Bilateral trading hubs

(a.k.a. Bilateral Netting)

MIWG

August 13, 2008

Background

- **Currently in the NYISO markets, internal bilateral transactions must be sourced from an internal generator bus, and delivered to an internal load bus. There are at least three distinct roles involved in an internal bilateral transaction contract:**
  - **Source – an internal generator**
  - **Sink – an internal load bus**
  - **FRP – Financially responsible party.**
    - The FRP is responsible for all TUC charges (congestion and losses).
    - The FRP can be the same organization as the source, the sink, or can be an entirely different organization such as a marketer/broker who simply facilitates the transaction between the source and sink.
    - The actual cost of the energy is arranged outside of NYISO between the parties involved.

- **"Bilateral netting" introduces the concept of trading hubs whereby energy may be sourced from an internal generator and delivered (sinked) at a zonal trading hub. Transactions may then be sourced at the zonal trading hub to deliver the same amount of energy or portions thereof to other delivery points. One such delivery point is an internal load bus. Another delivery point is another zonal trading hub. In other words, a qualified MP can take title to energy at a trading hub or transfer title to energy from a trading hub.**

- **Terminology: Trading hub energy owner – a market participant who acquires title to energy and sinks it at a trading hub or transfers title to energy and sources it from a trading hub.**

Advantages of trading hubs

Market Accessibility

- ➔ Trading hubs are intended to facilitate trading by providing additional flexibility for marketers and LSEs in carrying out their physical trades.
  - ➔ For example, MPs wishing to create transactions with a small amount of MWs would no longer have to face the complexities of finding another party to the transaction that is willing to deal with small energy volumes. Rather the MP can buy or sell energy to and from a trading hub with a qualified trading hub energy owner. The trading hub energy owner may be more willing to participate in small transactions.

Credit

- ➔ Trading hubs may support a means whereby retailers or small LSEs can make better use of the creditworthiness of larger marketing institutions.
- ➔ A trading hub may allow a physical load to reduce his NYISO credit coverage requirements by netting his physical energy transactions against his trading hub transactions.

Trading hub rules

- Each trading hub is modeled at a zonal level and corresponds to a specific NYISO zonal LBMP.
- A market participant that wants to be a trading hub energy owner must register with NYISO for access to a zonal trading hub.
- Trading hub energy owners will post appropriate collateral for their anticipated trading hub activities.
- Trading hubs can only involve internal bilateral transactions. This may be expanded to imports/exports in future phases.
- Transactions involving a trading hub will not result in any additional generation being committed above that needed to serve physical load in the state.

Trading hub rules - continued

- **Net imbalances (in Day-Ahead or Real-Time) accumulated by a trading hub energy owner will be balanced via settlements at the respective market's zonal LBMP.**
  - Scenario #1 – trading hub energy owner sinks the same amount of energy into the trading hub as he sources (no imbalance exists).
    - Settlements – trading hub energy owner neither purchases nor sells any energy in the NYISO markets.
  - Scenario #2 – trading hub energy owner sinks more energy into trading hub than he sources (has a long position).
    - Settlements – trading hub energy owner sells out of his long energy position at the zonal LBMP in the market in which he holds the long position. He is a net seller in the NYISO markets.
  - Scenario #3 - trading hub energy owner sinks less energy into trading hub than he sources (has a short position).
    - Settlements - trading hub energy owner buys out of his short energy position at the zonal LBMP in the market in which he holds a short position. He is a net buyer in the NYISO markets.
- **Imbalances at the trading hub by DAM close cannot be carried into RT for subsequent bilaterals**

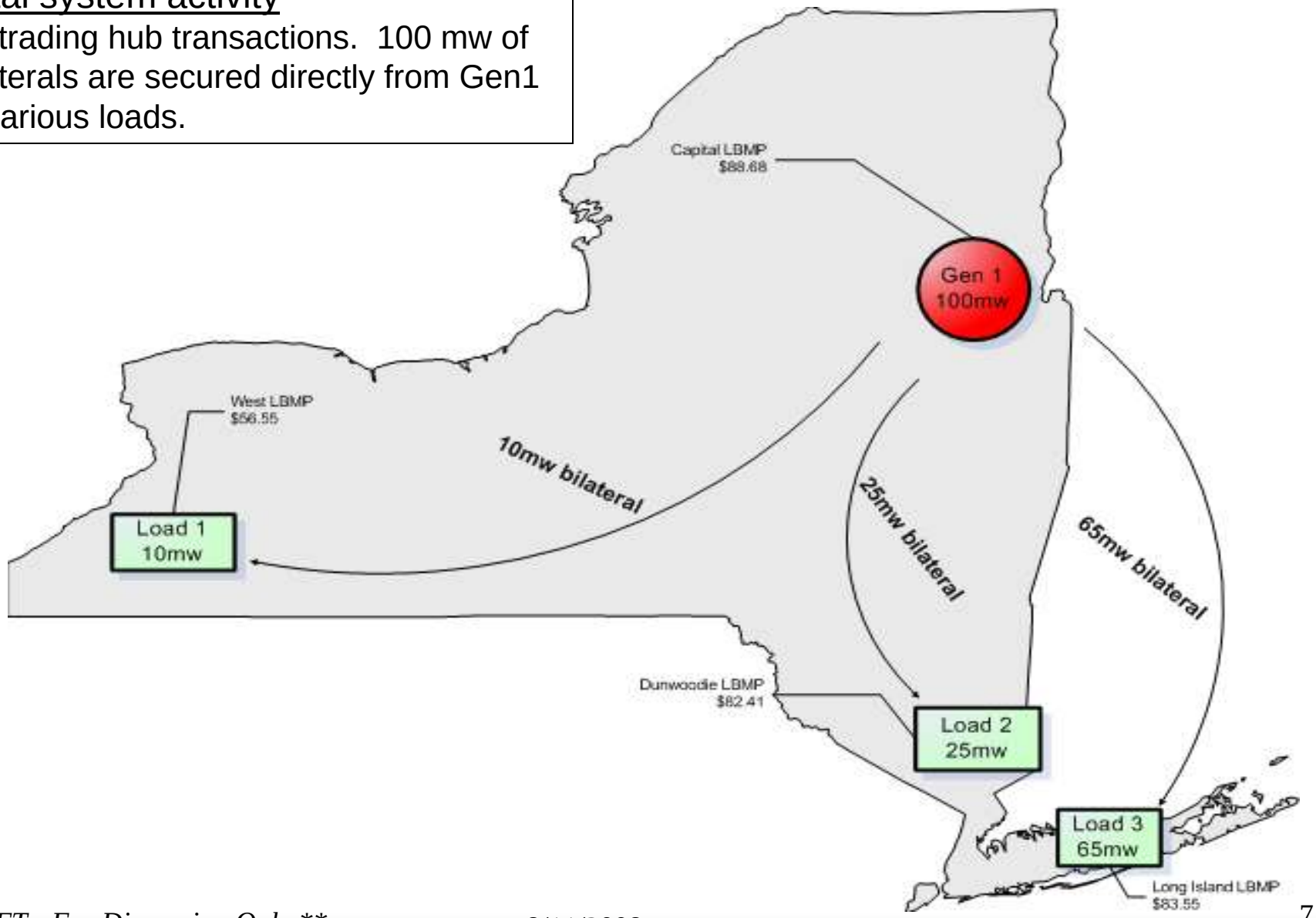
Examples

- **The examples on the following slides illustrate settlement impacts resulting from various trading hub transactions.**
  - Examples 1 – 3 show how there is no difference in the total system settlements to NYISO when:
    - all energy is secured via traditional bilateral transactions between gens and load – example 1.
    - all energy is secured via trading hub bilateral transactions – example 2.
    - some energy is bought in the LBMP market and some is secured via trading hub bilateral transactions – example 3.
  - Examples 4 - 5 show the impact trading hub transactions can have on an individual market participant's NYISO invoice by comparing their invoice total:
    - when the MP supports his LSE energy demands solely in the LBMP market (example 4).
    - when the MP acquires title to energy at a trading hub, and uses that to net against his LBMP purchases made to support his LSE energy demands (example 5).

Example 1

Total system activity

No trading hub transactions. 100 mw of bilaterals are secured directly from Gen1 to various loads.



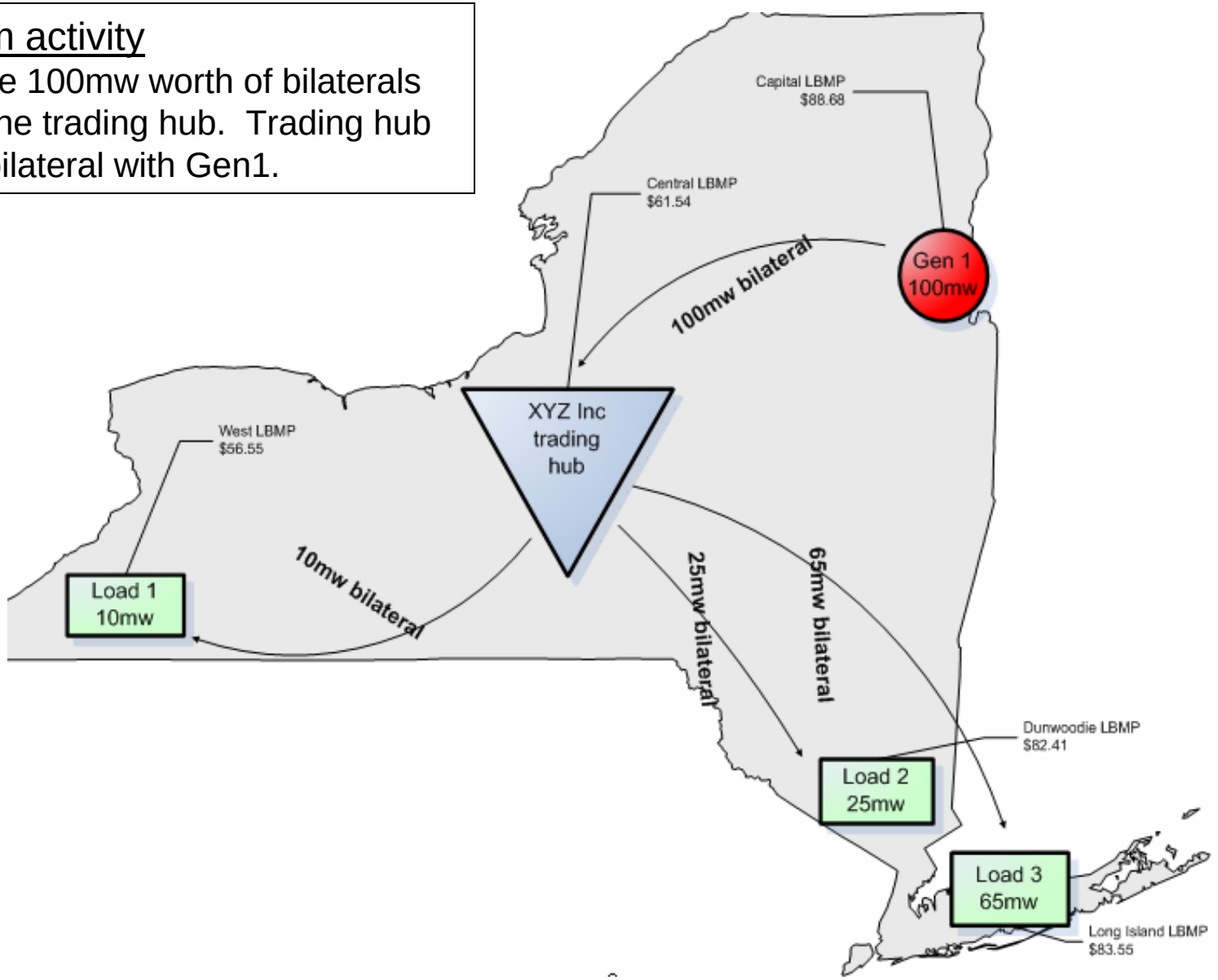
Example 1 - continued

System Activity in Hour Block 01						
Source	***Sink***	***Txn Type***	***Mw***	***System Energy Revenue***	***Losses/ Congestion Revenue***	***Total System Settlement***
Gen 1	Load 1	Bilateral	10	$0.00	($321.30)	($321.30)
Gen 1	Load 2	Bilateral	25	$0.00	($156.75)	($156.75)
Gen 1	Load 3	Bilateral	65	$0.00	($333.45)	($333.45)
			100	$0.00	($811.50)	($811.50)

Example 2

Total system activity

Loads arrange 100mw worth of bilaterals directly with the trading hub. Trading hub has a direct bilateral with Gen1.



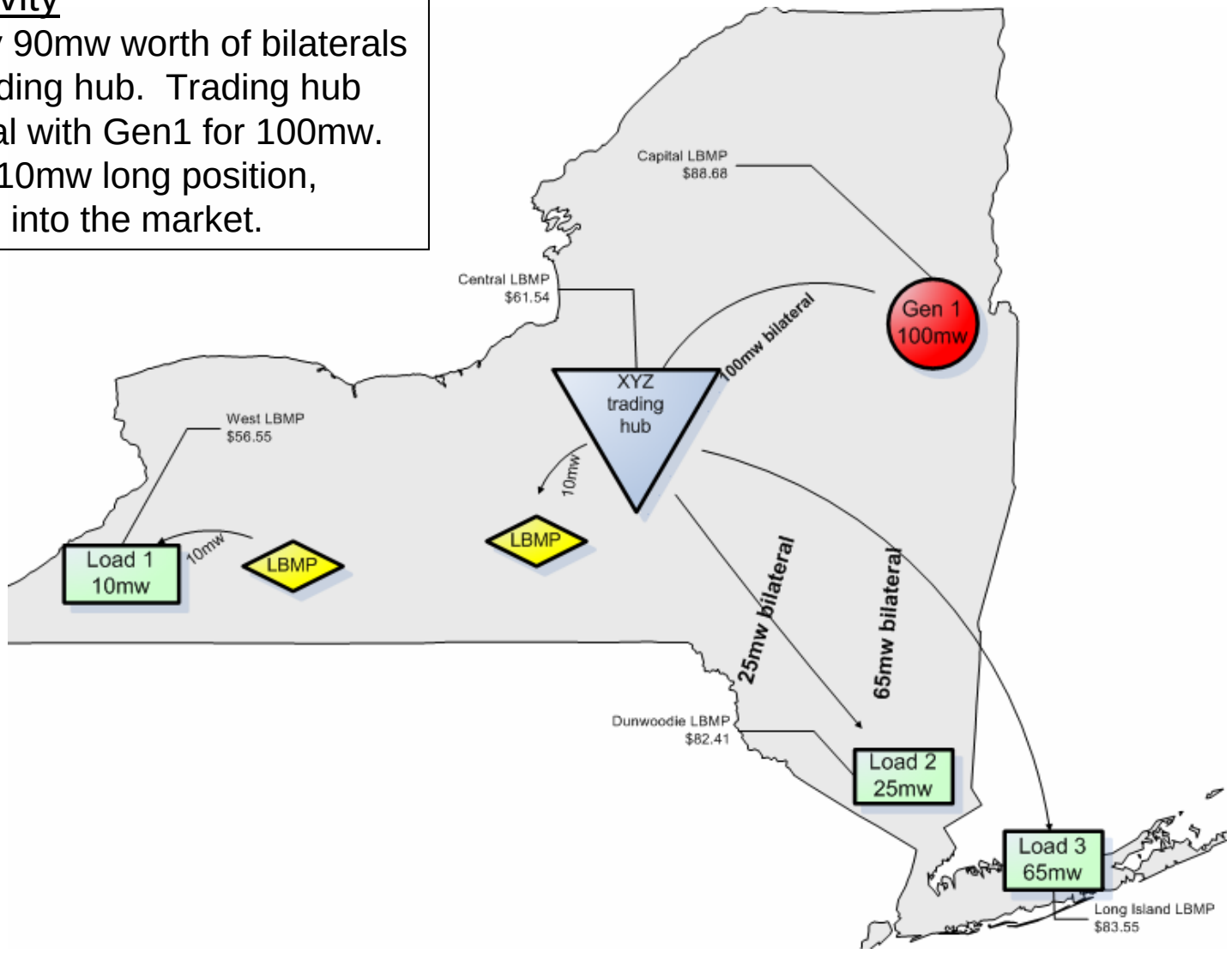
Example 2 - continued

System Activity in Hour Block 01						
Source	***Sink***	***Txn Type***	***Mw***	***System Energy Revenue***	***Losses/ Congestion Revenue***	***Total System Settlement***
Gen 1	XYZ trading hub – zone C	Bilateral	100	$0.00	($2,714.00)	($2,714.00)
XYZ trading hub – zone C	Load 1	Bilateral	10	$0.00	($49.90)	($49.90)
XYZ trading hub - zone C	Load 2	Bilateral	25	$0.00	$521.75	$521.75
XYZ trading hub - zone C	Load 3	Bilateral	65	$0.00	$1,430.65	$1,430.65
				$0.00	($811.50)	($811.50)

Example 3

Total system activity

Loads arrange only 90mw worth of bilaterals directly with the trading hub. Trading hub has a direct bilateral with Gen1 for 100mw. Trading hub has a 10mw long position, which must be sold into the market.



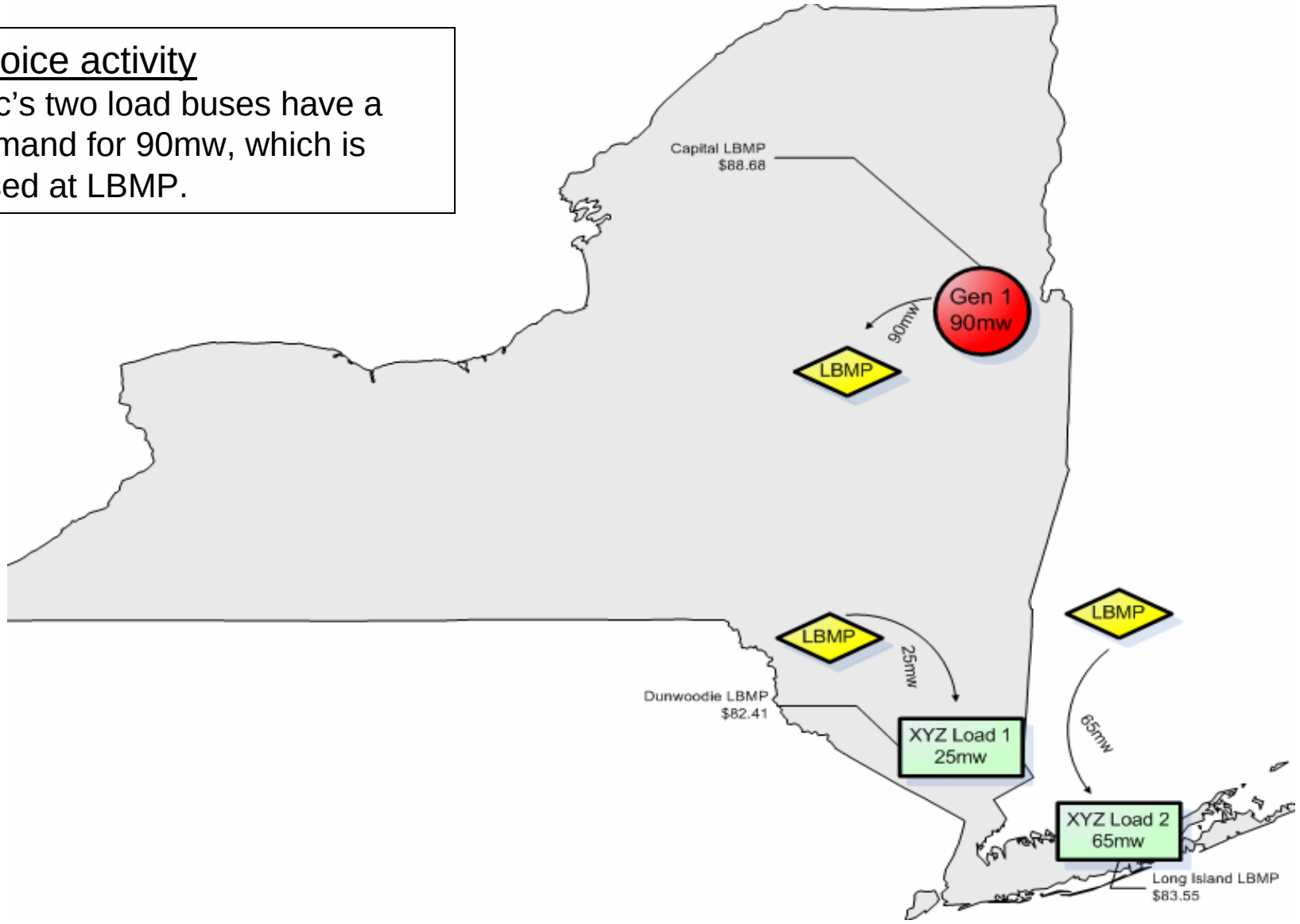
Example 3 - continued

System Activity in Hour Block 01						
Source	***Sink***	***Txn Type***	***Mw***	***System Energy Revenue***	***Losses/ Congestion Revenue***	***Total System Settlement***
Gen 1	XYZ trading hub	Bilateral	100	$0.00	($2,714.00)	($2,714.00)
XYZ trading hub	n/a	LBMP	10	($600.30)	($15.10)	($615.40)
XYZ trading hub	Load 2	Bilateral	25	$0.00	$521.75	$521.75
XYZ trading hub	Load 3	Bilateral	65	$0.00	$1,430.65	$1,430.65
n/a	Load 1	LBMP	10	$600.30	($34.80)	$565.50
				$0.00	($811.50)	($811.50)

Example 4

MP Invoice activity

XYZ, Inc's two load buses have a total demand for 90mw, which is purchased at LBMP.



Example 4 - continued

XYZ Inc's NYISO Invoice

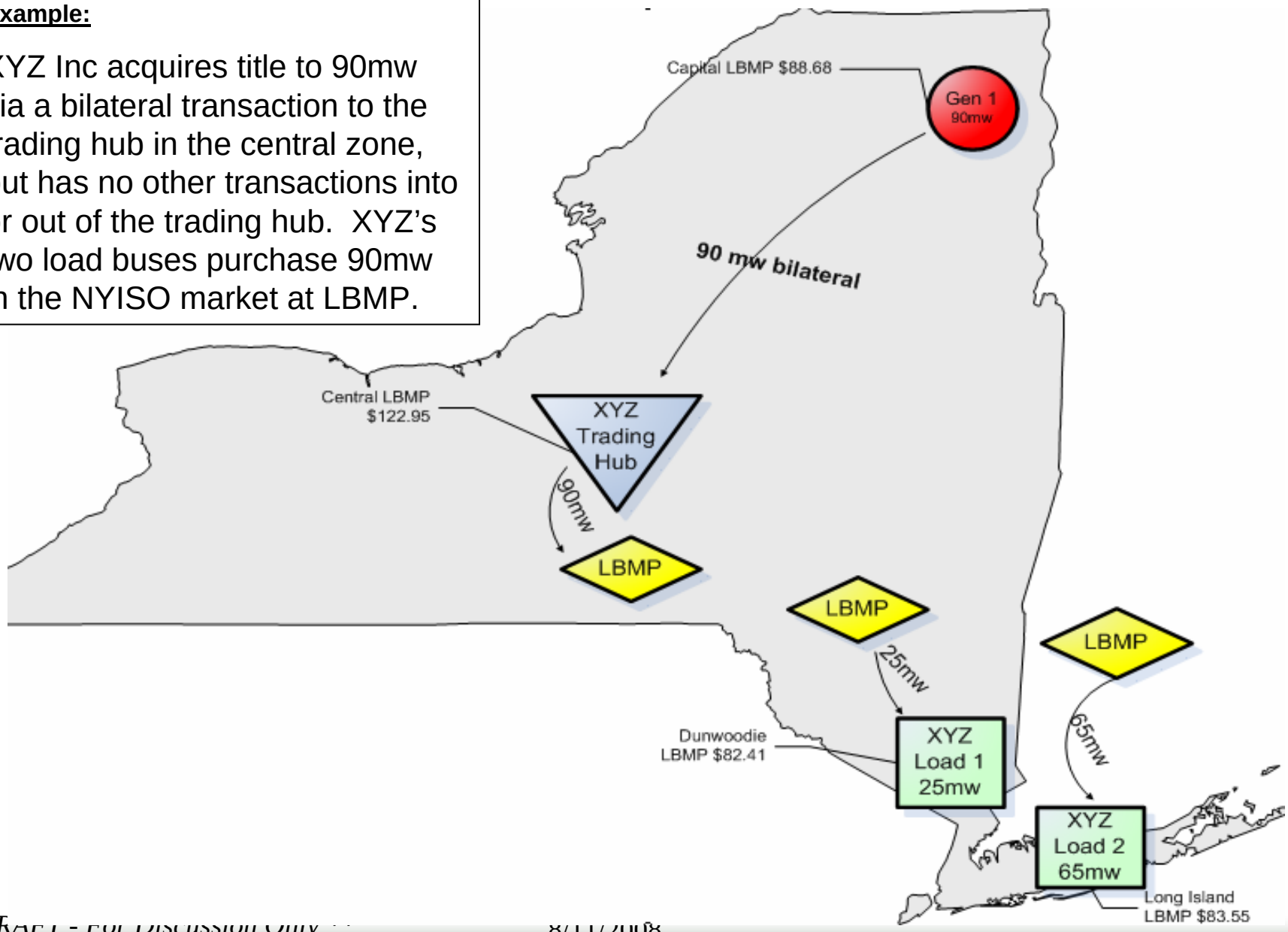
Description	Txn Type	LBMP	Mw	Total Settlement
XYZ Load 1 buys 25 mw at LBMP	LBMP	$82.41	25	$2,060.25
XYZ Load 2 buys 65 mw at LBMP	LBMP	$83.55	65	$5,430.75

Total Owed on NYISO Invoice: **$7,491.00**

Example 5

Example:

XYZ Inc acquires title to 90mw via a bilateral transaction to the trading hub in the central zone, but has no other transactions into or out of the trading hub. XYZ's two load buses purchase 90mw in the NYISO market at LBMP.



Example 5 - continued

XYZ Incorporated NYISO Invoice

Description	Type	Rate	Mw	Total Settlement
XYZ pays TUC charges on bilateral transaction from Gen 1 to Trading Hub	TUC	$34.27	90	$3,084.30
XYZ sells 90mw from Trading Hub into NYISO market at zonal LBMP	LBMP	$122.95	-90	($11,065.50)
XYZ Load 1 buys 25 mw in RT at LBMP	LBMP	$82.41	25	$2,060.25
XYZ Load 2 buys 65 mw in RT at LBMP	LBMP	$83.55	65	$5,430.75

Total Owed on NYISO Invoice: **($490.20)**

Other design considerations

- **Credit tracking is impacted by the introduction of this concept. The potential exists for a trading hub to accumulate large net energy position imbalances that must be bought-out at the zonal LBMP.**

- **Financially Responsible Party (FRP) can be any party on the bilateral contract involving a trading hub. This is also currently true for traditional bilateral transactions between a generator and load.**

Special Credit requirements for trading hubs

- The credit risk that is most critical to monitor is the scenario where a trading hub energy owner accumulates a large short position. This scenario results in that MP having a financial obligation to buy out of their short position.

- NYISO proposes that a market participant who wants to operate as a trading hub energy owner be required to put up collateral to match the maximum short position imbalance they are willing to accumulate.

- This would not put a limit on the amount of energy that can be traded at a trading hub. It simply puts a limit on the amount of a short imbalance between purchases and sales that a trading hub energy owner is willing to collateralize from a trading hub. They could trade an unlimited amount of energy as long as they kept their short imbalance within their collateralized limits.

- Collateralized trading hub limits would be enforced when a bilateral transaction bid involving trading hub is submitted, modified, and/or deleted.

- Additional collateral would be required to cover TUC charges when the trading hub energy owner is also the FRP on a bilateral contract.

- For the purposes of determining collateral requirements, NYISO will project 22 zonal LBMPs, one per zone for peak hours and one per zone for off-peak hours. The prices will be based off of historical prices and projected natural gas prices.

Next steps

- ➔ **Complete requirements development**
- ➔ **Develop tariff language**
- ➔ **Develop implementation schedule and perform software development through the rest of 2008.**
- ➔ **Publish technical bulletin describing official bidding and settlements rules for trading hubs**