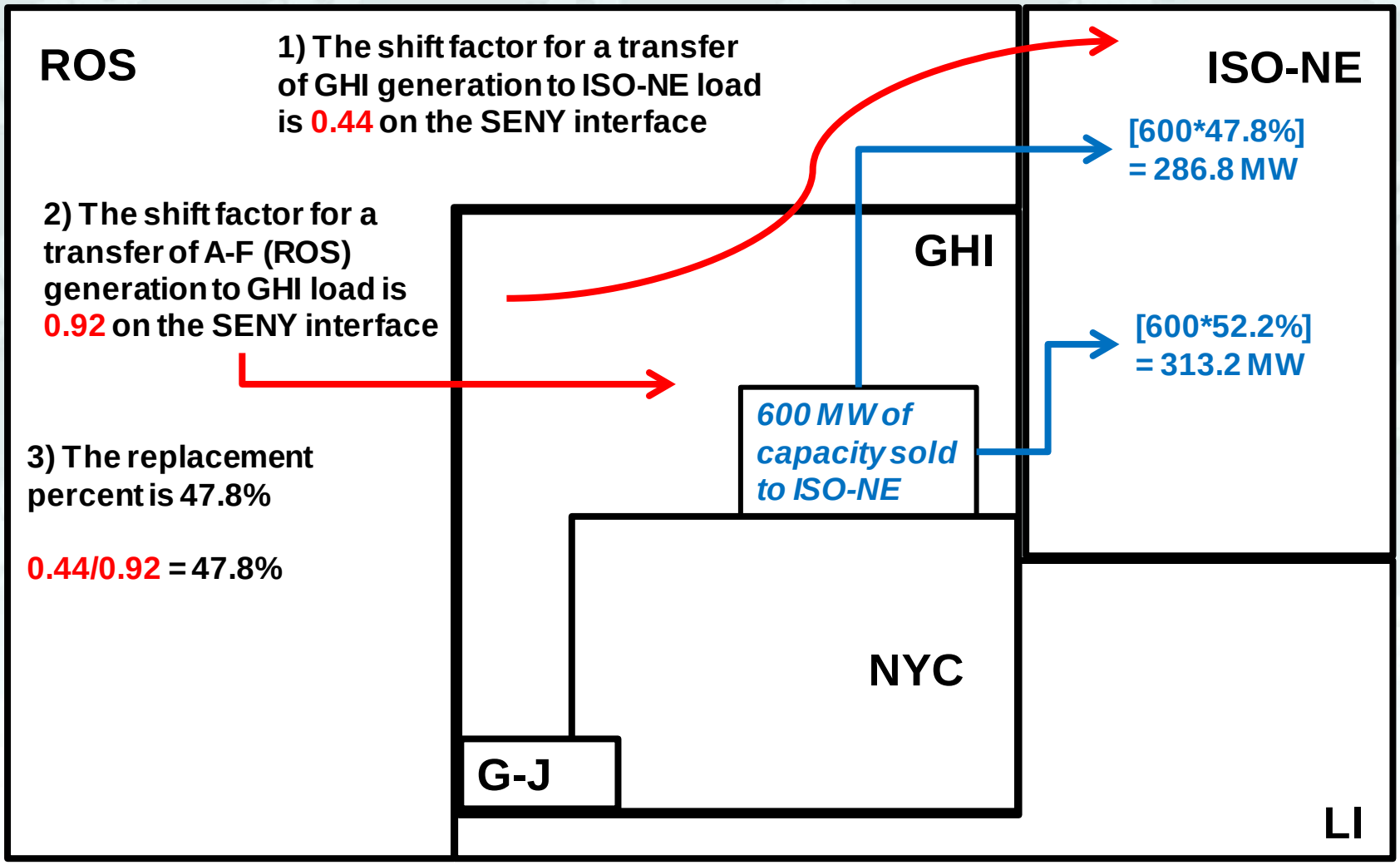
Locality Exchange Factor Analysis

- **Balanced Load and Generation (see slide 12)**
  - ***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



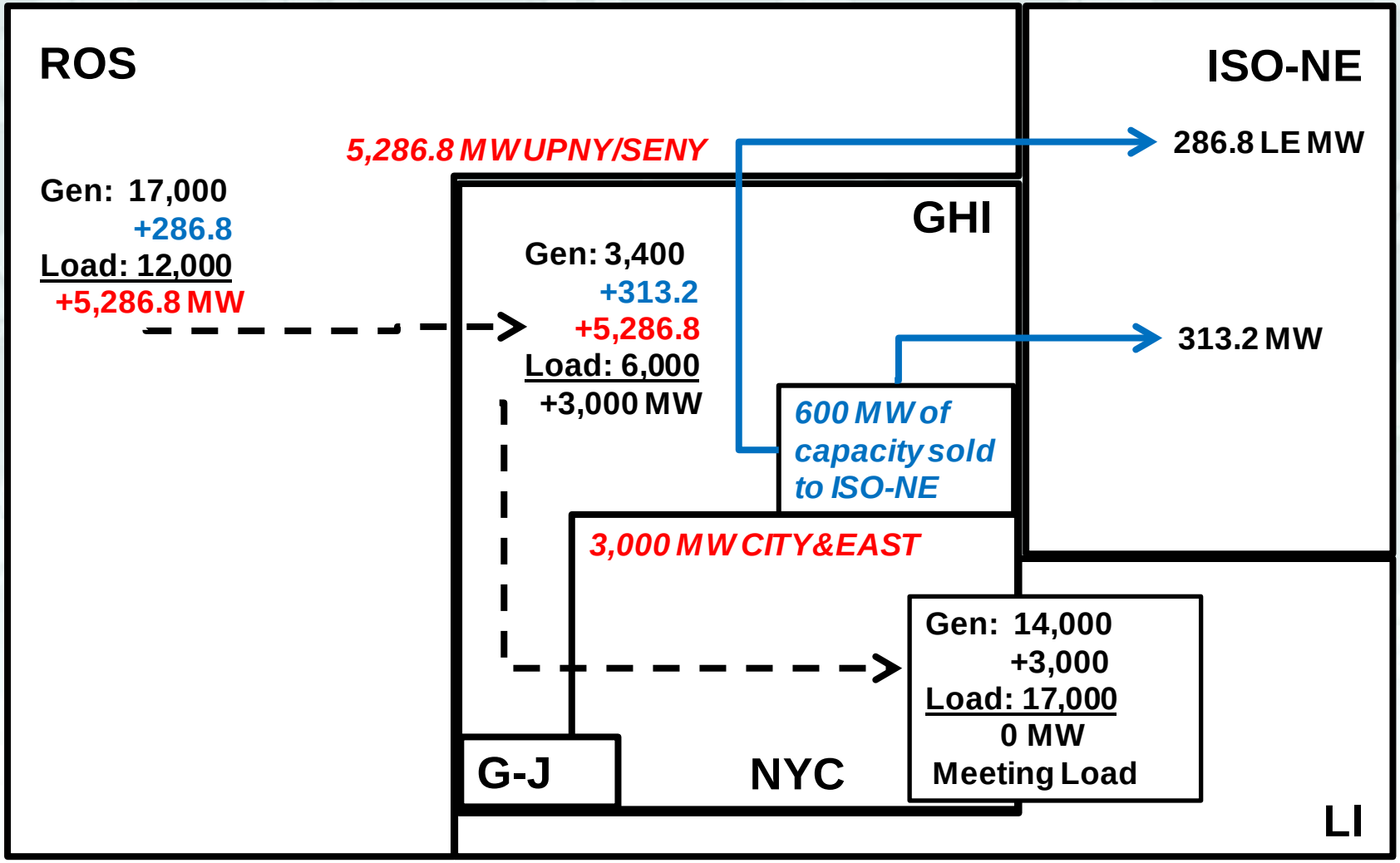
Determining LE Factor



Locality Exchange Factor Analysis

- **Applying the Locality Exchange Factor (slide 15)**
  - ***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***

Applying the Locality Exchange Factor



Locality Exchange Factors

	ISO-NE
G-J	48%
J	48% (J to G-J)

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***

Exporting Generator 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**

Generator 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."***

NYSRC

- **2017/2018 Capability Year**
  - ***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 will be discussed at the next ICS meeting (10/5)**

Tariff Revisions

- **Market Services Tariff**
  - ***Section 2.1 Definitions***
    - **Import Constrained Locality**
    - **Locality Exchange MW**
    - **Locality Exchange Factor**
    - **Locational Export Capacity**
  - ***Section 5.9.2 Provisions applicable to Locational Export Capacity***
  - ***Section 5.11.4***
- **Attachment H**
  - ***Section 23.2***
  - ***Section 23.4.5***

Schedule

- **September 19th - ICAPWG**
  - ***Updated proposal and draft Tariff revisions***
- **October 5th - ICS**
- **October 7th - ICAPWG**
  - ***Updated proposal and updated draft Tariff revisions***
- **October 18th**
  - ***Expected (60 day) timing of FERC Order on ISO-NE 205***
- **October 20th - BIC**
  - ***Vote on proposal if needed***
- **October 26th - MC**
  - ***If BIC vote, vote on proposal***

Schedule Continued

- **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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