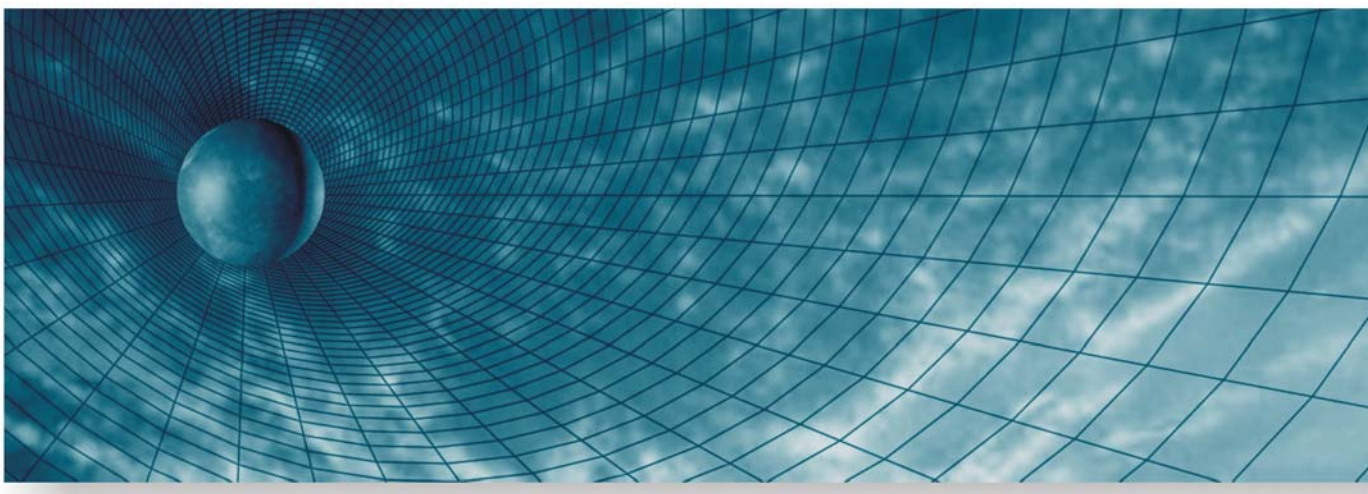
Report to

New York Independent System Operator

Regarding

Billing Cycle Assessment

March 15, 2004



Disclaimer: This report was prepared by R. J. Rudden Associates at the request of the NYISO. Notwithstanding anything stated in the report, the NYISO takes no position as to the statements or recommendations contained therein. The NYISO is providing this study to Market Participants to encourage dialogue on enhancements to the NYISO settlements process and not as any statement of the NYISO positions on these issues.

Table of Contents

I. Executive Summary

This report analyzes the business and technical practicality and the costs and benefits associated with compressing the New York Independent System Operator (NYISO) settlement process to a single day (Daily Settlement). In this report, the NYISO Settlement Process includes 4 sub-processes:

Settlement Process
1. *Metering* - Collecting meter information
2. *Billing* - Settling system load and determining and allocating costs
3. *Invoicing* - Issuing an invoice
4. *Payment* - Rendering and receiving payments

The Settlement Process is currently 45 days, or 1.5 months, in duration. The True-Up Process follows the Settlement Process and includes two sub-processes:

True-Up Process
1. *Settlement Adjustment* – Calculating and issuing corrected bills, including the final bill
2. *Challenge* – Period for Market Participants to challenge the final bill

The True-Up Process currently spans 14.5 months for a total of 16 months for the current combined Settlement and True-Up Processes. While this report analyzes the prospect of shortening the Settlement Process and the True-Up Process **the goal of Daily Settlement only refers to the sub-processes in Settlement, from Metering through Payment, occurring in a single day**, with the True-Up Process occurring in subsequent days.

R.J. Rudden Associates Inc.'s (Rudden's) analysis concludes that Daily Settlement and a number of other improvement scenarios are both technically feasible and offer a positive net benefit to the collective group of MPs. However, we do not recommend that NYISO immediately move to Daily Settlement for a number of reasons. Rudden believes that NYISO needs to address a number of areas in order to progress to more frequent settlements including:

- ***Process Documentation***
- ***Metering Standards***
- ***Meter Data Communication***
- ***Load Profiling***
- ***Billing Systems***
- ***Benefit Sharing Mechanism***
- ***Market Participant (MP) support for a shortened Settlement Process***

Rudden believes that a formidable barrier to more frequent settlement exists due to the fact that some MPs will bear the lion's share of the increased costs arising from a transition to Daily Settlement, and other MPs will garner all the benefits. Rudden recommends that NYISO move to shortened settlement only after appropriate mechanisms for sharing costs and benefits are developed.

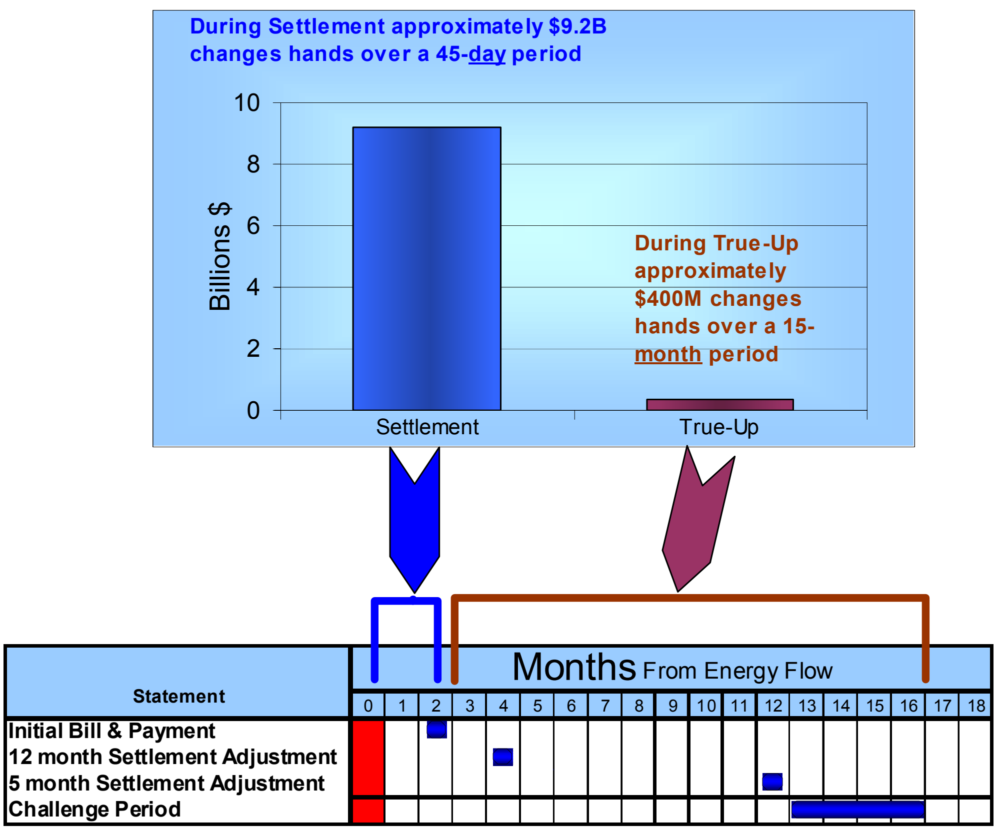
Rudden also recommends that NYISO should immediately work to further reduce the True-Up period from the current 16- month cycle (including Settlement) to the 5-month cycle (including Settlement) under consideration. Reducing the True-Up to 5-months reduces the exposure from the risk of Market Participant default and should be able to be accomplished with minimal changes to existing processes and existing infrastructure and no significant investment by either NYISO or Market Participants. The reduction to the 5-month True-Up offers the obvious next step in the progression to shorten the Settlement and True-Up Processes.

The primary benefits of shortening the Settlement and True-up cycle are:

- Reducing NYISO's exposure to risk of default by one or more of the market participants
- Providing more timely information regarding financial positions to NYISO and the MPs

By far, the majority of the dollars flow through NYISO during the Settlement; only approximately 3 percent of the total market billings are adjusted in the first Settlement Adjustment (at 4 months) and even less in subsequent Settlement Adjustments.[1] Chart 1 below depicts the relative dollar flow and schedule for the two processes.

Chart 1 Current Settlement and True-Up Processes



[1] NYISO estimates that the recent 4-month Rebills result in a 3 percent shift in dollars and the 12-month rebills result in a 1 percent shift in dollars.

Reducing the Settlement cycle from the current 45 days to one day, would reduce the exposure of NYISO and MPs to the risk of loss due to payment default. For NYISO, reducing the Settlement cycle to one day would be fairly simple to implement for the Day Ahead Markets (DAM), but would have significant costs and practical issues for the Balancing and Virtual Markets. In addition, the shortened cash cycles for DAM, Balancing and Virtual Markets would provide a clear benefit to energy suppliers and a clear cost to energy purchasers; further, the operational requirements for purchasers, and the mismatch between their energy cash receipts and payments that this creates, would be a significant obstacle to overcome.

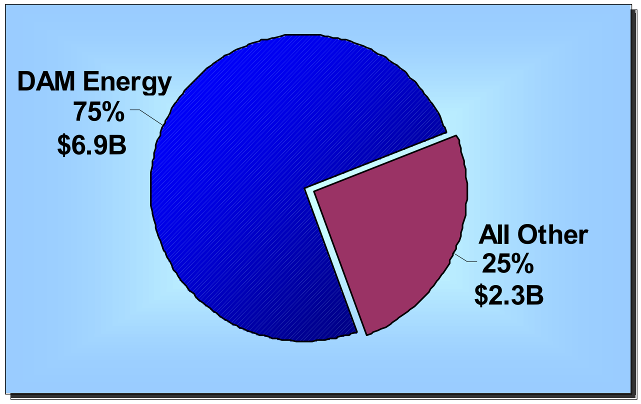
Rudden identified a number of topics, early in the analysis, that represent the most significant issues for Daily Settlement:

- Accuracy and timeliness of Zonal and subzonal Metering
- Accuracy and timeliness of Metering for aggregated retail loads scheduled through the NYISO as a single point of consumption in the wholesale markets
- Billing accuracy
- Information technology capabilities (e.g. billing and load settlement, load profiling and meter communication)
- Load Serving Entities (LSEs) cash flow (i.e. LSEs paying NYISO for services prior to LSEs receipt of their customer's payments)

Of all the issues identified, LSE cash flow (i.e., the mismatch between LSE cash receipts and payments that Daily Settlement would create) represents, by far, the most difficult issue to resolve. The more rapid transfer of cash from energy Buyers (those MPs paying NYISO) in the market to energy Sellers (those MPs paid by NYISO) in a move from the current 45-day Settlement to a Daily Settlement represents a $48 million working capital increase to Buyers. These Buyers, mostly LSEs, will not easily part with this magnitude of dollars, nor will the New York Public Service Commission (NYPSC) likely support such a transfer of cash unless they see a significant benefit to end-use customers.

This analysis included review of a number of potential scenarios for daily, weekly and semi-monthly settlements. Rudden believed these additional improvement options might offer more feasible cost effective scenarios than Daily Settlements. The scenarios also included potential options to settle the DAM and the other markets separately. The DAM for energy represents approximately three-fourths of the NYISO revenue and expenditures as shown in Chart 2 below.

Chart 2 – Combined Revenue & Expenditures



Therefore, with the interest in daily settlement primarily focused on reducing the default exposure for NYISO and MPs, settling a large portion of the market payments, such as settling DAM energy portion separately, could substantially reduce the risk exposure.

The analysis looked at numerous scenarios under a High cost and a Low cost set of assumptions for infrastructure upgrades. The High Case assumption included a $35 million upgrade for:

- Telemetry metering to all tie lines and generators
- Telemetry metering to all large Commercial & Industrial (C&I) customers
- Software upgrades for the billing and accounting system (BAS), meter data management and load profiling.[2]

The Low Case analysis presumed:

- No substantial upgrades to metering
- Software upgrades limited to improved load profiling capability for NYISO
- Required modifications to applications to support the separate market settlements contemplated in a number of the scenarios

The results of Rudden's analysis indicate the net present value of the costs and benefits for a true, full market Daily Settlement ranges to $12 million even with scenarios assuming $35 million in upgrades. This net benefit is conservative, since it does not incorporate any estimate of the added benefits of the upgraded metering and meter communication capabilities for other NYISO market initiatives or MP operational improvements. The various scenarios indicate that, in general, the shorter the settlement cycle, the larger the benefits and the larger the cash transfer from Buyers to Sellers. However, since the Sellers reap all the benefits and the Buyers bear the vast majority of the cost, the Buyers and the NYPSC support of Daily Settlement represents the greatest hurdle. Table 1 below provides summaries of a sampling of High Case scenarios analyzed.[3]

[2] The $35 Million estimate is based on input from Rudden and NYISO sources.
[3] The Settlement Scenarios reference numbers beginning with "D" correspond to the High Case scenarios found Appendix C.

Table 1 – Settlement Process Cost Benefit Analysis

Ref.	Settlement Scenario Description	Total NYISO & Market Participant		5 Year NPV
		One Time Costs	Annual Benefits	
0	Status-Quo - 45-day Settlement	$0	$0	$0
D1	Daily Settlement for RTM and DAM	$31,495,925	$13,756,005	$11,990,531
D2	Daily Settlement for RTM and DAM with a 5 day lag	$31,495,925	$11,177,151	$4,325,609
D4	DAM settled daily with a 7 day lag, RTM settled monthly	$34,325,047	($698,133)	($33,565,874)

The cost analysis summarized above did not include any quantified cost or benefit to changes in the duration of the True-Up Process. Reducing the True-Up Process duration has benefits including reduced default risk exposure and more rapid quantification of MP financial positions. Any Settlement Adjustment, that is part of the True-Up Process, could create a receivable from a MP, with the risk that the MP might fail to pay. Shortening the period allowed for Settlement Adjustments should provide a benefit by reducing the potential for default. Rudden believed it unnecessary to quantify the benefit of reducing the potential default of an LSE, because most LSE receivables are collateralized. Therefore, the True-Up reduction analysis focused on the uncollateralized generators. To quantify the potential benefits of reducing the duration of the True-Up Process, Rudden analyzed the impact of shortening the Settlement Adjustment Sub-Process from the current 12 months to 4 months, and then a further reduction to 1 month. Table 2 below presents the results of this analysis

Table 2 – True-Up Process Default Exposure Reduction

Scenario	Default Exposure Reduction
Status Quo – 12 month Settlement Adjustment	$0
Reduce Settlement Adjustment from 12 months to 4 months	$4,900,000
Reduce Settlement Adjustment from 4 months to 1 month	$2,100,000
Reduce Settlement Adjustment from 12 months to 1 month	$7,000,000
Issue Daily bills and eliminate Settlement Adjustments	$7,800,000

Rudden chose consistently conservative estimates to develop the True-Up analyses. Therefore, these default exposure reduction estimates represent the upper-limit of expected benefits. The results can be significantly altered with changes in critical and difficult to estimate assumptions. In addition, NYISO's historical losses, to date, do not support the large benefits represented in Table 2. Therefore, Rudden recommends that NYISO view these results as an approximation of the benefits that can be achieved through the reduction of the Settlement Adjustment Sub-Process.

Rudden believes that NYISO can, technically, implement a Daily Settlement process with substantially the existing metering and NYISO billing software. NYISO currently issues a daily advisory statement to

MPs based on the information from contracts, estimates and forecasts. The daily advisory statements do not normally incorporate any metered data. While Rudden does not recommend it, NYISO could issue daily invoices instead of daily advisory statements, using the similar processes and the same data used for the daily advisory statements. However, the accuracy of the daily invoices, with the current infrastructure, would be equivalent to the current daily advisory statements issued by NYISO. NYISO could then rely on a 1-month and 4-month resettlement to correct the daily invoices with actual metered data and any required price or billing corrections. Issuing bills with the known inaccuracies of the daily advisory statements would increase dollars associated with the True-Ups and the likelihood of billing disputes with MPs. In addition, FERC could find this process unacceptable. Due to the inaccuracies of the current advisory statements, Rudden recommends that it should not be used for billing.

Based on the results of the analysis, Rudden has developed the following 9 Step roadmap that we recommend NYISO pursues to improve the Settlement Process and move toward a Daily Settlement capability.

1. ***Rudden recommends that NYISO first proceed with the current plans to reduce the time period allowed for the Settlement and True-Up Processes to 5-months.*** The improvement to a 5-month cycle:

   - Reduces the exposure to the risk of default
   - Eliminates the costs and time associated with the 12 month Settlement Adjustment
   - Should require no significant investment for NYISO or Market Participants
   - Requires no modifications to the BAS
   - Represents the practical limit of reduction with the current metering infrastructure and processes (Any further improvement to the issuance of a final bill to less than this 5-month period for the True-Up requires modifications to meter reading practices and/or technology within the MAs)
   - Provides a significant improvement over the current 16-month process
   - Should be acceptable to both the FERC and NYPSC

2. ***However, to effectively plan for these and other improvements to the Settlement Process, NYISO should document the current Settlement Process flows and strive to keep them current as new changes are made.*** NYISO has, in the past, documented portions of the settlement project but these process flows have become quickly obsolete as the systems and processes continued to evolve. NYISO has contracted with Structure Consulting to document the current settlement applications and this effort may provide sufficient documentation as long as they are complete and a process is installed to continually or periodically update the documentation.

3. ***NYISO should seriously consider bringing the review of market pricing, currently performed on a contract basis by LECG, in-house prior to any move to a Settlement Process of less than 45-days.*** NYISO's decision for any change to this work should be based on any overriding market monitoring requirement. Absent a requirement for an external review, the decision to bring the process in-house should be based on a cost-benefit analysis and the estimated change in the process duration, and the perceived core-function nature of the activity. In addition, NYISO should consider in this decision as to whether to bring the function in-house, that many MPs may resist the change and feel the monitoring should be performed independently of NYISO. The current 6-day duration of the LECG review of market pricing precludes any LECG-based correction being included in a Daily Settlement of the full market. Even if the process were brought in-house, it would have to be completed within

minutes, rather than days to be included in a daily bill. This shortened time would necessitate an automation of the review currently performed by LECG. We have not assumed any change to this process in our analysis. We have assumed that any market corrections could be included in subsequent resettlements whether performed by LECG, NYISO or though an automated process.

4. ***In parallel to moving toward the 5-month settlement cycle, Rudden recommends that NYISO and MPs work toward the improved metering infrastructure and software that could support a daily settlement or any further settlement improvement***. This improved infrastructure would also provide more accurate and timely data regardless of the settlement cycle. Rudden suggests that NYISO require all generators and tie lines have telemetry equipped, revenue quality metering. Rudden's interpretation of the NYISO and Transmission Owners (TO) Agreements and Tariff indicate that NYISO already has the authority to compel the MPs to comply with this upgrade. We estimate the total cost of this upgrade for the current number of MPs at approximately $2.1 million for meters, software and installation. The current deficiencies in basic metering capability, and lack of specificity of the metering requirements in NYISO tariffs and agreements, lags far behind any of the major independent system operators with which Rudden is familiar. Even though NYISO could, theoretically move toward a Daily Settlement with the existing metering, as noted above, ***Rudden suggests that NYISO focus on bringing the metering and data collection up to industry standards prior to adopting anything less than the current 45-day Settlement Process.***

5. ***Rudden believes the next progressive step for NYISO and market participants should include upgrading the communication links with the MPs so that any data from telemetry capable meters is delivered to NYISO the day following energy flow. In addition, Rudden recommends that enhancements of the load profiling capability of both NYISO and the MPs be included in this step***. Providing telemetry data to NYISO should significantly reduce the delays associated with data flow and enhance the current functionality of the Web Based Reconciliation (WBR) system. With meter data management software installed at each metering authority (MA) in the prior step, all available telemetry meter data could then be transferred to NYISO via data communication connections. The enhanced profiling software for both NYISO and MPs should greatly improve the accuracy of the advisory statements and the initial bill regardless of the settlement timetable. From our review of the Settlement Process, it appears that the current load profiling capability does not meet the needs of NYISO or the MAs. Enhanced load profiling functionality could assist both NYISO and the market participants regardless of the decisions made on the settlement cycle or metering upgrades.

6. ***Rudden recommends that NYISO either replace or enhance the BAS capability to support rapid modifications to accommodate market changes or billing corrections.*** The BAS is the key system driving the Settlement and True-Up Processes. Since NYISO's inception, the BAS has proven difficult for NYISO to manage and adapt and a continuous point of discord with MPs. NYISO is currently, regularly struggling with thousands of manual corrections necessary to issue monthly invoices. Rudden believes that NYISO should replace the BAS with off-the-shelf software, such as LodeStar, or another package deemed acceptable to the users or, a major rewrite of the existing BAS to significantly enhance functionality. For example, NYISO personnel have expressed interest in a rules-based-system that would significantly reduce the time and the IT support to correct and modify the BAS to adapt to new market requirements. In addition, new functionality could eliminate the thousands of manual corrections that are performed with the current system. Rudden did not include the cost of a new BAS in this analysis or any of the scenarios. However, LodeStar, one leading maker of a rules-based BAS, provided an all-in estimate of less than a million dollars for their billing

system; to this cost, NYISO must add significant internal or consulting hours for data conversions, interfaces, training, etc.

The current BAS could function in a daily billing cycle as long as the DAM and other components were settled together, as happens with the current process. However, should NYISO desire to settle DAM and other markets separately, as contemplated in a number of the scenarios discussed, the required programming modifications would require an estimated $2.8 million. This $2.8 million investment in the BAS only modifies the current applications to allow the DAM and RTM markets to be settled separately. The $2.8 million in modifications does not provide any further system enhancements or functionality beyond the ability to settle the markets separately nor does it fulfill the need for the added functionality of a new or extensively enhanced BAS.

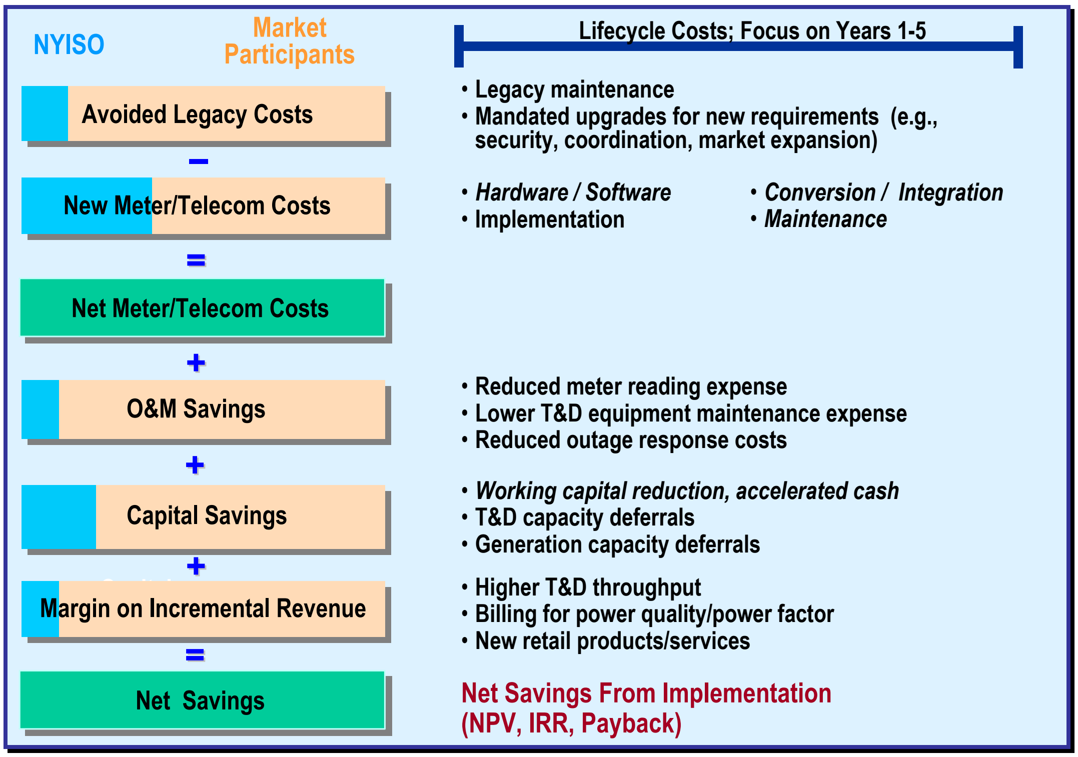
7. ***In this next step, Rudden recommends that large C&I customers be equipped with interval-based, telemetry metering.*** This expansion of the existing metering capability would significantly reduce the magnitude and increase the accuracy of the loads that must be profiled to settle the market; which in turn, would increase the accuracy of initial settlement results. In addition, the telemetry transfer of this critical meter supports a shortened settlement cycle. This step requires the largest investment of any recommended by Rudden; on the order of $25 million based on our estimates of approximately 4,700 C&I customers requiring metering upgrades. Rudden does not propose telemetry-capable or AMR meters for all customers. Without other value added services for the technology, the current costs of advanced metering for residential and small C&I customers can rarely justify mass installations. However, some utilities have found the costs of advanced telemetry-capable metering on their largest customers justified based on either economic savings from meter reading and billing management, increased customer service, value added services or new tariff opportunities. If MPs can install two-way telecom capabilities with large customers, MPs can then use the capability as a technology platform to establish a competitive demand component to the market (e.g., direct load control, demand bidding, reserves bidding, etc.). These technology-enabled demand resources could reduce market volatility and ease the need for new transmission capacity. This has become a burgeoning area, and could attract significant support from the consumer advocates and environmentalists.[4] The possibility of upgrading end-use telemetry should be evaluated in the broader context of the IT and telecom architecture for the intelligent grid to value the full benefit of the investment.

---

[4] There are a large number of applications for managing and maintaining the T&D system that could be more effectively implemented with improved connectivity to more real-time data collection points on the grid. In addition to automated meter reading and demand-side participation in the market, they would include real-time T&D power flow, real-time dynamic scheduling, automatic fault isolation and circuit reconfiguration, precision dispatch of repair crews, remote sensing and reporting of device conditions, condition-driven maintenance procedures, etc. The list continues to grow, as T&D engineers think about how they could use this improved information. Revenue enhancement is also possible, as the improved meters provide data to bill for discrete services such as power factor surcharges or improved power quality. Presumably the telecom architecture would have all the new data feeding into the TOs' control centers, and thence to NYISO; so the TOs could have full use of the data for other purposes. The point is simply that accelerated settlement would be only one process among many that would benefit from the telecom/metering backbone. The benefits associated with this the analysis of meter upgrades would be much stronger if the total range of enabled solutions were considered. The credence that the TOs would attach to some of these benefits would depend on how much they have thought about (or could be sold on) the vision of the "intelligent grid."

Rudden has not attempted to provide standalone cost/benefit analysis of metering in this report nor did we quantify these internal MP benefits of telemetry-capable metering for large C&I customers. These additional MP benefits, were they included, would serve to increase the overall benefits. Chart 3 below provides an outline of the additional components that could be included in an expanded business case analysis.

Chart 3 – Expanded Business Outline

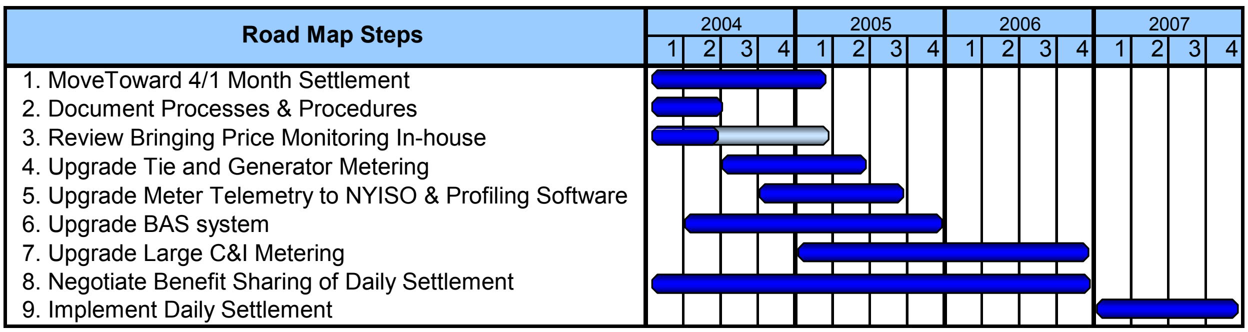


8. ***Rudden recommends that NYISO immediately begin work with the MPs and the NYPSC to develop a method for addressing the distribution of the cost and benefits associated with a shortened settlement cycle.*** As stated earlier, this more rapid transfer of cash from Buyers to Sellers, and the resultant increase in Buyer cost, present a significant obstacle to any Settlement Process shorter than the current 45-days. Since the Sellers in the market, presumably, generally carry higher short term debt and cost of capital rates, the Seller benefit of earlier payment is consistently larger than the Buyer cost of the earlier payments; $13.6 million higher annually for the daily settlement in scenario D1. The most straightforward solution would be for NYISO to include in the uplift charges a mechanism that would charge the Sellers and credit the Buyers until such time as the Buyers accumulated the additional working capital required for the shortened payment cycle. The positive benefits allowed by a number of the scenarios in this analysis, including daily settlement of all markets, allows for this and other "win - win" or "win - no lose" solutions to this distribution of cost and benefits.

9. ***Implement Daily Settlement for the DAM and the RTM for energy and reduce the settlement of the other markets to the shortest practicable duration based on the market characteristics.*** Rudden recommends this ultimate step only be taken after the successful completion of the prior 8 steps and in partnership with the MPs. However, Rudden believes that in order to make payments to the MPs on the same day that payments are received from MPs, NYISO must increase its working capital, to cover bank clearing periods and late payments, to avoid "short paying" the market. NYISO has expressed a strong desire to avoid regularly using its lines of credit as working capital to support daily payments to MPs. Rudden recommends that any reduced Settlement Process should include a multi-day lag between receipts and payments.

Chart 4 below presents a possible high-level timeline for the recommended steps discussed above.

Chart 4 - Roadmap High-Level Timeline



II. Introduction and Background

In conjunction with the NYISO's principal mission of directing the operation of the New York State ("NYS") power system, it administers and facilitates multiple interrelated product and services markets. To the extent technically and economically feasible, NYISO desires to shorten the settlement periods from the current 12-month final bill and 4-month challenge period[5] to shorter cycles, and conceivably to daily billing and financial settlement of most, if not all, of the markets and service offerings in the future.

The ability to reduce billing intervals and financial settlement periods is directly dependent on NYISO's access to accurate billing quality data for input into the settlement processes. NYISO's ability to gather and compile the necessary data to accurately calculate charges / payments due MPs in a timely manner is impacted by:

- Metering and associated software applications
- Communication mechanisms
- Infrastructure (systems, processes, resource staffing and skill sets)
- Existing tariff
- Contractual agreements between NYISO and MPs

In addition, NYISO depends heavily on third parties for certain information required to settle transactions, particularly when they occur or relate to the real time market and the moment-to-moment operation of the transmission system.

For NYISO to be successful in its endeavor to reduce its settlement periods, the MPs must have extremely high confidence in NYISO's ability to produce reliable settlement statements that accurately reflect the MPs' transactions in the various markets in which they participate. Due to the nature of the market, information is not always available in the timeframe required by NYISO[6]. Additionally, MPs must have significant confidence that NYISO possess robust processes and mechanisms to determine necessary adjustments to and True-Ups to prior settled transactions, and that NYISO has procedures to promptly reconcile and resolve any commercial or accounting differences that may arise between NYISO and MPs.

For NYISO to implement more frequent billing intervals and effect shorter financial settlement periods, both the MPs and NYISO must have the financial capacity and working capital capability to manage changes in the timing differences between their cash outflows and revenue collections. NYISO stakeholders will also expect that adequate internal controls be in place and functioning to minimize the risks of loss to NYISO and/or MPs, resulting from a MP's non-performance or non-payment for products and/or services in the NYISO administered markets.

5 Scheduled to be fully implemented beginning for the October 2002 transaction month.

6 For example, actual loads of retail consumers served by LSE functioning as an aggregator on the New York area transmission systems.

III. NYISO Administered Markets

The structure and commercial nature of certain NYISO administered markets lend themselves to shorter settlement periods and more frequent financial transaction settlement than what is currently used by NYISO and MPs for the markets. Although there are several common data elements amongst all the markets, the markets differ in their specific information requirements for settlement. Differences in the settlement timeframes are largely driven by differences in the time needed to produce sufficiently complete and accurate billing quality information to satisfy these requirements. NYISO administers six different markets, as follows:

- Day-Ahead Markets
- Real Time Markets
- Installed Capacity Market
- Transmission Congestion Contracts Auction Market
- Virtual Bidding Market
- Energy Demand Response Program

A. Description of Markets

For the purposes of this analysis, each market is considered separately with recognition of the interdependence of certain market transactions[7]. A brief description of each NYISO administered market and its components are as follows:

Market	Description
Day-Ahead Markets (DAM)	Comprised of bids for the purchase and sale of the energy commodity together with bids associated with ancillary services, and congestion rents to holders of transmission congestion contracts (TCCs). The DAM represents approximately 90-percent of the total dollars settled by NYISO. Transmission usage charges associated with bi-lateral agreements are discussed in connection with the DAM.
Real Time Markets (RTM)	Market associated with the real time operation and balancing of the NYISO operated transmission system. Market is comprised primarily of energy commodity transactions, actual provision of ancillary services, Schedules 1-6 charges and expenditures, and NTAC revenues and expenditures.
Installed Capacity Market (ICAP)	Market associated with LSE requirement to procure capacity for a period in an amount determined by NYISO based on their locational forecast load plus reserves. LSEs may acquire capacity through bi-lateral contracts or auction markets administered by NYISO. ICAP auctions include a) strip

[7] An example would be transmission congestion rent payments that are discussed in connection with transactions in the DAM, while the settlement associated with the Transmission Congestion Contracts (TCC) financial instrument auction process is discussed separately in the analysis of the TCC Market.

	auctions, b) monthly auctions, and c) spot auctions. Currently, ICAP auction settlements occur in the month following the month in which the ICAP was purchased. Strips are allocated 1/6 to each month of the strip period.
Transmission Congestion Contracts Auction Market (TCCA)	Market comprised of TCCs that are acquired by MPs either through grand fathered rights or through various auctions facilitated by NYISO. A TCC provides the right to receive or the obligation to pay the congestion portion of the hourly RTM LBMP for 1 MW at a point of withdrawal or injection to the NYISO operated system for which they pertain. TCC initial auctions occur quarterly while reconfiguration auctions occur monthly. For financial settlement, payments to NYISO are due three business days after auction ends, while payments from NYISO to MPs are made 6 business days after each auction end.
Virtual Bidding Market (VBM)	Market is comprised of bids for "Virtual Supply" or "Virtual Load" for the financial purchase or sale of energy in the NYISO administered DAM. Transactions are strictly financial (i.e., physical energy is neither supplied nor consumed). The market provides an additional hedging mechanism for MPs with physical loads and generation, and opens the NY wholesale electric market to MPs that do not have physical positions in the market. A "Virtual Load" bid is an offer to buy energy in the DAM, and the energy is sold back by the bidding MP in the real time market at the real time LBMP. A "Virtual Supply" bid is an offer to sell energy in the DAM, and the energy is bought back by the bidding MP in the real time market at the real time LBMP. Virtual Load or Supply bid must be accepted for a settlement to occur.
Energy Demand Response Program (EDRP)	Market for load curtailment during anticipated supply shortages associated with emergency purchases / sales of power in critical situations.

B. Day-Ahead and Real Time Markets Settlement, and Associated True-Up

The financial settlement of transactions in the NYISO administered DAM and Real-Time Market (RTM) can be categorized into three discreet but interrelated sub-categories as follows:

1. Transactions associated with the DAM
2. Transaction associated with the RTM
3. True-up to DAM and RTM settlements

The first financial settlement is based upon the **DAM** commitment process that considers bids to purchase/sell power, and bids to provide ancillary services submitted by MPs for each hour of the next day. Bids for energy and ancillary services for the day-ahead markets close at 5:00 am the day before the day of power flow. From estimated loads and bids submitted to NYISO, NYISO designates a set of generators that are to be available for dispatch during the day of power flow (Day 0). Transmission usage charges associated with bi-lateral agreements are also settled during the first financial settlement cycle.

The second financial settlement is based on the **RTM** hour-ahead bids submitted to NYISO and real-time operation of the transmission system that reflects changes in operating conditions on the transmission system and variations in actual load. The second settlement incorporates the affects of deviations in estimated loads and generation levels, and actual ancillary services required as compared to bids made into the day-ahead market.

The third financial settlement is associated with the **Settlement Adjustments** associated with DAM and RTM transactions previously settled in the first and second financial DAM and RTM. Settlement Adjustments to prior settlements can result from activities such as:

- Adjustments of estimates to actuals
- Corrections to metered load quantities
- Re-allocation of the total load amongst LSEs
- Price revisions
- Correction to processing errors (including human, and IT system software application limitations)

A substantial majority of Settlement Adjustments processed by NYISO relates to RTM transaction settlements, and only very rarely are Settlement Adjustments required to DAM transaction settlements (e.g., adjustments to RTM hourly LBMPs resulting from LECG's audit of prices are not unusual for the RTM, but would be very unusual for the DAM hourly LBMPs). The settlement period and frequency of settling transactions in the RTM directly impacts the number and magnitude of true-up adjustments required after the RTM is settled. For example, if the RTM were settled daily, the number of Settlement Adjustments required would be increased unless all billing quality information necessary to quantify settlement balances for RTM transactions could be accelerated so that it can be utilized in quantifying daily RTM settlement balances.

Settlement of the RTM requires substantially more information associated with near real time operation of the NYISO system than what is required for settlement of the DAM transactions. A delay in billing quality metering information for both load and generation affects when billing quality information is available to allow RTM financial settlement. Additionally, situations such as an LSE serving as an aggregator will require Settlement Adjustments to RTM deliveries once the retail meters are read.

Table 3 summarizes the financial magnitude of transactions settled in the DAM and RTM during the Year 2002.

Table 3 – 2002 Market Totals

Transaction[8]	Day-Ahead Market ($ Million)	Real Time Market ($ Million)
Revenues		
• Energy, and Associated Marginal Losses & Congestion	$ 3,504	$ 152
• Bi-Lateral, Trans. Usage Charges, Losses & Congestion	$ 377	$ (3)
• Virtual Load, Losses & Congestion	$ 375	$ (365)
• MST & OATT Schedule 1 Charges	$ (200)	$ 543
• Schedule 2, 3, 5, & 6 Charges	-	$ 132
• NTAC Revenue	-	$ 89
Total	$ 4,056	$ 543
Expenditures		
• Energy, and Associated Marginal Losses & Congestion	$ 3,384	$ 467
• TCC Rent Paid, Day-Ahead Congestion	$ 491	-
• Day-Ahead Congestion, Balancing	$ (75)	-
• Virtual Supply, Losses & Congestion	$ 255	$ (248)
• MST & OATT Schedule 1 Expenditures	-	$ 127
• Schedule 2, 3, 4, & 5 Expenditures	$ 109	$ 0
• NTAC Expenditures	-	$ 89
Total	$ 4,164	$ 435
NYISO Net Cash Settlement Position - Positive / (Negative)	$ (108)	$ 113

As can be observed in the above Table, the settlement of the DAM transactions represent almost 90 percent of total settlements for the Year 2002 (excluding settlements associated with the ICAP and TCC Markets). In addition the energy component of the DAM represents approximately 75 percent of both the total revenue and total expenditures. It can also be observed in the Table that the negative NYISO cash position resulting from transactions settled in the DAM was offset with a positive cash position in the RTM transaction settlements that occurred during various subsequent true-up periods.

The financial magnitude of VBM transactions on the DAM and RTM are presented in the above Table as a point of reference as to their significance as compared to the total DAM and RTM. The detail discussion and analysis of the VBM is provided in Section VI of this Report.

8 Schedule of Year 2002 Monthly Settlement Transactions prepared by NYISO. Amounts do not includesettlements associated with the ICAP Market or the TCC Auction Market.

C. NYISO Settlement Process and Sub-Processes

The NYISO settlement process includes the activities associated with the gathering and compilation of meter data and transaction data related to physical and contractual power flows on the system. It includes the calculation of settlement amounts due to/from MPs, and NYISO's rendering of settlement statements to MPs and payments between MPs and NYISO and between NYISO and MPs.

The NYISO Settlement Process evaluated by Rudden in this analysis is comprised of four major Sub Processes performed by NYISO:

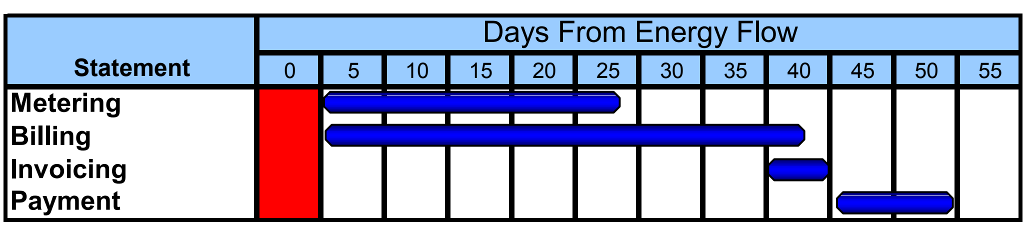
1. *Metering* - Collecting meter information
2. *Billing* - Settling system load and determining and allocating costs
3. *Invoicing* - Issuing an invoice
4. *Payment* - Rendering and receiving payments

In addition, this analysis also included the True-Up Process, which includes any Settlement Adjustments, the final bill and the challenge period. These two Processes performed by NYISO can be depicted in a process flow diagram as shown below.

Each step reflected in the above diagram was analyzed separately with recognition that individual Sub-Processes are highly dependent on data and information inflows from the preceding Sub-Process. In order to shorten the NYISO current settlement period, the timeframe in which an "upstream" Sub-Process provides the information required for the "downstream" Sub-Process to function must be reduced without impacting the quality and data integrity of the information that flows between Sub-Processes.

The current timeline associated with this process is shown below in Chart 3.

Chart 3 – Settlement Process Timeline



Capital enhancements to metering and communication mechanisms are likely to be required if NYISO is to accomplish a reduction in the timeframe associated with data and information flows between Sub-Processes. Additionally, enhancements to internal system applications and associated hardware, processes, workflows, resource levels and skill sets are expected to be required together with modifications to tariffs if shorter settlement periods are to be implemented. Many of the process improvements would involve automating transactions, decisions and corrections that now require human intervention. The redesigned processes would focus human intervention more on exceptions or red flags. In this Report we outline the principal settlement scenarios that Rudden was requested to review, and our scenario analyses which were performed within the context of the aforementioned enhancements and modifications required for the various Sub-Processes.

Multiple settlement scenarios were identified for Rudden's analysis, and Rudden's evaluation of individual scenarios was prepared within the context of the Sub-Processes discussed herein. A brief description of each NYISO settlement Sub-Process and the True-Up Sub-Process is provided below:

Metering Sub-Process

The Metering Sub-Process includes the collection, delivery and validation of billing quality transaction data into the Billing Sub-Process for calculation and quantification of settlement charges / payments due MPs. The Metering Sub-Process also contributes corrections and revisions to the meter data during the True-Up process.

Inaccuracies or delays in the capturing of transaction data in the Metering Sub-Process, directly impacts the accuracy and timeframe under which NYISO can prepare and render final settlement statements to MPs. Corrections and revisions to transaction data in this Sub-Process are the primary source of True-Up adjustments in NYISO settlement process.

Enhancements to the equipment, communications mechanisms and associated system applications used to support this Sub-Process are hurdles that NYISO must overcome if it is to reduce the settlement period and increase settlement frequency of RTM transactions without triggering an increase in the number and magnitude of true-up adjustments.

Billing Sub-Process

The Billing Sub-Process includes the activities and information associated with the accumulation of transaction information, and the calculation of charges and payments due MPs in the NYISO administered markets. Information delays and data errors from the "upstream" Metering Sub-Process directly impact the NYISO's ability to execute this Sub-Process in an accurate and timely manner.

This Sub-Process includes the receipt of transaction information from the Metering Sub-Process; the compilation of information concerning DAM and RTM accepted bids for the purchase / sale of the energy commodity (both quantity and LBMP), provision of ancillary services, transmission congestion rents and balancing, Schedule 1 – 6 charges and expenditures and other amounts; the accurate calculation and quantification of settlement balances due between MPs and NYISO; through the delivery of settlement information to the downstream Invoicing Sub-Process.

Invoicing Sub-Process

The Invoicing Sub-Process relates to the activities and information associated with the review, evaluation and auditing of daily and monthly statements; the actual generation of MP's settlement statements; through to the rendering of settlement statements to MPs. While the Billing Sub-Process addresses the quantification and calculation of transaction amounts due to / from MPs, the Invoicing Sub-Process focuses on the auditing of the balances derived in the "upstream" Billing Sub-Process together with the actual creation and delivery of invoices and statements to the MPs. Should manual adjustments be required (e.g., rate, interest or working capital), they would be handled in this Sub-Process.

Payment Sub-Process

The payment Sub-Process includes discrete activities for accounts receivable (AR) processing and accounts payable (AP) processing. The AR activity includes the process of MPs making payments to NYISO based on the Invoicing -Process amounts. The NYISO activity includes verifying and recording payments made from MPs to NYISO. All payments made by MPs or NYISO in the settlement process are accomplished through electronic fund transfer (EFT). The process of manually entering payments into Oracle is performed once a month for the RTM and the DAM. AR for the TCC and ICAP markets differs from the RTM and DAM. The TCC AR is posted manually into Oracle following the conclusion of the monthly TCC auction and the posting of the auction results on the web. Payments are due 3 days following the invoice posting.

The AP begins 4 days after payments are due to assure funds are available for disbursement. The activity includes payment of funds by NYISO to MPs based on the amounts posted in the Invoicing Sub-Process.

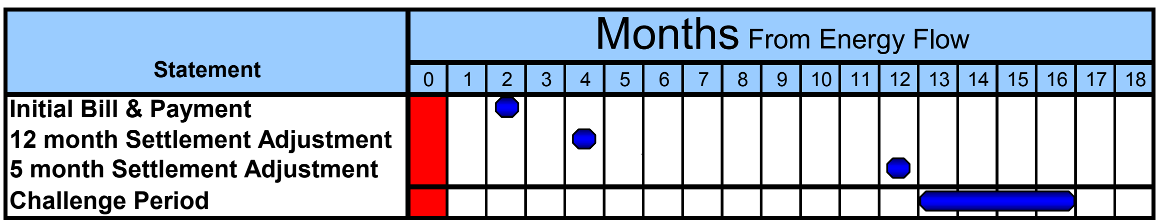
True-Up Sub-Process

The True-Up Process includes the Settlement Adjustment and the Challenge Sub-Processes. Settlement Adjustments result from any changes in data previously used in settlements and can relate to transactions in either the DAM or RTM. Examples of data changes that may effect and impact the True-Up Sub-Process includes items such as:

- Revisions to metered flows at zone, sub-zone, tie-line and points of delivery to LSEs or the final energy consumer
- Re-allocation of load at a common metered delivery point
- Adjustments to LBMPs
- Error corrections
- Revisions of estimated flows to actual flows (e.g., meters read bi-monthly)

The current True-Up Process includes the issuance of one Settlement Adjustment invoice at 4 months after the energy flow and the issuance of a final Settlement Adjustment invoice 12 months after energy flow. The True-Up Process then includes a 4-month challenge period when MP can challenge the legitimacy or accuracy of the final invoice. Chart 4 below depicts this challenge sub-process.

Chart 4 – True-Up Process Timeline



The reduction in the NYISO settlement period and increase in settlement frequency will mandate that NYISO has a very robust True-Up Sub-Process and that all MPs have a thorough understanding of and high level of confidence in the process. Compression in the timeframe available to capture and process transactions has a substantial risk of increasing the number and financial magnitude of true-up adjustments, for which the MPs will have limited tolerance. However, these problems could largely be avoided through good process design and good quality data.

It is our understanding that a large portion of true-up adjustments are associated with the re-allocation of load at common metered delivery points to reflect transmission owner deliveries to individual retail consumers that are served by LSEs who are functioning as aggregators of retail loads. In relative terms, these individual consumer retail loads are not significant and NYISO does not have real-time or near real-time metering in place to determine transmission operators' deliveries to individual retail consumers being served by the aggregating LSEs. Accordingly, NYISO's settlement is dependent on transmission owners and metering authorities providing meter data to them for use in allocation of loads at common metered delivery points.

Since it represents the longest process, shortening the current True-Up process[9] presents a primary hurdle to shortening the combined Settlement and True-Up process. However, Rudden believes it is impractical to consider including the True-Up activities within the goal of one-day settlement. A single day settlement does not provide ability for NYISO or market participants to regularly and

[9] The current True-Up Process is approximately 15 months based on 12 months to final bill plus a 4 month challenge period less the 1.5 months (45 days) allowed for the payment cycle.

consistently identify and correct needed changes, even with all available meter and technology upgrades. A single day True-Up does not allow for any errors or equipment failures that are the reality of real-world operations. Both the state commissions and FERC have repeatedly expressed their priorities are placed more on the accuracy of billing rather than the timeliness. Rudden does not think either the NYPSC or FERC would support a process that does not allow a reasonable period to both identify and then correct inaccuracies in the settlement results.

Nonetheless, the current 16-month cycle (12-months Settlement Adjustments plus 4-months for Challenge) presents a very long time period to ultimately settle a bill in any business environment. In addition, a FERC Section 205 or 206 filing allows the challenge period to extend even further. While bills are currently issued on a monthly basis, substantially all of the meter-based billing relies on estimated or forecasted meter data. Actual meter reads are substituted in subsequent Settlement Adjustments.

D. "Other" Markets Analyzed

Other markets such as: 1) Installed Capacity, 2) Transmission Congestion Contracts, 3) Virtual Bidding and 4) Energy Demand Response Program are discussed in further detail in Section VI of this Report.

IV. Day-Ahead Market

A. Nature, Characteristics and Significance of Market

The DAM administered by NYISO for the New York Area transmission system has four primary transaction components:

1. Bids for the purchase / sale of the energy commodity
2. Bids to provide ancillary services
3. Transmission congestion rents
4. Transmission usage charges associated with bi-lateral agreements between buyers and sellers of power.

Certain transactions that occur in the DAM can be viewed as forward contracts for which the transaction data elements required for settlement can be captured and quantified irrespective of actual power loads and generation levels for a given day. Deviations in the estimated load and generation levels, and the affect of real-time operation in the power system due to changes in operating conditions, are settled in the Real Time Market, which is discussed in more detail in Section V of this Report.

The primary driver to quantifying the settlement revenues and expenditures associated with the DAM is NYISO's access to billing quality reliable transaction data on a timely basis. Improvements in the ability to access reliable transaction data will facilitate NYISO's ability to shorten the settlement period and increase the settlement frequency of transactions in the NYISO DAM.

B. Bids and Settlements For Purchase / Sale of Energy Commodity

The energy commodity component (including associated losses and congestion) of the DAM is by far the largest single transaction component of the market. During the Year 2002 energy commodity transactions comprised in excess of 80-percent of the total transactions occurring in the DAM (i.e., approximately $3.4 billion out of a total of $4.1 billion in transactions).

Beyond the standard information that NYISO must maintain on every market participant in the DAM (e.g., name, address, federal ID, etc.) in order to settle accepted bids for the purchase and sale of power, NYISO must also know:

- The Day-Ahead hourly load and generation bids accepted for the Day of energy flow (Day 0), and
- The hourly Locational Based Marginal Price (LBMP) for Day-Ahead bids

Energy commodity Day-Ahead bids in the DAM are due to NYISO by 5:00 am the day prior to flow (i.e., Day 0–1). NYISO, through the use of its software program – Security Constrained United Commitment (SCUC) – designates by 11:00 am on Day 0–1 that hourly bids for electric purchases and sales are accepted for Day 0. Accordingly, the DAM hourly energy commodity purchase / sale quantities are known by MPs by 11:00 am on Day 0–1, and are highly unlikely to change once accepted by NYISO.

The other key transaction data element required to settle energy commodity transactions in the DAM are the hourly LBMPs, which are calculated by 11:00 am on Day 0-1. The hourly LBMPs are derived from the generation and energy transaction bids that were offered into the DAM and accepted by NYISO. The hourly LBMPs are determined for each of the New York State eleven zones and for the four neighboring areas (New England, Hydro Quebec, Ontario Hydro and PJM). LBMPs are subject to audit by a third-party, LECG, that may take up to six calendar days; however, the DAM hourly LBMPs are rarely revised once they are quantified on Day 0-1.

The key information requirements to settle Day-Ahead Market purchase / sales of power is available with a high degree of confidence and reliability by the end of the day of power flow. This makes a shortening of the settlement period from the current monthly cycle to a period less than monthly technically feasible for NYISO and the market participants, subject to certain process and infrastructure enhancements on NYISO's part. These are discussed in more detail in connection with the individual scenario analyses provided later in this Report section.

C. Ancillary Services in Day-Ahead Market

The second primary transaction component of the DAM is bids into the market for MPs to provide ancillary services. Ancillary services are critical to supporting the transmission of electricity in the New York area to consuming loads, and essential to NYISO maintaining the reliability of transmission system operation. Ancillary services that can be bid into the DAM includes:

- Operating Reserves (spinning, synchronous and non-synchronous)
- Regulation Service
- Voltage Support Service
- Black Start Service

On Day 0-1, NYISO evaluates ancillary services bids for Day 0 received from service providers and designates MPs' that are to provide hourly services on Day 0. By their nature, ancillary services have both a DAM component and a balancing component attributable to the RTM of the system. Compensation to MPs for providing ancillary services in the DAM, and balancing charges to system users in the RTM can be separated and if desired, the two markets could be settled independently. However, the independent settlement of the two markets would be subject to NYISO's working capital constraints, as further discussed following the table presented below.

Table 4 summarizes the financial magnitude of ancillary services transactions during the Year 2002. Ancillary service revenues and expenditures are segregated between settlements made in the DAM and the RTM.

Table 4 – 2002 Ancillary Transactions

Ancillary Service Transaction[10]	Day-Ahead Market ($ Million)	Real Time Market ($ Million)
Revenues		
• Voltage Support Service (Sch. 2)	-	$ 54.5
• Regulation (Sch. 3)	-	$ 39.6
• Operating Reserves (Sch. 5)	-	$ 38.2
• Black Start (Sch. 6)	-	$ .2
Total	-	$ 132.5
Expenditures		
• Voltage Support Service (Sch. 2)	$ 31.3	-
• Regulation (Sch. 3)	$ 39.6	-
• Operating Reserves (Sch. 4)	$ 38.2	-
• Black Start (Sch. 5)	$ .2	-
Total	$ 109.3	-
NYISO Cash Settlement Position - Source / (Use)	$ (109.3)	$ 132.5

The DAM component of ancillary services is relatively insignificant to the aggregate DAM total settlements, representing less than 3-percent of the total dollars settled in the DAM. Also, as can be observed in the above Table, the DAM element of ancillary services is a use of cash, which is offset by a positive cash flow associated with revenues in the RTM.

Although the core information that is required to settle the DAM component of ancillary services can be identified and quantified by the end of Day 0, shortening the settlement period from the current monthly cycle to a period less than monthly would entail a use of NYISO working capital, unless the RTM components of ancillary services are settled concurrently with the DAM settlement period.

A shortened settlement period and increased settlement frequency of DAM ancillary services would be economically favorable to MPs bidding into the ancillary services market because they would receive compensation for their provision of services more frequently than they do currently. However, in the aggregate the financial amounts associated with ancillary services are not significant in relationship to the DAM in the aggregate. To effectively manage NYISO's use of working capital, the DAM and RTM ancillary services transactions are most logically settled concurrently with the settlement period and frequency utilized for RTM transaction settlements.

D. Transmission Congestion Rents

In the NYISO settlement of day-ahead transactions, transmission congestion contract holders receive transmission congestion rent payments for day-ahead congestion (TCC Rents). During the

[10] Schedule of Year 2002 Monthly Settlement Transactions prepared by NYISO. Amounts do not included settlements associated with the Installed Capacity Market or the TCC Auction Market.

year 2002, TCC holders received settlements totaling $491 million for day-ahead congestion rents. For NYISO to calculate and settle day-ahead TCC rents, the following information is required:

- The day-ahead market hourly LBMP at zones and buses (for use in calculating the difference between LBMP at the point(s) of withdrawal and the point(s) of injection)
- TCC MWh contracts by holder for each hour

The day-ahead market LBMP for points of injection and points of withdrawal from the NYISO operated system is known by 11:00 AM on Day 0-1 when hourly bids for electric purchases and sales are accepted for Day 0.

TCC rights are acquired either through the TCC Auctions or through conversion of grand-fathered rights under legacy agreements to TCC rights. Critical information to settle TCC rents can be captured by the end of Day 0. Although the current schedule for settling TCC in the DAM results in a use of NYISO working capital, TCC can be settled on a daily basis consistent with the settlement period and frequency used for the DAM purchase / sale of the energy commodity.

E. Transmission Usage Charges Associated with Bi-Lateral Agreements

Market Participants that purchase or sell power pursuant to bi-lateral purchase / sale agreements are assessed transmission usage charges (TUC) for the movement of power across the NYISO operated system[11]. The TUC charges are calculated based on DAM scheduled flows under the bi-lateral agreements. Deviations in volume flows scheduled in the DAM and actual real time flows are settled in conjunction with the settlement of the RTM.

For the Year 2002, TUC totaled approximately $378 million including amounts for losses and congestion. TUCs comprise about 9-10 percent of the total DAM transactions settled. Balancing adjustment associated with the real time operation of the system, and settled in the RTM totaled approximately $3 million for TUCs.

Key information required to settle TUC for flows scheduled under bi-lateral purchase / sale agreements in the DAM is available by the end of Day 0. This makes it technically feasible to shorten the existing settlement period from one month to a daily settlement frequency should NYISO and the MPs desire to do so. Limited infrastructure enhancements to internal systems and applications may be required to shorten the settlement frequency to daily. This is discussed in more detail in connection with the individual scenario analyses provided later in this Report section.

[11] Transmission service charge for movement of power across individual transmission systems is charged directly to the responsible party by the transmission system owner. NYISO's involvement in the settlement for TSC is an informational role.

F. Settlement Scenarios Analyzed

The primary goal of this analysis required analyzing the practicality from a process and systems perspective, costs and benefits of settling the NYISO administered markets on a daily basis. However, this analysis also required identification and consideration of other alternatives for enhancements to the current settlement process. Considering that each Sub-Process and each task in the Settlement Process could offer multiple options for improvement, the potential variations quickly become too numerous to practically analyze. Rudden identified a handful of potential scenarios that offered a reasonable representation of the numerous options available. These scenarios offered a method to organize and communicate the Settlement Analysis.

Table 5 summarizes the Settlement Process scenarios reviewed.

Table 5 – Scenarios

Ref.	Settlement Scenario
Daily	
D1	DAM and RTM settled daily
D2	DAM and RTM settled daily with a 5 day lag
D3	DAM settled daily and RTM settled monthly
D4	DAM settled daily with a 7 day lag and RTM settled monthly
Weekly	
W1	DAM and RTM settled weekly
W2	DAM settled daily and RTM settled monthly
W3	DAM and RTM settled twice per month
W4	DAM settled twice per month and RTM settled monthly

These scenarios fall into two basic categories Daily settlement and Weekly settlement, each with variations. The following common assumptions or comments apply to these scenarios.

1. Ancillary markets would be settled with the RTM
2. Virtual markets would be settled with the RTM due to their DAM and RTM components
3. TCC and ICAP markets will be addressed separately in the final analysis
4. Scenarios D1 and D2 assume NYISO payments lag one day after receipts
5. All other scenarios assume NYISO payments lag 4 days after receipts
6. Scenario D2 and D4 assume DAM Billing occurs 5 and 7 days, respectively, after energy flow to allow market price corrections and some level of meter corrections to occur prior to Billing.

For each scenario and primary transaction components of the DAM, Rudden considered:

- The business purpose and commercial implications of transactions in the DAM
- Information requirements to settle the transactions
- The timeframe as to when billing quality reliable transaction information is available
- The financial significance and magnitude of the transactions in the DAM
- The working capital implications of transaction settlement
- The internal NYISO processes, resource levels and skill sets in place

- The system applications

Throughout the scenario analysis process, NYISO representatives' input and assessments were solicited as to the viability to shorten the settlement period and increase the settlement frequency of the transactions, and their assessment of the associated infrastructure, systems and resource impacts and capabilities to implement the scenarios under analyses. Rudden analyzed each of these scenarios with a High cost set of assumptions, assuming extensive meter upgrades, and with a Low cost set of assumptions, assuming no metering upgrades. Each of the scenarios analyses included the impact on all components of the market, both DAM and other components. Details of the cost benefit analysis for each of these scenarios can be found in Appendix C.

Scenario - Daily Settlement of DAM Transactions

The scenario analysis found that the required information related to energy commodity transactions in the DAM is available in billing quality format to prepare and financially settle energy commodity transactions in the DAM on a daily basis.

NYISO has the capability to implement and effect either scenario option (i.e., settle daily or settle daily 3-5 days in arrears to assure that all MP receipts are processed before any MP disbursements are made). From a system standpoint, the DAM energy commodity component of the MP daily advisory statement would need to be separated out, and presented to the MPs as their daily settlement statement. The actual execution of daily financial settlement to process NYISO's receipt of payment (i.e., AR), and to execute disbursement of payments (i.e., AP) may require 1 – 2 additional resources to effect the transactions and to ensure their proper and accurate recording in the accounting records. These resources would be needed to handle the additional transaction volume associated with Daily settlement of both the DAM and other markets. The estimated transaction volume increase is shown in Table 6 below.

Table 6 – A/R & A/P Transaction Volumes

	NYISO Average Annual Transaction Volume	
	Current Process	Daily Process
A/R Receipts	780	9,360
A/P Payments	1,020	12,240

NYISO has expressed a firm desire to continue to fully pay MPs and not "short pay" the MPs if receipts are delayed or temporarily lacking. The current AR/AP process allows for a four-day lag between the receipt of payment from MPs and the payment of balances to MPs. This four-day lag allows NYISO to typically, fully fund its account to cover all payments. The lag allows NYISO to pay MPs without relying on its working capital, while accommodating clearing of payments and the possibility of late payments. If NYISO moved to complete the Settlement Process one-day after energy flow (i.e. completing all receipts and payments in a single day), NYISO would be regularly drawing on its working capital to cover these issues. For these reasons, Rudden recommends that any move to a shortened Settlement Process should include a multi-day lag between the receipts and payments. This type of lagged processing could still occur on a daily basis with a lag between receipts and payment for any given day of energy flow.

In addition, the NYISO IT Department indicates that the BAS requires significant modifications to support multiple settlements, e.g. settling the DAM daily and the RTM on a monthly schedule. An estimated 37,000 person-hours of programming time or $2.8 million dollars (over 20 person-years of effort) would be required to make the necessary BAS modifications to allow the DAM and RTM to be settled separately.

For reasons further discussed in the Section IV, Part H, it does not make logical sense to settle ancillary services DAM transactions daily. DAM ancillary services transactions should be settled with a settlement period and settlement frequency consistent with the settlement of the RTM ancillary services transactions.

NYISO has the capability to quantify and settle DAM TCC rents on a daily basis, utilizing the same settlement period and frequency used to settle DAM energy commodity transactions.

As discussed in the Section IV, Part H, transmission usage charges associated with bi-lateral agreements can be settled daily with a settlement period and frequency that corresponds to that utilized for energy commodity transactions in the DAM.

While there exist many opportunities for process improvements in the current NYISO settlement process, currently few opportunities exist that could result in significant savings, even with the extensive upgrades contemplated for Daily Settlement. The Customer Settlement Group could possibly reduce the quantity of staff devoted to the validation of load data. In Rudden's High set of scenarios, we have assumed three members of his staff could be reassigned to other tasks. However this savings in the process is offset by the assumed need for an additional person in the AR/AP group to process the additional volume of receipts and payments.

Scenario - Weekly Settlement of DAM Transactions

To the extent it was found that DAM transactions could be settled daily, the DAM transactions could technically be settled weekly. However, a weekly settlement would not align with any NYISO or MPs accounting periods or cycles and thus would be extremely cumbersome for NYISO or MPs to implement and effect on an ongoing basis.

Scenario – Semi-Monthly Settlement of DAM Transactions

To the extent it was found that DAM transactions could be settled daily, the DAM transactions could technically be settled semi-monthly. Semi-monthly settlement (e.g., the 15th and last day of month) could be integrated into the NYISO and MPs accounting period or cycles. However, daily settlement better supports NYISO's objective to reduce MPs collateral requirements to function in the NYISO administered markets.

G. True-Up Scenarios Analyzed

Rudden reviewed a number of potential improvement opportunities for the Settlement Adjustment portion of the True-Up Process. Shortening the period for Settlement Adjustment should provide a benefit by reducing the potential for default. Rudden determined that the True-Up analysis should focus on payments to generators, due to the generators' generally lower credit ratings and the fact that their transactions with NYISO are generally uncollateralized. Even though generators are typically net recipients of payments, the Settlement Adjustment process can regularly create situations where generators become liable for payments to NYISO due to corrections to historical invoices. The longer the True-Up Process, the higher the potential of default by any Market Participant during the True-Up, thus increasing the risk of default on payments due NYISO.

Rudden estimated the potential exposure to default during the Settlement Adjustment Sub Process based on estimated Settlement Adjustment amounts and probability of generator default. Settlement Adjustment amounts were computed from Settlement Adjustment rates and 2002 transaction volumes. NYISO provided the following estimates of the Settlement Adjustment rates, representing the absolute value of Settlement Adjustment dollars (both credits and charges) as a percent of original transactions:

- 4 months from Energy date - 4.0 percent[12]
- 12 months from Energy date - Additional 1.0 percent

The Settlement Adjustment rates represent the net NYISO receivable calculated as a percent of the original bill. It was assumed that Settlement Adjustments are random and the average is zero, therefore for each original transaction, there is a 50 percent likelihood the Settlement Adjustment will create a receivable from the generator. Table 7 shows the cumulative receivables exposure from generators after 1, 4 and 12 months, based on the Settlement Adjustment rates above, applied to the $4,600 million in expenditures for 2002.

Table 7 – Settlement Amounts

($ millions)		1 month	4 months	12 months
Total Transactions	$4,600			
Total Settlement Adjustments		1%	3%	1%
Cumulative Settlement Adjustments		1%	4%	5%
Cumulative Total Value of Settlement Adjustments		$46	$184	$230
Amount for Positive Settlement Adjustments	50%	$23	$92	$115

The cumulative exposure at 12 months is $115 million, which equals the 12-month cumulative Settlement Adjustment rate of 5 percent, times 50 percent of which create receivables from generators, applied to the $4,600 million transaction volume.

[12] Since July 2003, the 4-month rate has been 2-3 percent, rather than 4 percent, therefore these rates are conservative. The 4-month rate was interpolated to a 1.0 percent rate for 1 month.

The likelihood of generator default was determined by applying the estimated 2002 payments to generators, ranked by generator credit rating and the risk of default for each credit rating for each scenario. The results are presented in Table 8 with further data presented in Appendix D.

Table 8 – True-Up Process Default Exposure Reduction

Scenario	Default Exposure Reduction
Status Quo – 12 month Settlement Adjustment	$0
Reduce Settlement Adjustment from 12 months to 4 months	$4,900,000
Reduce Settlement Adjustment from 4 months to 1 month	$2,100,000
Reduce Settlement Adjustment from 12 months to 1 month	$7,000,000
Issue Daily bills and eliminate Settlement Adjustments	$7,800,000

H. DAM Conclusions

Energy Commodity

1. DAM energy commodity purchase / sales transactions are by far the largest single component of the DAM. NYISO has the technical and mechanical capability to quantify and shorten the DAM energy commodity settlements to a daily period, with financial settlement at the end of the day or within a few days in arrears after Day 0.

2. To achieve a daily settlement of the DAM energy commodity transactions, only nominal incremental enhancements to existing processes, resource levels and skill sets are required based on Rudden's review. However, if the DAM was settled on a different schedule than the RTM market, estimated BAS changes would require approximately $2.8 million dollars in modifications to accommodate a separate settlement of the DAM and RTM.

3. Factors leading to the above conclusion include:

    a. Transactions associated with bids to purchase and sell the energy commodity in the DAM comprise approximately 80 percent of the total transactions occurring in the DAM.

    b. From a financial perspective, implementing a daily settlement for the DAM energy commodity transactions would result in the daily settlement of a substantial portion of the DAM dollars (and total DAM and RTM dollars settled by NYISO).

    c. Key data required by NYISO to settle DAM bids for the purchase / sale of the energy commodity is available and settlement balances can be quantified by the end of Day 0. Only very rarely is quantity or price data revised, requiring a Settlement Adjustment. Settlement of the DAM relies principally on the bid offers to supply and the bid offers to withdraw energy, and to supply or receive ancillary services from the NYISO Market, and does not rely directly on metered load and metered generation data. NYISO finalizes the quantities and pricing of DAM transactions the day prior to the Dispatch Day or Day 0. Therefore, since metering does not impact NYISO's ability to accelerate the frequency with which NYISO settles the DAM but does impact the RTM processes; this Report limits further discussion of Metering to Settlement of the RTM.

d. NYISO is currently mirroring the preparation of daily settlement statement for the DAM energy commodity transactions in their daily preparation and issuance to MPs daily advisory statements

e. During the past two-years, NYISO has made substantial progress in providing MPs with detail transaction information and in building customer confidence and satisfaction with the NYISO settlement processes and activities

Ancillary Services

4. By their very nature, ancillary services have interrelated DAM and RTM components associated with bids to provide services in the DAM and the real-time balancing of the system that occurs in the RTM. Although it would be technically feasible to settle the DAM component of ancillary services on a daily basis, it is most logical to settle both the DAM and RTM ancillary services concurrently, and with the same settlement period and frequency used for the RTM.

5. Factors leading to this conclusion include:

   a. Bids into the DAM to provide ancillary services results in payments to the bidding MPs in the DAM that requires a use of working capital.

   b. Information associated with the real time component of ancillary services in the RTM is not immediately available at the end of Day-0.

   c. Although charges or payments associated with ancillary services may be significant to individual MPs, in the aggregate the financial magnitude of ancillary services is not significant to either the DAM or RTM.

It is not logical to settle the DAM of ancillary services without settling the real time component in the RTM.

Transmission Congestion Rents

6. Transmission congestion rents paid holders of TCC rights In the DAM can be settled daily and in a timeframe and frequency used to settle transactions related to the purchase / sale of the energy commodity. Key information required for the NYISO to settle transmission congestion rents (i.e., hourly LBMP for the DAM, and the holders of TCC rights) is available by the end of Day 0 to settle TCC rents on a daily basis.

Transmission Usage Charges Associated with Bi-Lateral Agreements

Transmission usage charges associated with bi-lateral power purchase / sales agreements are approximately 10 percent of the DAM. Information to settle TUC is available by the end of Day 0, and the settlement period can be reduced and the settlement frequency increased to a daily settlement should NYISO and MPs elect to do so.

Scenario Conclusions

In summary, Rudden's conclusions and recommendations to settling the various transactions in the DAM are as follows:

- Purchase / Sale Energy Commodity – Settle daily, either at the end of Day 0, or 5 to 7 days in arrears.
- Ancillary Services – Settle DAM ancillary services, concurrent with and consistent with the settlement periods and frequency used for the RTM ancillary services.
- Transmission Congestion Rents – Settle daily, with the same settlement period and frequency used for DAM energy commodity transactions
- TUC Under Bi-Lateral Agreements – Settle DAM TUC daily at the end Day 0, or X days in arrears (i.e., timing consistent with that used for DAM energy commodity transactions).
- Payments should lag receipts by multiple days.

V. Real-Time Market

A. Nature, Characteristics and Significance of Market

The RTM administered by NYISO is associated with the real time operation and balancing of the NYISO operated transmission system. The market incorporates transactions arising from changes in operating conditions on the transmission system, variations in actual loads and generation levels as compared to levels scheduled in the DAM, and actual ancillary services required to maintain reliable operation of the grid.

By the nature of the RTM to accurately quantify and financially settle MPs transactions in the RTM, a substantial amount of detail information associated with the real-time operation of the NYISO operated system must be gathered and processed. The amount and level of information detail required to settle RTM transactions is much greater than the information needed by NYISO to settle DAM transactions. To successfully shorten the settlement period and increase the settlement frequency of RTM, NYISO will require access to billing quality metering and load allocation data in a timeframe that is substantially shorter than what is currently necessary to settle RTM transactions on a monthly basis[13].

A substantial majority of Settlement Adjustments made by NYISO relates to RTM transaction settlements. The settlement period and frequency used by NYISO for RTM transactions, directly impacts the number and magnitude of Settlement Adjustments that are required after the RTM is settled. To not increase the financial impact and level of effort required to process and settle Settlement Adjustment transactions from the RTM, NYISO timeframes required to acquire and process billing quality transaction information must be reduced from their current levels.

Capital enhancements to metering and communications mechanisms will be required if NYISO is to effectively shorten the timeframes required to acquire billing quality data for transactions on the NYISO operated transmission system. The downstream Sub-Processes from the metering Sub-Process cannot accurately quantify and financially settle RTM transactions if incomplete, inaccurate or delayed information flowing into the metering Sub-Process occurs.

The primary transaction components of the RTM can be summarized as follows:

1. Purchase / sale of the energy commodity
2. Actual provision of ancillary services,
3. Schedule 1 Uplift and Residuals and NYISO Cost of Operations
4. NTAC revenue and expenditures

B. Purchase / Sale of Energy Commodity

MPs can bid into the RTM to purchase / sell the energy commodity. The actual hourly energy commodity RTM purchase / sale transactions are based on bids into the market together with

[13] The metering Sub-Process of the overall NYISO settlement process is discussed in further detail in Section [IV], Part D – NYISO Settlement Process and Sub-Processes.

variations in actual loads consumed and generation levels produced as compared to those bid and scheduled in the DAM and RTM..

The energy commodity component of the RTM may not be the largest transaction component in the RTM from a dollar perspective (less than 10 percent), but it is by far one of the most difficult to capture, measure, quantify and settle due to its dynamic nature, the number of points of interconnection with upstream suppliers and downstream load consumers on the transmission system, and NYISO's reliance on third parties to acquire the information required for settlement.

Pricing data for energy commodity RTM transactions is based on LBMP derived from hourly bids into the RTM. The RTM LBMP used for settlement is weighted based on six-second intervals of actual loads so as to derive a weighted LBMP that reflects the economic value of the power within an hourly period for load on the system. The RTM LBMP is audited by LECG and can take up to six calendar days for the actually hourly RTM LBMP to be established for use in the settlement of the RTM.

The key information required to settle power purchase / sale transactions in the RTM is the quantity input or withdrawn from the system, the allocation of the metered quantities, the marginal cost of congestion and losses, and the RTM LBMP. If the key information required to settle energy commodity purchase / sales transaction in the RTM is available, then the settlement period can be shortened and the settlement frequency increased.

C. Ancillary Services in the Real-Time Market

MPs' actual provision of ancillary services to the RTM is the second primary transaction component of the RTM. Ancillary services are critical to supporting the reliability of the New York area transmission grid. Ancillary services in the RTM include: a) voltage support, b) regulation, c) operating reserves, and d) black start services.

By their very nature, ancillary services have both a real time operation (RTM) component and a DAM component. The DAM component is related to MPs bidding into the DAM to provide ancillary services should they be required in the real time operation of the grid. Technically, the DAM and RTM components of ancillary services could be separated and financially settled independently. This would require a NYISO use of working capital to compensate MPs for their bids to provide ancillary services in the DAM, which would be subsequently offset with balancing charges to system users in the RTM when the RTM is settled. However, settling both the DAM and RTM ancillary services transactions according the schedule established for the RTM settlement would eliminate this timing issue and the use of NYISO working capital. Rudden, therefore, recommends that both DAM and RTM components of the ancillary markets be settled according to the ultimate settlement schedule chosen for the RTM.

The ancillary service revenues and expenditures shown in Table 5 above are segregated between settlements made in the DAM and the RTM. In the aggregate, the financial amounts associated with ancillary services are not significant in relationship to the overall dollars settled by NYISO. Due to the offsetting nature of ancillary services in the DAM and RTM, and so as to effectively manage NYISO's use of working capital, the RTM and DAM ancillary services transactions are most logically settled concurrently; and with the same settlement period and frequency used to settle other transactions in the RTM.

D. Schedule 1 Uplift and Residual and NYISO Cost of Operation

The Year 2002, NYISO revenues and expenditures associated with Schedule 1 Uplift and Residual and NYISO Cost of Operation are shown in Table 9 below.

Table 9 – Schedule 1

	Total ($MM)
Revenues	$343
Expenditures	$127
Net Collections	$216

The above revenues and expenditures include both RTM and DAM transactions settled by NYISO. The Schedule 1 allows NYISO to recover its operating costs to schedule the purchase, sale and movement of power through, out of, within, or into the New York Control Area. This service can be provided only by the NYISO. Transmission customers must purchase this service from the NYISO. The Schedule 1 charge includes recovery of costs associated with regulatory fees, scheduling, system control dispatch services, settlement adjustments, residual adjustments and bid production guarantees.

E. Metering

Metering – Generation and Load Determination

Settlement of the RTM is critically contingent upon the accurate and timely determination of the revenue quality data for:

- Generation
- Ancillary services supplied to the market
- Total load consumed in the market
- Usage of the transmission system
- Determination of the individual market participants' contribution and responsibility for supply and consumption

Typically, the process used to determine total load for a given area over a given hour includes summing the total amount of generation within that area during the hour and the net flows over tie lines into and out of that area for the same hour. This produces the total load and losses for the given area or zone and provides a total load value for which the sum of the individual loss adjusted loads within the given area over the given hour must be reconciled. Currently, most wholesale electric markets settle financially on a monthly basis, as does NYISO.[14] As such, the sum of the

[14] Rudden understands that the CAISO wholesale electric market financially settles on a daily basis with an approximate 70-day lag. Rudden also understands that NE-ISO is considering moving to a weekly interval for financially settling the NEPOOL wholesale electric market.

product of the hourly loads and hourly prices for a month constitute the monthly settlement for which market participants are invoiced and/or paid.[15]

In addition to determining the total loss adjusted load for a given area over a given time, it is necessary to identify market participants' individual responsibilities for load supplied and consumed within the area. Ideally, this would be facilitated by the installation of meters capable of registering the energy consumed or supplied at every generating station and end-use load account, with the hourly measurements telemetered[16] directly to the entity responsible for performing settlements. However, in practice, this has not proven to be economically practical, and thus only larger loads and generators are normally equipped with interval-based telemetry meters. Smaller loads, such as residential customers, small commercial customers and even very small generators, are typically metered such that all that is registered is the total energy consumed or generated, and in some cases the maximum demand established, between meter reading intervals, typically monthly intervals.[17] Other techniques, such as load profiling, are used to derive estimated hourly quantities, and then at month-end, the actual total energy metered for a given month is allocated back to the individual hours across the month based on the customer load profiles.

Where retail access has been implemented and multiple competitive energy providers serve some portion of load within a given utility's service territory, zone or sub-zone, a process must exist to assign each competitive energy provider their respective share of the total load. Typically, the procedures used to assign such load responsibility are pursuant to state commission rules and procedures, but generally, such rules and procedures result in each individual LSE being responsible for the actual metered consumption of the individual retail accounts for which the LSE has contracted to serve.

NYISO Metering Practices

Current metering practices in NYISO are designed to follow the general process described above. However, the lack of critical metering and telemetering facilities at certain locations, coupled with what appears to be inadequate procedures employed by individual market participants for determining load and load responsibilities and reporting such to NYISO on a timely basis, significantly hampers the ability to accelerate NYISO's settlement of the RTM without increasing the magnitude of the metering corrections (i.e. resettlements). The current metering practices and infrastructure also handicaps the ability to integrate demand components into the competitive marketplace. The current meter data flow comes through the MAs to NYISO in Chart 5 below.

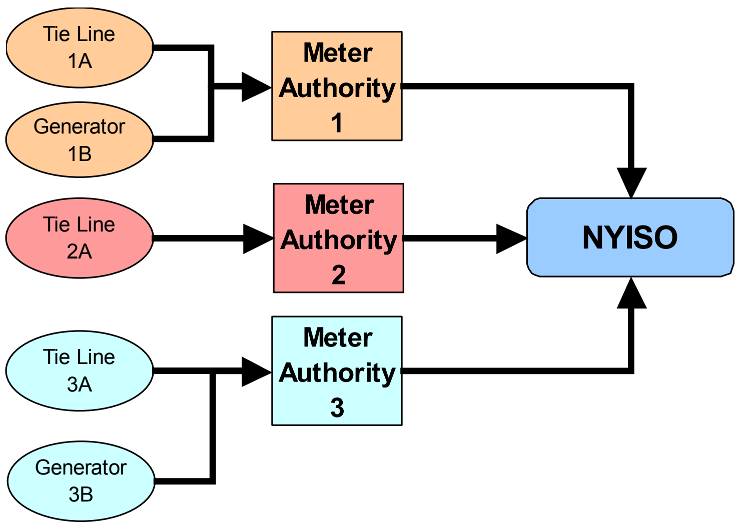
---

[15] Typically, wholesale markets, including NYISO Market, include products and services supplied an/or procured on intervals greater than hourly, such as capacity markets or network integration transmission service, which are typically monthly or multi-month markets. In these instances, markets are typically settled each hour for each month on a pro rata basis.

[16] We use the term telemeter and telemetry as generic terms for any communication method whether it is based on telephone, wireless, TCP/IP or other methods.

[17] Some utilities have implemented bi-monthly meter reading intervals.

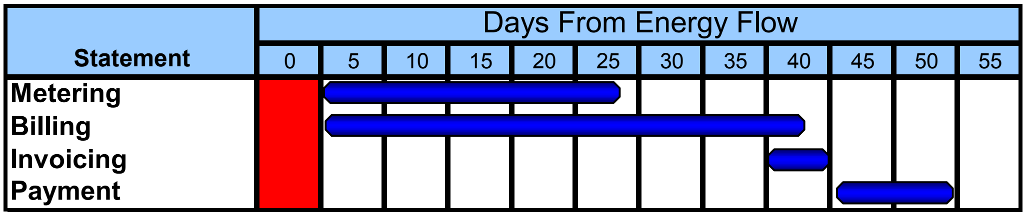
Chart 5 - Meter Data Flow



NYISO currently begins receiving tie line and generator metered information, on Day 0, although some (perhaps the majority) of this information may not be revenue quality metered data, and – other load and generation information is received over the next several days, including estimates of LSE load obligations as provided by LSEs. These LSE load estimations have been prone to inaccuracies and appear to provide a short-term financial incentive for LSEs to intentionally underestimate their respective daily load obligations. With this partially metered and partially estimated generation and load data, NYISO develops and provides periodic preliminary advisory statements to the market participants several times throughout each month. As more time passes throughout a month, data from other sources, some of which may be more accurate than the previously submitted data is provided to NYISO and the more refined the periodic statements become.

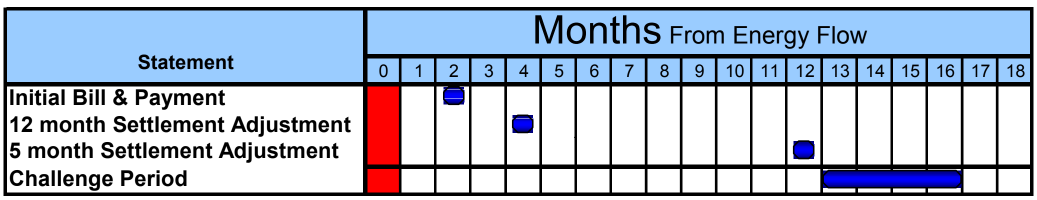
On or about the 15th day of the subsequent month, NYISO posts on the web, financial settlement statements reflecting the amounts owed by, or to be paid to each market participant for the previous calendar month. However, these financial settlement statements are still based on many estimated or incomplete quantities and subject to possible price corrections resulting from market monitoring initiatives or pricing errors. Corrected data requires resettlement of the market transactions during each month and occur at 4-month and 12-month and intervals after issuance of the initial settlement statement, with allowance for billing dispute resolution as far out as 16-months from the issuance of the initial financial settlement statement, and, potentially, thereafter as may be mandated by any related regulatory proceeding schedule. The current timeline associated with this Settlement Process is shown again in Chart 6.

Chart 6 – Settlement Process Timeline



The current timeline associated with the True-Up Process is shown again in Table 7 below:

Chart 7 – True-Up Process Timeline



In order for NYISO to determine the total hourly load, including losses, within a given area, zone or sub-zone, and at the frequency and accuracy required for accelerating settlement frequency of the RTM while at the same time reducing the magnitude of, and the number of subsequent resettlements, it must have *all* tie lines connecting such area, zone or sub-zone with other areas, zones or sub-zones, and *all* generators within such area, zone or sub-zone metered on intervals at least no shorter than hourly.[18] To accommodate daily financial settlement, or any form of accelerated interval financial settlement with a reduction in resettlements, these tie line and generator metering facilities must be capable of telemetering such metered data to preferably NYISO directly, or sub-optimally, to NYISO indirectly through the host-utility or other metering authority. In addition, all tie line and generator metering should be revenue quality metering facilities. According to information provided to Rudden by NYISO[19], all tie lines and generators within NYISO control area are not equipped with such metering. Rudden believes this lack of revenue quality metering at tie lines and generators should be remedied whether or not NYISO ultimately chooses to increase the frequency of the Settlement Process. This lack of sufficient metering at these locations will continue to inhibit accurate and timely settlement regardless of the settlement frequency.

A review of other wholesale markets including PJM, CAISO and ISO-NE, indicate that the rules and procedures in those regions specify minimum metering criteria which all market participants and metering authorities are obligated to comply with. ISO-NE's and CAISO's rules and

---

[18] Ideally, the interval to which such metering equipment is capable of measuring and sending the data to NYISO should be on the same frequency at which its Constrained Dispatch (SCD) is relying on such information for system dispatch and price determination. In some wholesale markets such as NEPOOL, very small generators may elect to restrictions in market participation and viewed only as negative load, in which case such generators are not required to have such technically sophisticated metering.

[19] Based on reports prepared by the Metering Task Force, a Market Participant based group

procedures appear to be the more prescriptive.[20] Adoption of mandatory requirements similar to those used in these other ISOs would provide a definitive improvement in NYISO's rules and procedures and would facilitate improving settlement of the RTM as desired by NYISO.

Allocation of Load to Load Serving Entities and/or Competitive Suppliers (LSEs)

In addition to the determination of total zone and sub-zone load and generation as discussed above, settlement of the RTM requires the determination of each LSE's respective hourly load share obligation within each of the zones and/or sub-zones that comprise NYISO control area. This appears to be the most problematic area associated with metering issues that impede timely and accurate settlement and serves as a primary cause Settlement Adjustments. As previously mentioned, currently within a day or two after Day 0, LSEs provide NYISO with their own estimation of their hourly load obligations for the respective Day 0 which NYISO, in turn, uses for developing its initial preliminary statements. It is Rudden's understanding that this information is not based on actual metered quantities. LSE's may have customer-specific historical use information or load profile information provided by the host-utility or metering authority upon which to make such estimations, but nonetheless, these estimations are prone to significant inaccuracies. Modern state estimation software can calculate acceptable estimations of transmission flows down to substation and POD/POR level. Load allocations beyond that may require more manually based estimation. Furthermore, and as previously mentioned, there may be short-term financial incentives in the form of improved cash flow for such LSEs to intentionally underestimate their daily load obligations. The current process does not result in actual LSE load allocation, as provided by the host-utilities or metering authorities, until up to 4-months after the issuance of the initial financial settlement statements. Until then, monthly financial settlement statements are based on inaccurate LSE estimations.

Rudden was unable to determine the exact methods by which each host-utility or metering authority uses to determine the load responsibility of each LSE serving load within their respective service territories (zones or sub-zones). However, pursuant to conversations with NYPSC staff, and consistent with Rudden's general knowledge of retail access rules and procedures in other jurisdictions, these methods are prescribed by state commission approved rules and procedures. According to NYPSC, the methods approved in the state of New York differ for each host-utility.

Based on Rudden's knowledge and discussions with NYISO staff, we believe, host-utilities are:

- Deriving loads for individual distribution load buses throughout the system and then
- Allocating the total load at each distribution load bus among the various LSEs serving load at each respective distribution load bus

Rudden understands that more often than not, individual host-utilities disagree among themselves over the metering information submitted by the host-utility responsible for such metering and time-consuming negotiations occur to resolve these disputes. Rudden expects the actual load allocation

[20] ISO-NE's pertinent rules and procedures to which all NEPOOL Participants are bound to comply with contractually and/or pursuant to regulatory order include the Restated NEPOOL Agreement, Operating Procedure No. 18 – Metering and Telemetering Criteria, and Market Rule Manuals 28 and 29. These rules work together to require NEPOOL Market Participants to comply with the mandatory Metering and Telemetering Criteria as a condition of participating in ISO-NE Wholesale Electric Markets.

process used by each host-utility or metering authority varies. Nonetheless, the entire process of determining distribution bus loads, and their allocation to the individual LSEs, regularly takes up to 4-months under current practice.

Although this process, in and of itself, does not prevent NYISO from implementing an accelerated settlement of the RTM, it results in the continuation of potentially significant Settlement Adjustment and resettlement statements long after the issuance of initial financial statements.

Rudden believes that the process of determining zone or sub-zone load and the allocation of such load to LSEs should and can be improved in order to accomplish NYISO's goals of enhancing financial settlements of the RTM. To that end, Rudden believes the model used in ISO-NE could serve as the basis for improving such processes in New York. In ISO-NE where retail access has been widely implemented, a combination of:

- Meters read at 15-minute (or other) intervals, equipped with telemetry for larger end-use customers
- Sophisticated load profiling software for estimating hourly loads for residential and small commercial customers is used to establish hourly loads each day.

These loads are reconciled in total against the total zonal or sub-zonal load as may be applicable, as determined on the basis of revenue quality metering on all generators and tie lines, with losses for each area, zone or sub-zone determined by use of a state-estimator. The assignment to individual LSEs of this hourly zonal or sub-zonal load for each day is then based on a matching of each individual retail customer account within these zones and sub-zones and their related hourly load, to the respective LSEs that are contractually responsible for serving each retail account.

The minimum interval of measurement of meters installed for measuring retail consumption is based on state commission regulations and tariff design. Obviously the more customers whose consumption is measured with 15-minute (or similar) interval measuring meters, the less load is subject to load profiling and thus the smaller margin of error required to subsequently re-settle. It is not uncommon to have state commission-approved retail tariffs that mandate commercial and industrial customers of 500 kW or larger must be metered with 15-minute interval measuring meters. Some jurisdictions may impose such requirements on even smaller retail customers. In any event, by way of telemetry, and in conjunction with meter data management systems, such as the MV-90 system manufactured by ITRON, Inc., this metered information is frequently and periodically gathered by the host-utilities each day.

For all other loads, hourly loads for each day are created based on customer or class specific load profiles that have been developed on the basis of historical usage information, (including sampling data for residential and small commercial customers gathered for load research purposes), using special software developed for this purpose, such as Lodestar and Load Vision software. The combination of these metered and profiled loads are reported to ISO-NE within a day or two following the Day 0 and used by the ISO-NE in the preparation of preliminary statements submitted to market participants each day.

It is not the intent of Rudden to suggest that NYISO should duplicate the systems and processes of ISO-NE or any other region's practices. Instead, the discussion of ISO-NE processes and requirements only intends to suggest that other regional practices appear to provide NYISO examples of existing methods that can improve load determination and the allocation of such load to LSEs and other market participants. Rudden asserts that the New York utilities and/or metering authorities should overhaul their processes for determining load and load allocation to LSEs using techniques and systems similar to those discussed above.

Changing current practices will require NYPSC approval, but the NYPSC should be in favor of improving the timeliness and accuracy of LSE load responsibility determination, which is a benefit to both customers and LSEs. Ideally, the NYPSC should approve practices and procedures that are consistent across all utilities under its jurisdiction. Rudden suggest that a more in-depth review of national metering and load settlement practices by NYISO would be useful to NYISO's and the NYPSC's process improvement initiatives.

Data Corrections and Resettlements

Rudden understands that in addition to wanting to accelerate the time frame within which NYISO financially settles the market, it also wishes to reduce, if not eliminate resettlements. Rudden does not believe it is practical for NYISO to expect to eliminate resettlements. However, Rudden does believe improvements can be made in metering, load determination and LSE load allocation processes that will substantially reduce the magnitude of and potentially the number of such resettlements.

As previously mentioned in this section of the Report, resettlement of NYISO markets occurs at 4-month and 12-month intervals to account for meter data corrections, load allocation corrections and price corrections. In addition, other billing dispute resolutions can occur as much as 16-months after the energy flow.

Similar resettlements occur in all existing regional wholesale electric markets, albeit perhaps less in magnitude and number of such resettlements than currently exists in NYISO. By way of example, ISO-NE performs resettlement for every operating day, 90-days after the fact to account for reconciling load and LSE load responsibilities as reported on the initial monthly financial settle statements.[21] Rudden believes these adjustments cannot be eliminated from the settlement process because neither MPs nor commissions will find acceptable a process that does not afford adequate mechanisms to ensure market participants are held accountable for their actual contractual obligations or self-use.

Two to Four Month Minimum Resettlement Cycle

A review of standard meter reading practices by utilities will demonstrate that a minimum of two months is required to provide NYISO with actual month-end meter readings, and thus actual month-end LSE load responsibility. Most utilities' standard meter reading practices result in reading retail customers' meters on a monthly cycle. Because it is not feasible for most utilities to read all of the hundreds of thousands of retail meters on the last day of the calendar month, customers are segregated into groups with each group being assigned a meter cycle read date that occurs on a specific date of each month. So for instance, there is a group of customers for each

[21] NEPOOL / ISO-NE rules and procedures also allow for reconciliation during the 90-day after the fact period to adjust for other items impacting financial settlement such as Internal Bilateral Transactions.

utility whose meter cycle read date is the 29th of the month. When the utility reports its metered loads to NYISO for a given month, it is only able to report the load for this group of customers as of the hour the meters are read and only up to the 29th day of the month. The utility will not capture the consumption of these customers for consumption on the 30th or 31st day of the month until the following month when it reads these customers meters again on the 29th day of that month. Thus, a two-month period is required to determine total consumption for any given month. For any utility that has implemented bi-monthly meter reading programs as many have done on the basis of cost saving initiatives, and which Rudden understands has been implemented by some New York utilities, this length of time is doubled to 4-months. The frequency with which utilities read retail customer meters is pursuant to state commission rules and regulations, and therefore, any intended change to this practice will likely require NYPSC approval.

In addition, other reasons exist that will necessitate the continuation for the need to accommodate resettlement of the RTM such as metering and communication failures, price corrections due to market monitoring initiatives and dispatch anomalies resulting from unintentional and incidental non-compliance with current market rules. And finally, all customers are afforded certain legal protections under state and federal regulations that permit them to challenge the justness and reasonableness of the charges they have been assessed and such protections can and will require resettlement of NYISO RTM when customers can prove that the amounts they were charged were not reflective of proper amounts, including correct administration of all market rules and an accurate determination of their load serving obligations.

Metering Equipment and Load Determination Process Upgrades

Rudden believes NYISO's process of settling the RTM can be greatly improved, including accelerating the timeliness and accuracy of settlements, and the reduction of required resettlements by upgrading its metering equipment and load allocation processes. However, acceleration of the settlement period *by itself* is not necessarily contingent upon the upgrade of metering and load allocation systems. Barring any required changes to NYISO's internal settlement-related processes, NYISO could settle the RTM on a daily basis, albeit with perhaps some number of days lag, with current metering equipment and load determination and allocation processes. However, in order to accomplish, accelerated settlements *and* improve accuracy of initial daily financial settlement statements, which in turn leads to a reduction in the magnitude and number of subsequent required resettlements, an upgrade of these systems is required.

Rudden recommends that:

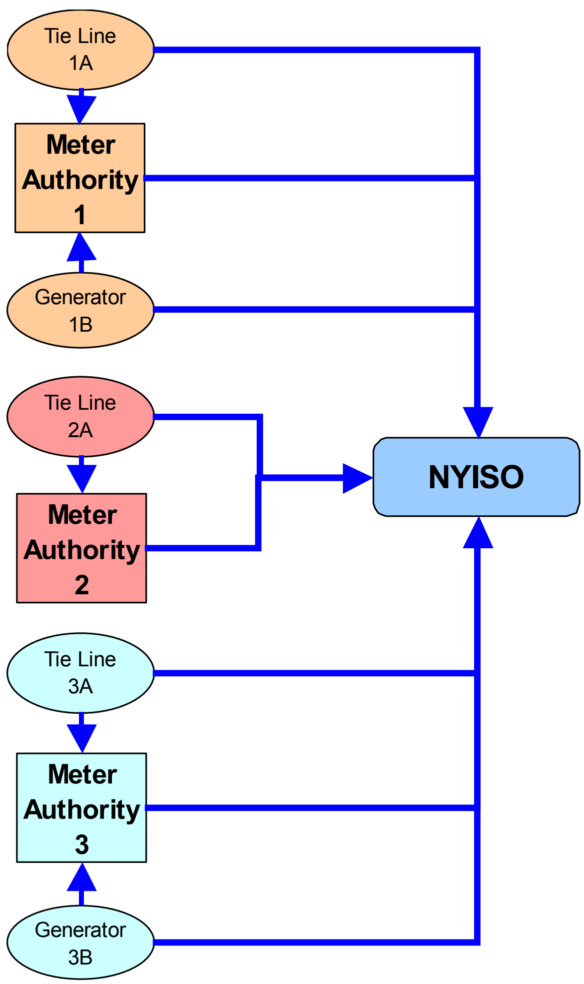
- All regional tie lines interconnecting the New York Control Area to neighboring control areas, and all generators, with potential exceptions to very small generators, be metered with revenue quality meters
- These regional tie line and generator meters be equipped with telemetry, and configured to telemeter such metered information *directly to NYISO*[22]

[22] A similar arrangement is used by ISO-NE and CAISO for all regional and zonal tie lines and generators using an Itron MV-90 system.

- All internal tie lines within New York interconnecting individual New York utilities to each other and with other New York market participants, should also be metered with revenue quality meters
- These internal tie line meters be equipped with telemetry, configured to telemeter such metered information directly to NYISO or indirectly via the owner of such tie line information
- The telemetry of such information should preferably be sent to NYISO at intervals matching the intervals on which NYISO Security Constrained Dispatch system operates.[23]

This level of upgrade will provide NYISO with timely and accurate information from which to determine total Control Area load, as well as the total load within each zone and sub-zone. Chart 8 below reflects Rudden's recommended meter data flow for NYISO.

Chart 8 - Recommended Meter Data Flow



[23] Telemetry of tie line and generator information could continue to be collected and sent on intervals different from the SCD intervals, however, this would necessitate the continuation of the current process of re-aggregating the data to match the SCD interval used by NYISO today.

Rudden also recommends that:

- The process of determining and allocating load to LSEs be overhauled to improve the accuracy of initial load reporting which in turn will lead to greater accuracy of initial financial settlement statements and reduce the magnitude and number of required resettlements
- At minimum, all retail customers with a peak demand of 500 kW and greater (or similar threshold) should have meters capable of registering consumption on a 15-minute interval basis (or other interval no greater than 1 hour)
- All utilities and/or metering authorities responsible for collecting and reporting meter information should install systems such as MV-90 systems and related communication equipment and systems necessary to electronically gather all such 15-minute interval metered data which can then be electronically transmitted to NYISO on a daily basis
- All utilities and/or metering authorities should purchase computerized load profiling systems, which can then be used to accurately estimate all smaller retail customers' daily loads
- The process by which LSE load allocation is estimated each day should be revised such that the utilities are making estimations and reporting information to NYISO each day instead of information being estimated by individual LSEs. By implementing a process within each utility and/or metering authority that matches each retail account and related load profile to their respective LSE, each LSE's estimated daily load responsibility can be accurately and timely communicated to NYISO and significantly improve NYISO's initial financial settlement statements, even on an accelerated basis such as daily settlements.

Rudden has estimated the cost of such upgrades to be approximately $31 million[24] with an additional $3 million in annual cost for communication and software. This estimate is based on the information provided by NYISO, which consisted of meter equipment survey information for the NYISO metering authorities, and on estimates developed by Rudden regarding the cost of installing MV-90 and load profiling systems and upgrading tie line, generator and retail customer meters. A further breakout of these cost is shown in Table 10 below and in Appendix A.

[24] Although Rudden believes that 15-minute interval metering equipment should be installed on retail customers whose peak demand is 500 kW or greater, Rudden's cost estimates is based on upgrading a percentage of all NY retail customers of 1000 kW or greater due to the number of customer greater than or equal to 1000 kW was the only information available to Rudden at the time of the analysis for this Report. As such, retail metering upgrade cost estimates would likely be significantly higher than Rudden has estimated if customers between 500 kW and 1000 kW were included in the metering upgrades.

Table 10 – Metering Costs

	End-Use Meters & Telemetry	MP Meters & Software Costs	Total Cost of Upgrades
ConEd	$1,167,060	$548,282	$1,715,342
LIPA	$0	$801,695	$801,695
CHG&E	$2,741,160	$486,641	$3,227,801
O&R	$356,160	$555,131	$911,291
NYSEG	$7,577,940	$651,017	$8,228,957
NG	$5,685,840	$1,007,165	$6,693,005
NYPA	$66,780	$931,826	$998,606
RGE	$2,610,780	$507,188	$3,117,968
Other LSEs	$4,951,260	$0	$4,951,260
NYISO		$850,000	$850,000
Total	$25,156,980	$5,488,945	$30,645,925

F. RTM Conclusions

Energy Commodity

1. The key information that is required for NYISO to settle power purchase / sale transactions in the RTM include:
    a. Quantities input and withdrawn from the system
    b. Allocation of metered quantities
    c. Marginal cost of congestion and losses
    d. RTM LBMP

If this key information is available to NYISO, then the settlement period can be shortened and the settlement frequency increased for energy commodity transactions in the RTM.

Ancillary Services

2. By their very nature, ancillary services have interrelated RTM and DAM components associated with the real-time balancing of the system and bids to provide services in the DAM. Although it would be technically feasible to settle the DAM component of ancillary services on a daily basis, it is most logical to settle both the DAM and RTM ancillary services concurrently, and with the same settlement period and frequency used for the RTM.

3. Factors leading to this conclusion include:

    a. Information associated with the real time component of ancillary services in the RTM is not immediately available at the end of Day-D.
    b. Although charges or payments associated with ancillary services may be significant to individual MPs, in the aggregate the financial magnitude of ancillary services is not significant to either the DAM or RTM.

4. It is not logical to settle the DAM of ancillary services without settling the real time component in the RTM.

VI. Other Markets

A. Installed Capacity Market (ICAP)

Nature, Characteristics and Significance of Market

The purpose of the ICAP is to ensure that there is sufficient capacity available to NYISO to ensure that the load can be served on the peak day. To accomplish this, each LSE is required to procure Unforced Capacity (UCAP) for each Capability Period, in an amount determined by NYISO based on locational forecast load plus reserves. There are two six-month Capability Periods annually. NYISO determines the required Installed Capacity for each location, and then assigns a UCAP requirement to each LSE. UCAP for a resource is based on its ICAP, adjusted for the probability that it will be available to serve load based on each units historic performance.

Resources that have agreed to supply ICAP, either through bilateral contracts or through the auctions, are required to bid their ICAP into the DAM each hour, and if dispatched, they are required to generate.

LSEs may acquire UCAP through bilaterals or through auctions facilitated by NYISO. Strip auctions, where a fixed quantity of MW is acquired to the entire Capability Period, are completed 30 days before each period begins; Monthly auctions (MW specified for each month remaining in the Capability Period) are completed 15 days before each month begins; Spot auctions (for the upcoming month) are completed 2 business days before each month.

At the present time, billings and payments associated with ICAP transactions are settled in the month following the month in which the ICAP was purchased. Strips are allocated 1/6 to each month of the strip period.

Discussion of Scenarios

All the information necessary for billing and payment of ICAP transactions is available before each month starts. Adjustments and disputes in ICAP transactions are rare. Technically there are no obstacles to billing ICAP transactions on a daily, weekly or monthly basis, and conceivably could even take place at the start of each month.

The obligation of the ICAP resource, and the benefit received by the ICAP purchaser, can be financially settled at the same time and frequency used for energy commodity transactions in the DAM.

Rudden Conclusions on ICAP Market Settlements

The ICAP Market should be settled concurrently with the DAM, whether the DAM frequency / cycle is daily, weekly or monthly. The incremental costs to do so are minimal, especially if monthly amounts are billed evenly over the month. The benefits of doing so are to eliminate a separate billing cycle for ICAP, matching timing of billing with rendering of service, and acceleration of cash flow / reduction of credit exposure.

B. Transmission Congestion Contracts Auction Market

Nature, Characteristics and Significance of Market

The TCCA Market is comprised of TCC that are acquired by MPs either through grandfathered rights or through various auctions facilitated by NYISO.

A TCC provides the right to receive or the obligation to pay the congestion portion of the hourly RTM LBMP for 1 MW at a point of withdrawal or injection to the NYISO operated system for which the TCC pertains. TCC initial auctions occur quarterly while reconfiguration auctions occur monthly. For financial settlement, payments to NYISO are due three business days after auction ends, while payments from NYISO to MPs are made 6 business days after each auction end.

Discussion of Scenarios

All the information necessary for billing and payment of TCCA transactions is available before each month starts. Adjustments and disputes in TCC transactions are rare. Technically there are no obstacles to billing TCCA transactions on a daily, weekly or monthly basis, and conceivably could even take place at the start of each month.

The current settlement period and frequency for TCCA transactions is three business days after the auction end, while NYISO's payments are made six business days after each auction so as to manage working capital.

Rudden Conclusions on TCC Market Settlements

TCCA transactions should continue to be settled independent of transaction settlements for MPs activities in the other markets, as is currently the practice.

C. Virtual Bidding Market (VBM)

Nature, Characteristics and Significance of Market

The VBM is comprised of strictly financial transactions for the purchase or sale of energy in the DAM, and no physical energy is supplied or consumed in connection with the transactions. If a virtual bid to purchase or sell energy is accepted in the DAM, it is "closed out" by the position holder in the RTM at the real time locational-based marginal price. A "Virtual Load" bid is an offer to buy energy in the DAM, and if accepted the energy purchased is sold back into the RTM. A "Virtual Supply" bid is an offer to sell energy in the DAM, and if accepted the energy sold is bought back in the RTM. Virtual Load or Supply bid must be accepted for a settlement to occur.

The market provides an additional hedging mechanism for MPs with physical loads and generation in the NY market, and its formation opened the NY wholesale electric market to MPs that do not have physical positions in the market. Market participants must specifically register to participate in the virtual market, and to place bids into the market they must place collateral with NYISO of approximately $350 per MWh, and MPs are exposed to additional calls on collateral based on average day ahead price and real time prices.

The VBM DAM purchase / sale transactions, and the associated closing of the transactions in the RTM can be summarized as shown in Table 11.

Table 11 - Virtual Market Description

Transaction	Day-Ahead Market	Real Time Market
Virtual Load	MP Bids to Buy Energy in DAM	MP Sells Energy Back Into RTM
Virtual Supply	MP Bids to Sell Energy in DAM	MP Buys Energy Back In RTM

Table 12 below summarizes the financial magnitude of Virtual Load and Virtual Supply transactions during the Year 2002.

Table 12 – Virtual Market Transactions

Transaction[25] *Source / (Use) Cash*	Day-Ahead Market ($ Million)	Real Time Market ($ Million)
Virtual Load		
• Energy Sales	$ 303.6	$ (284.9)
• Losses	$ 13.9	$ (14.5)
• Congestion	$ 57.0	$ (65.4)
Total	$ 374.5	$ (364.8)
Virtual Supply		
• Energy Expenditure	$ (231.0)	$ 224.7
• Loses	$ (6.7)	$ 6.2
• Congestion	$ (17.0)	$ 17.0
Total	$ (254.7)	$ 247.9
NYISO Cash Settlement Position - Source / (Use)	$ 119.8	$ (116.9)

It can be observed in the above Table that during the Year 2002 that the aggregate MP's Virtual Load transactions totaled $374.5 million of energy purchases in the DAM with associated energy "sale backs" in the RTM totaling $364.8 million. Year 2002 Virtual Supply transactions totaled $254.7 million of energy sales into the DAM with associated "buy back" of energy in the RTM totaling $247.9 million.

[25] Schedule of Year 2002 Monthly Settlement Transactions prepared by NYISO

If the day-ahead component of the virtual load and virtual supply transactions where settled in the DAM for the Year 2002, the net cash flow to NYISO would have been a positive $120 million inflow, offset by a $117 million cash outflow when the RTM was settled. However, alternatively this would have resulted in the MPs having to fund significant levels of working capital until the real time component of their transactions were settled.

Discussion of Scenarios

By the very nature of the VBM, the financial transactions for the purchase / sale of energy have components derived both in the DAM and from the RTM (i.e., price). Since accepted bids for the DAM are closed out in the RTM, the quantities associated with Virtual Loads and Virtual Supply transactions net to zero, and the settlement charge / payment to the MP is the delta in price between the bid hourly DAM price and the RTM associated hourly LBMP.

Price information required to settle the RTM component of the virtual load and supply transactions is determined in the RTM. The net settlement charge / payment to MP cannot thus be quantified until the RTM hourly LBMPs are established and audited by LECG, which can require up to approximately six calendar days after Day 0 to occur.

Rudden Conclusions on Virtual Bidding Market Settlements

It is the objective of NYISO to minimize the impact on their working capital of settlements and to manage the timing differences between revenue collections and cash outflows. Due to the DAM and RTM components of VBM transactions, the DAM component of the transaction and the real time component of the transaction should be settled concurrently. To accomplish this, the VBM would be settled consistent with the settlement frequency utilized for the RTM.

VII. Recommendations

Rudden believes that NYISO needs to address a number of areas in order to progress to more frequent settlements including:

- Process Documentation
- Metering Standards
- Meter data communication
- Load Profiling
- BAS
- Benefit sharing mechanism
- Support of MPs

Rudden believes that NYISO rules and procedures need to be modified in order to prescribe specific metering and telemetering criteria, which obligate all market participants to comply with as a condition of participating in the NYISO wholesale electric market. Furthermore, such revised rules and procedures should dictate specific deadlines for the submission of initial and final hourly load data for each Day 0, with only a single resettlement of the markets based on the submission of such final load information.[26] However, the pertinent NYISO and TO Agreements and Tariffs may handicap the ability of NYISO to unilaterally prescribe such new rules and procedures. For instance, although the NYISO Agreement provides that NYISO is responsible for developing and administering rules and procedures for operating the market and the NY system, the TO Agreement and/or Tariff appear to preserve TOs unilateral right to change rules and procedures such that said rules and procedures to ensure consistency with their NYPSC approved retail access programs. This would imply that the consent of all NY utilities and the NYPSC would be required affect such rule and procedure changes.

Therefore, Rudden concludes / recommends the following:

1. Regardless of whether NYISO chooses to reduce the settlement frequency, transmission level metering in New York should be improved so that every tie line between neighboring states and Canada and between each metering authority and every generator, with the possible exception of some small generators, can collect interval-based revenue quality data, with telemetry capability to transmit the data to at least the metering authority and preferably to NYISO.

[26] The final date for load submission reconciliation must be sufficiently far out to permit month-end meter reading of all retail meters which is dependent on meter read practices approved by the NYPSC. This is essential to ensure that LSEs are held financially accountable for the actual load for which they are contractually responsible. Rudden understands that, currently, disagreements occur over the total zonal and sub-zonal loads and the resulting allocation of such loads to LSEs. NYISO's rules should dictate an absolute deadline for final submission of such load and load allocation determinations. As long as the length of time is sufficient for the owner of the metering to adequately perform all month-end meter reporting, and the rules and procedures by which such metering and load determinations are documented and adhered to, there should be no problem with implementing a hard and fast data submission deadline. Additional resettlements will likely be required to deal with price corrections and regulatory invention.

2. Rudden believes that it is conceptually feasible for NYISO to settle it's RTM as frequently as once per day, even with existing metering. However, without metering improvements, daily settlements would need to rely on accuracy equivalent to the daily advisory statements.

3. Rudden believes that a minimum number of days lag must be built into any settlement process.[27] The lag is necessary to permit meter authorities and the utilities to develop and transmit daily load data for each operating day. Rudden believes that over some reasonable implementation timeframe, this lag could be shortened to 3-5 business days, implying final settlement within 4-6 days.

4. Rudden does not believe it is feasible to eliminate all resettlements associated with reconciliation of meter data. NYISO must plan on a True-Up process that takes into account the practical realities of operation to:
    a. Ensure that all LSEs are held accountable for the market cost associated with no more, or no less than the consumption of their contractual obligations
    b. Account for meter equipment and communication failures
    c. Allow for retail meter reading cycles that currently can be as much as two months

5. In order to improve the accuracy of initial financial settlement statements *and* reduce the magnitude of and number of subsequent resettlements, metering equipment and the process of load allocation among LSEs *must* be upgraded and overhauled. However, even with extensive metering and load allocation upgrades, daily statements would still require some level of subsequent Settlement Adjustments.

    Specifically, with regard to this recommendation, Rudden recommends that upgrades and overhauls include:

    a. Installing revenue quality metering and telemetering on *all* control area to control area tie lines with such meter information being telemetered directly to NYISO;
    b. Installing revenue quality metering and telemetering on *all* tie lines between NY utilities, zones and sub-zones with such meter information telemetered directly to NYISO or indirectly by owner of said tie lines;
    c. Installing revenue quality metering and telemetering on all generators with such meter information being telemetered directly to NYISO, potentially providing exceptions for very small generators;
    d. Installing 15-minute interval (or similar) metering on all commercial and industrial retail customers of a minimum size, i.e. 500 kW, and greater, or such other minimum size as deemed economically acceptable to the NYPSC (the cost estimate analysis in this report used a 1000 kW threshold);
    e. Install computerized meter data collections systems (equivalent to the Itron MV-90) and computerized load profiling systems at each utility and/or metering authority and NYISO, along with the communication systems necessary to electronically gather all 15-minute interval retail meter data, and to produce accurate daily load estimates for all other retail customers, and transmit such information to NYISO on a daily basis;
    f. Modify NYPSC approved processes for determining LSE load allocation of retail access customers such that the utilities and/or metering authorities are responsible for developing daily

[27] See footnote 2.

estimations of each LSE and for communicating such load obligation estimates to NYISO instead of having the LSEs develop and provide such estimates.

6. We recommend that NYISO immediately document the current Settlement Process and attempt to keep the process flow diagrams current. The lack of documented processes made Rudden's analysis more time consuming for Rudden consultants and for NYISO experts. The documented processes would greatly assist with planning and implementation of the near term settlement improvements, for the 12-month/4-month cycle and for the potential 4-month/1-month cycle, as well as any future process or software changes. The Settlement Process is much too important and has been the focus of too many changes and contentious issues with the MPs for it not to be well documented. In addition, the NYISO might consider its efforts associated with documenting the settlement process as an element of a broader effort to address seams issues by way of updating and enhancing all of its market and operating procedures manuals and adopting a common format for such manuals as PJM and ISO-NE have adopted."

7. Based principally on NYISO personnel discussions and views, Rudden recommends that NYISO enhance the BAS capability to support rapid changes to accommodate market changes or billing corrections. The BAS is the key system driving the Settlement Process. Should NYISO desire to settle the DAM and other markets separately, as contemplated in a number of the scenarios discussed, the required programming modifications would required an estimated $2.8 million. This investment in the BAS changes would allow the markets to be settled separately but would not provide any additional system enhancements or functionality.

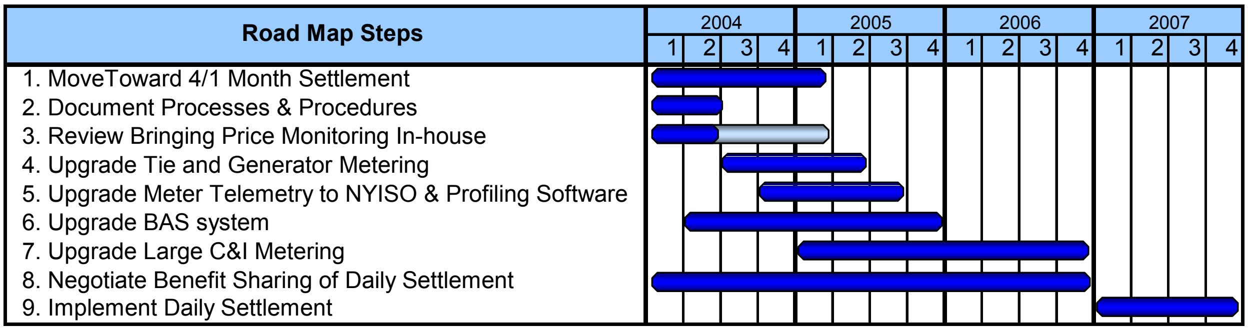
   Rudden believes that NYISO would be better served by a replacement or significant rewrite of the BAS to enhance functionality beyond just allowing the DAM and other markets to settle separately. For example, NYISO personnel have expressed interest in a rules-based-system that would significantly reduce the time and the IT support to correct and modify the BAS to adapt to new market requirements. Rudden did not include the cost of a new BAS in this analysis and only included the $2.8 million estimate in those scenarios requiring the separation of the DAM and other markets. However, LodeStar, one leading maker of a state of the art rules-based BAS provided an all-in estimate of less than a million dollars for their financial settlement system and installation. However, to this cost NYISO must add significant internal or consulting hours for data conversions interfaces, training, etc., but; even with these additional costs NYISO replacements of the BAS should always be considered when contemplating upgrades of $2.8 million.

8. While this recommendation is listed last, it is neither the least important nor should it be conducted last. Rudden believes NYISO must have the support of the MPs to move to a more frequent settlement cycle. Rudden recommends that NYISO begin immediately to work with the MPs and the NYPSC to develop a method for addressing the distribution of the cost and benefits associated with a shortened settlement cycle. This more rapid transfer of cash from Buyers to Sellers and the resultant increase in Buyer cost presents a significant obstacle to any payment cycle shorter than the current 45-days. Since the Sellers in the market, presumably, generally carry higher short term debt and cost of capital rates, the Seller benefit of earlier payment is consistently larger than the Buyer cost of the earlier payments; $13.6 million higher annually for the daily settlement in scenario D1.

   The most straightforward solution would be for NYISO to include in the uplift charges a mechanism that would charge the Sellers and credit the Buyers until such time as the Buyers accumulated the additional working capital required for the shortened payment cycle. The positive benefits allowed by a number of the scenarios in this analysis, including daily settlement of all markets, allows for this and other “win - win” or “win - no lose” solutions to this distribution of cost and benefits.

The Chart 9 below presents a possible high-level timeline for the recommended steps discussed above.

Chart 9 - Roadmap High-Level Timeline



Rudden believes moving to a more frequent settlement could reduce the risks associated with potential MP default and provide additional net benefits to the market from the more rapid transfer of cash. However, the infrastructure and application improvements that we have recommended could easily prove to have benefits that far exceed the benefits discussed in this analysis. The benefits associated with expanded competitive market opportunities such as direct load control, demand bidding and reserve bidding and operational improvements enabled by the migration to an intelligent grid offer, as yet, unquantified additional benefits to our recommendations. Finally, Rudden suggests the most timely and successful transition to more frequent settlement will be accomplished by NYISO continuing to partner with MPs to move collaboratively toward any new Settlement Process.

Appendix A - Meter Data Analysis

Table A.1 – Meter Data Analysis

	Total Meters		Meters Requiring Upgrade		C&I requiring meter upgrade	Cost to Upgrade Ties & Gen Meters	Cost to Install MV-90 & Lodestar	Cost to upgrade C&I Meters & Telephone Hookup	Total Cost of Meter Upgrades	Annual Software, Line & Call Charges for ties and gens	Annual Line & Call Charges for end use meters
	Ties	Gen	Ties	Gen	Customers	Total	Total	Total	Total		
ConEd	12	44	11	0	220	$75,339	$425,000	$1,167,060	$1,715,342	$33,128	$126,009
LIPA	2	61	3	52	-	$376,695	$425,000	$0	$801,695	$54,874	$0
CHG&E	10	15	0	0	517	$0	$425,000	$2,741,160	$3,227,801	$28,550	$295,968
O&R	19	9	9	10	67	$130,131	$425,000	$356,160	$911,291	$34,273	$38,455
NYSEG	55	33	5	0	1,430	$34,245	$425,000	$7,577,940	$8,228,957	$41,140	$818,203
NG	95	90	0	0	1,073	$0	$425,000	$5,685,840	$6,693,005	$54,874	$613,910
NYPA	22	74	10	55	13	$445,185	$425,000	$66,780	$998,606	$65,747	$7,210
RGE	20	6	0	6	493	$41,094	$425,000	$2,610,780	$3,117,968	$27,978	$281,890
Other					934			$4,951,260	$4,951,260		$534,596
NYISO							$850,000	$0	$850,000		$0
Total	235	332	38	123	4,747	$1,102,689	$4,250,000	$25,156,980	$31,495,925	$340,563	$2,716,242

Assumptions

	Meter Data from NYISO Meter Data Task Force	
$6,849	Cost for new settlement quality tele-meter installed per avg. NYSEG cost of upgr	$2,102,689
$5,300	Cost Est for new tele-meter installed cost for customers over 1MW Demand	
60%	Number of Customers requiring updated Meters - Rudden estimate	
$250,000	MV90 Software $130K & $60k install per Itron Dan Kritz + $60K internal install	
$600,000	Lodestar load profile program, all in cost per Lodestar Rich Kreegan, no annual license	
50%	Percent of Meter Author. Which need MV90 and Lodestar so assume same % of cost for all	
$23,400	Itron annual licensing Fee at 18% of software per Dan Kritz	
$143	Verizon Hook up to remote location (e.g. substation), one time charge per Verizon	
$70	Verizon Hook up to existing C&I customer	
$100	Meter Authority Cost to Connect Phone to Meter 2 hrs at $50/hr loaded rate	
$34	Monthly charge per phone line per Verizon ($26 + $7 FCC charge)	
$0.03	Average cost per minute of phone service	
15	minutes per download	
8	hours allowed to complete all downloads	
32	downloads per phone line per time allowed to complete downloads	

Appendix B – Information Technology Costs

Table B.1 below provides an estimate of the magnitude of effort involved to modify the current NYISO BAS applications to support separate processing of the DAM and RTM settlements. The modifications include only those changes necessary to allow settlement of the DAM and RTM separately. No other enhancements are included in the estimate. This estimate does not include a new BAS or any of the desirable functionality discussed in the Executive Summary, Section I.

Table B.1 - NYISO IT Costs

Sub-System	Requirements/ Design Hours	Development Hours	Integration / Testing Hours	Total Hours	Total Cost
MIS	1,000	2,000	1,000	4,000	$305,851
BAS	2,000	4,000	4,000	10,000	$764,628
Consolidated Invoice	2,000	4,000	4,000	10,000	$764,628
Data Ware House	1,000	2,000	1,000	4,000	$305,851
MMU	400	400	200	1,000	$76,463
Financials	1,000	2,000	4,000	7,000	$535,239
QA Environment and Testing	-	-	1,000	1,000	$76,463
Total				37,000	$2,829,122

Assumptions:

Hourly estimates developed by John Hickey of NYISO
Labor rates based stadarard rates from Mary MacGarvey

	Yearly	Hourly
Consultant Cost	$175,000	$93
NYISO Employee Loaded Cost	$112,500	$60
Average	$143,750	$76
Cost at Average Labor Rate	$2,829,122	
Working Hours per Year	1880	

Appendix C – Settlement Scenario Analysis

[Due to the size, Appendix C was transmitted as a separate document.]

Cost Benefit Analysis – Summary High Case

Ref.	Settlement Scenario Description	NYISO One Time Costs	NYISO Annual Benefits	Market Participants One Time Costs	Market Participants Annual Benefits	Total One Time Costs	Total Annual Benefits	5 Year NPV
D1	DAM and RTM settled daily	$850,000	$120,180	$30,645,925	$13,635,825	$31,495,925	$13,756,005	$11,990,531
D2	DAM and RTM settled daily with a 5 day lag	$850,000	$120,180	$30,645,925	$11,056,971	$31,495,925	$11,177,151	$4,325,609
D3	DAM settled daily and RTM settled monthly	$3,679,122	$120,180	$30,645,925	$1,088,631	$34,325,047	$1,208,811	($27,898,016)
D4	DAM settled daily with a 7 days lag & RTM settled monthly	$3,679,122	$120,180	$30,645,925	($818,313)	$34,325,047	($698,133)	($33,565,874)
W1	DAM & RTM settled weekly	$850,000	$120,180	$30,645,925	$4,474,207	$31,495,925	$4,594,387	($15,239,814)
W2	DAM settled weekly and RTM settled monthly	$3,679,122	$120,180	$30,645,925	($1,929,609)	$34,325,047	($1,809,429)	($36,868,890)
W3	DAM and RTM settled twice per month	$850,000	$120,180	$30,645,925	$2,099,642	$31,495,925	$2,219,822	($22,297,544)
W4	DAM settled twice per month and RTM settled monthly	$3,679,122	$120,180	$30,645,925	($3,044,289)	$34,325,047	($2,924,109)	($40,181,964)

SCENARIO D1 - HIGH

NYISO

		Describe Change	One-Time Costs			Incremental Annual Costs				
			Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice						$0		
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice								
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$110,000	$430,000	$310,000	$180,000	$13,920	$850,000	$217,320	$337,500

Market Participants

		Describe Change	One-Time Costs	Incremental Annual Costs				
			Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$2,695,927		$2,695,927	$3,873,990
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$25,057,104		$25,057,104	$37,826,352
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$5,170,173		$5,170,173	$8,092,872
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$17,100,000		$17,100,000	$22,000,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$30,645,925	$5,062,500	$53,094,889	$30,645,925	$58,157,389	$71,793,214

Scenario D1 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$8
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily
RT	Daily
Virtual	Daily
ICAP	Daily
TCC	Daily
NYISO Receipts 1 day after energy flow	
NYISO payments 2 days after energy flow	

Assumptions

Accelerated TCC Payment		**Accelerated TCC Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +2 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (day	32
Portion of 365-year	7.945%	Portion of 365-year	8.767%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	0.7890%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$2,695,927	Benefit Acc Rec, $MM/yr	$3,873,990

Accelerated DAM Payment		**Accelerated DAM Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +2 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (day	32
Portion of 365-year	7.945%	Portion of 365-year	8.767%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	1.1178%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$25,057,104	Benefit Acc Rec, $MM/yr	$37,826,352

Accelerated RTM / Virtual Payment		**Accelerated RTM / Virtual DAM Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +2 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (day	32
Portion of 365-year	7.945%	Portion of 365-year	8.767%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	1.1178%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$5,170,173	Benefit Acc Rec, $MM/yr	$8,092,872

Accelerated ICAP Payment		**Accelerated ICAP Receipt**	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +2 days	New Daily settle avg rec't	Energy +1 day
Payment cycle would be shorter by (days)	32	Receipt cycle shorter by (day	29
Portion of 365-year	8.767%	Portion of 365-year	7.945%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7890%	Benefit Acc Rec, annual rate	1.0130%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$490	Benefit Acc Rec, $/MW-yr	$629
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$17,100,000	Ben Acc ICAP Rec, $MM/yea	$22,000,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO D2 - HIGH

NYISO

		Describe Change	One-Time Costs: Staff	One-Time Costs: Software	One-Time Costs: Consultant	Incremental Annual Costs: Staff	Incremental Annual Costs: Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice								
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice						$0		
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$110,000	$430,000	$310,000	$180,000	$13,920	$850,000	$217,320	$337,500

Market Participants

		Describe Change	One-Time Costs: Equipment, Software & Install	Incremental Annual Costs: Staff	Incremental Annual Costs: Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$2,323,828		$2,323,828	$3,389,864
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$21,598,656		$21,598,656	$33,098,904
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$4,456,572		$4,456,572	$7,081,444
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$15,000,000		$15,000,000	$19,000,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$30,645,925	$5,062,500	$46,450,741	$30,645,925	$51,513,241	$62,570,212

Scenario D2 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily with 5 day lag
RT	Daily with 5 day lag
Virtual	Daily with 5 day lag
ICAP	Daily with 5 day lag
TCC	Daily with 5 day lag
NYISO Receipts 5 day after energy flow	
NYISO payments 6 days after energy flow	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +5 days	New Daily settle avg rec't	Energy +6 days
Payment cycle would be shorter by (days)	25	Receipt cycle shorter by (day	28
Portion of 365-year	6.849%	Portion of 365-year	7.671%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.6164%	Benefit Acc Rec, annual rate	0.6904%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$2,323,828	Benefit Acc Rec, $MM/yr	$3,389,864

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +5 days	New Daily settle avg rec't	Energy +6 days
Payment cycle would be shorter by (days)	25	Receipt cycle shorter by (day	28
Portion of 365-year	6.849%	Portion of 365-year	7.671%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.6164%	Benefit Acc Rec, annual rate	0.9781%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$21,598,656	Benefit Acc Rec, $MM/yr	$33,098,904

Accelerated RTM / Virtual Payment		Accelerated RTM / Virtual DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +5 days	New Daily settle avg rec't	Energy +6 days
Payment cycle would be shorter by (days)	25	Receipt cycle shorter by (day	28
Portion of 365-year	6.849%	Portion of 365-year	7.671%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.6164%	Benefit Acc Rec, annual rate	0.9781%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$4,456,572	Benefit Acc Rec, $MM/yr	$7,081,444

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +6 days	New Daily settle avg rec't	Energy +5 days
Payment cycle would be shorter by (days)	28	Receipt cycle shorter by (day	25
Portion of 365-year	7.671%	Portion of 365-year	6.849%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.6904%	Benefit Acc Rec, annual rate	0.8733%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$429	Benefit Acc Rec, $/MW-yr	$542
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$15,000,000	Ben Acc ICAP Rec, $MM/yea	$19,000,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO D3 - HIGH

NYISO

		Describe Change	One-Time Costs			Incremental Annual Costs				
			Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,939,122	$430,000	$310,000	$180,000	$13,920	$3,679,122	$217,320	$337,500

Market Participants

		Describe Change	One-Time Costs	Incremental Annual Costs				
			Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
	Receive Meter Data							
	Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$25,057,104		$25,057,104	$34,279,920
	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$30,645,925	$5,062,500	$28,128,789	$30,645,925	$33,191,289	$34,279,920

Scenario D3 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$8
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily
RTM	Daily
Virtual	Daily
ICAP	Daily
TCC	Daily
NYISO Receipts 1 day after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +5 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (day	29
Portion of 365-year	7.945%	Portion of 365-year	7.945%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	1.0130%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$25,057,104	Benefit Acc Rec, $MM/yr	$34,279,920

Accelerated RTM / Virtual Payment		Accelerated RTM / Virtual DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/yea	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO D4 - HIGH

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice								
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,939,122	$430,000	$310,000	$180,000	$13,920	$3,679,122	$217,320	$337,500

Market Participants

			One-Time Costs	Incremental Annual Costs				
		Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$19,871,184		$19,871,184	$27,187,056
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$30,645,925	$5,062,500	$22,942,869	$30,645,925	$28,005,369	$27,187,056

Scenario D4 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily, 7 day lag
RTM	Daily, 7 day lag
Virtual	Daily, 7 day lag
ICAP	Daily, 7 day lag
TCC	Daily, 7 day lag
NYISO Receipts 7 days after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +7 day	New Daily settle avg rec't	Energy +11 days
Payment cycle would be shorter by (days)	23	Receipt cycle shorter by (day	23
Portion of 365-year	6.301%	Portion of 365-year	6.301%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.5671%	Benefit Acc Rec, annual rate	0.8034%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$19,871,184	Benefit Acc Rec, $MM/yr	$27,187,056

Accelerated RTM / Virtual Payment		Accelerated RTM / Virtual DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/yea	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W1 - HIGH

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice								
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice						$0		
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$110,000	$430,000	$310,000	$180,000	$13,920	$850,000	$217,320	$337,500

Market Participants

			One-Time Costs	Incremental Annual Costs				
		Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$1,812,616		$1,812,616	$2,360,728
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$16,847,232		$16,847,232	$23,051,808
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$3,476,184		$3,476,184	$4,931,888
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$10,400,000		$10,400,000	$14,800,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$30,645,925	$5,062,500	$35,607,717	$30,645,925	$40,670,217	$45,144,424

Scenario W1 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	**Weekly, 1 week lag**
RTM	**Weekly, 1 week lag**
Virtual	**Weekly, 1 week lag**
ICAP	**Weekly, 1 week lag**
TCC	**Weekly, 1 week lag**
NYISO Receipts 1 week after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		**Accelerated TCC Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 day
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.4808%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$1,812,616	Benefit Acc Rec, $MM/yr	$2,360,728

Accelerated DAM Payment		**Accelerated DAM Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 day
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$16,847,232	Benefit Acc Rec, $MM/yr	$23,051,808

Accelerated RTM / Virtual Payment		**Accelerated RTM / Virtual DAM Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 day
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$3,476,184	Benefit Acc Rec, $MM/yr	$4,931,888

Accelerated ICAP Payment		**Accelerated ICAP Receipt**	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +14.5 days	New Daily settle avg rec't	Energy +10.5 day
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$298	Benefit Acc Rec, $/MW-yr	$423
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$10,400,000	Ben Acc ICAP Rec, $MM/yea	$14,800,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W2 - HIGH

NYISO

		Describe Change	One-Time Costs			Incremental Annual Costs				
			Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,939,122	$430,000	$310,000	$180,000	$13,920	$3,679,122	$217,320	$337,500

Market Participants

Describe Change	One-Time Costs	Incremental Annual Costs				
	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Cost of Capital for accelerated TCC payment			$0		$0	$0
Cost of Capital for accelerated DAM payment			$16,847,232		$16,847,232	$23,051,808
Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
Cost of Capital for accelerated ICAP payment			$0		$0	$0
Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
Total	$30,645,925	$5,062,500	$19,918,917	$30,645,925	$24,981,417	$23,051,808

Scenario W2 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Weekly, 1 week lag
RTM	Weekly, 1 week lag
Virtual	Weekly, 1 week lag
ICAP	Weekly, 1 week lag
TCC	Weekly, 1 week lag
NYISO Receipts avg 10.5 days after energy	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy + 10.5 days	New Daily settle avg rec't	Energy + 14.5 day
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$16,847,232	Benefit Acc Rec, $MM/yr	$23,051,808

Accelerated RTM / Virtual Payment		Accelerated RTM / Virtual DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/yea	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W3 - HIGH

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice						$0		
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice								
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$110,000	$430,000	$310,000	$180,000	$13,920	$850,000	$217,320	$337,500

Market Participants

			One-Time Costs	Incremental Annual Costs				
		Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$1,487,265		$1,487,265	$1,936,995
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$13,823,280		$13,823,280	$18,913,176
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$2,852,235		$2,852,235	$4,046,436
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$8,600,000		$8,600,000	$12,100,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$30,645,925	$5,062,500	$29,834,465	$30,645,925	$34,896,965	$36,996,607

Scenario W3 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Twice per month, 7 day lag
RTM	Twice per month, 7 day lag
Virtual	Twice per month, 7 day lag
ICAP	Twice per month, 7 day lag
TCC	Twice per month, 7 day lag
NYISO Receipts avg 14 days after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.3945%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$1,487,265	Benefit Acc Rec, $MM/yr	$1,936,995

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$13,823,280	Benefit Acc Rec, $MM/yr	$18,913,176

Accelerated RTM / Virtual Payment		Accelerated RTM / Virtual DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$2,852,235	Benefit Acc Rec, $MM/yr	$4,046,436

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +18 days	New Daily settle avg rec't	Energy +14 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$245	Benefit Acc Rec, $/MW-yr	$347
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$8,600,000	Ben Acc ICAP Rec, $MM/yea	$12,100,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W4 - HIGH

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	**Staff**	**Software**	**Consultant**	**Staff**	**Expenses**	**Total One-Time Costs**	**Total Annual Cost**	**Annual Benefit**
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software	$60,000	$130,000	$60,000			$250,000	$23,400	$337,500
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice								
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,939,122	$430,000	$310,000	$180,000	$13,920	$3,679,122	$217,320	$337,500

Market Participants

		One-Time Costs	Incremental Annual Costs				
	Describe Change	**Equipment, Software & Install**	**Staff**	**Expenses**	**Total One-Time Costs**	**Total Annual Cost**	**Annual Benefit**
Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I	$28,245,925		$3,056,805	$28,245,925	$3,056,805	
Receive Meter Data							
Settle Load	Purchase and Install new load profiling software	$2,400,000			$2,400,000		
Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$13,823,280		$13,823,280	$18,913,176
Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
	Total	$30,645,925	$5,062,500	$16,894,965	$30,645,925	$21,957,465	$18,913,176

Scenario W4 - High

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Twice per month, 7 day lag
RTM	Twice per month, 7 day lag
Virtual	Twice per month, 7 day lag
ICAP	Twice per month, 7 day lag
TCC	Twice per month, 7 day lag
NYISO Receipts avg 14 days after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$13,823,280	Benefit Acc Rec, $MM/yr	$18,913,176

Accelerated RTM / Virtual Payment		Accelerated RTM / Virtual DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (day	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/yea	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

Cost Benefit Analysis – Summary Low Case

Ref.	Settlement Scenario Description	NYISO One Time Costs	NYISO Annual Benefits	Market Participants One Time Costs	Market Participants Annual Benefits	Total One Time Costs	Total Annual Benefits	5 Year NPV
D1	DAM and RTM settled daily	$600,000	($193,920)	$0	$16,692,630	$600,000	$16,498,710	$48,487,338
D2	DAM and RTM settled daily with a 5 day lag	$600,000	($193,920)	$0	$14,113,776	$600,000	$13,919,856	$40,822,417
D3	DAM settled daily and RTM settled monthly	$3,429,122	($193,920)	$0	$4,145,436	$3,429,122	$3,951,516	$8,598,791
D4	DAM settled daily with a 7 days lag & RTM settled monthly	$3,429,122	($193,920)	$0	$2,238,492	$3,429,122	$2,044,572	$2,930,934
W1	DAM & RTM settled weekly	$600,000	($193,920)	$0	$7,531,012	$600,000	$7,337,092	$21,256,993
W2	DAM settled weekly and RTM settled monthly	$3,429,122	($193,920)	$0	$1,127,196	$3,429,122	$933,276	($372,082)
W3	DAM and RTM settled twice per month	$600,000	($193,920)	$0	$5,156,447	$600,000	$4,962,527	$14,199,264
W4	DAM settled twice per month and RTM settled monthly	$3,429,122	($193,920)	$0	$12,516	$3,429,122	($181,404)	($3,685,156)

SCENARIO D1 - LOW

NYISO

Category	Activity	Describe Change	One-Time Costs: Staff	One-Time Costs: Software	One-Time Costs: Consultant	Incremental Annual Costs: Staff	Incremental Annual Costs: Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software								
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice						$0		
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice								
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$50,000	$300,000	$250,000	$180,000	$13,920	$600,000	$193,920	$0

Market Participants

Category	Activity	Describe Change	One-Time Costs: Equipment, Software & Install	Incremental Annual Costs: Staff	Incremental Annual Costs: Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software				$0		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$2,695,927		$2,695,927	$3,873,990
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$25,057,104		$25,057,104	$37,826,352
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$5,170,173		$5,170,173	$8,092,872
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$17,100,000		$17,100,000	$22,000,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$0	$5,062,500	$50,038,084	$0	$55,100,584	$71,793,214

Scenario D1 - Low

Assumptions	
NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$8
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily
RT	Daily
Virtual	Daily
ICAP	Daily
TCC	Daily
NYISO Receipts 1 day after energy flow	
NYISO payments 2 days after energy flow	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +2 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (da	32
Portion of 365-year	7.945%	Portion of 365-year	8.767%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	0.7890%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$2,695,927	Benefit Acc Rec, $MM/yr	$3,873,990

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +2 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (da	32
Portion of 365-year	7.945%	Portion of 365-year	8.767%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	1.1178%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$25,057,104	Benefit Acc Rec, $MM/yr	$37,826,352

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +2 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (da	32
Portion of 365-year	7.945%	Portion of 365-year	8.767%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	1.1178%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$5,170,173	Benefit Acc Rec, $MM/yr	$8,092,872

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +2 days	New Daily settle avg rec't	Energy +1 day
Payment cycle would be shorter by (days)	32	Receipt cycle shorter by (da	29
Portion of 365-year	8.767%	Portion of 365-year	7.945%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7890%	Benefit Acc Rec, annual rate	1.0130%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$490	Benefit Acc Rec, $/MW-yr	$629
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$17,100,000	Ben Acc ICAP Rec, $MM/ye	$22,000,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO D2 - LOW

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software								
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice								
	Prepare DAM Invoice	Prepare Daily Invoice						$0		
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$50,000	$300,000	$250,000	$180,000	$13,920	$600,000	$193,920	$0

Market Participants

			One-Time Costs	Incremental Annual Costs				
		Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
	Receive Meter Data							
	Settle Load	Purchase and Install new load profiling software				$0		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$2,323,828		$2,323,828	$3,389,864
	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$21,598,656		$21,598,656	$33,098,904
	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$4,456,572		$4,456,572	$7,081,444
	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$15,000,000		$15,000,000	$19,000,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$0	$5,062,500	$43,393,936	$0	$48,456,436	$62,570,212

Scenario D2 - Low

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily with 5 day lag
RT	Daily with 5 day lag
Virtual	Daily with 5 day lag
ICAP	Daily with 5 day lag
TCC	Daily with 5 day lag
NYISO Receipts 5 day after energy flow	
NYISO payments 6 days after energy flow	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +5 day	New Daily settle avg rec't	Energy +6 days
Payment cycle would be shorter by (days)	25	Receipt cycle shorter by (da	28
Portion of 365-year	6.849%	Portion of 365-year	7.671%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.6164%	Benefit Acc Rec, annual rate	0.6904%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$2,323,828	Benefit Acc Rec, $MM/yr	$3,389,864

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +5 day	New Daily settle avg rec't	Energy +6 days
Payment cycle would be shorter by (days)	25	Receipt cycle shorter by (da	28
Portion of 365-year	6.849%	Portion of 365-year	7.671%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.6164%	Benefit Acc Rec, annual rate	0.9781%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$21,598,656	Benefit Acc Rec, $MM/yr	$33,098,904

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +5 day	New Daily settle avg rec't	Energy +6 days
Payment cycle would be shorter by (days)	25	Receipt cycle shorter by (da	28
Portion of 365-year	6.849%	Portion of 365-year	7.671%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.6164%	Benefit Acc Rec, annual rate	0.9781%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$4,456,572	Benefit Acc Rec, $MM/yr	$7,081,444

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +6 days	New Daily settle avg rec't	Energy +5 day
Payment cycle would be shorter by (days)	28	Receipt cycle shorter by (da	25
Portion of 365-year	7.671%	Portion of 365-year	6.849%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.6904%	Benefit Acc Rec, annual rate	0.8733%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$429	Benefit Acc Rec, $/MW-yr	$542
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$15,000,000	Ben Acc ICAP Rec, $MM/ye	$19,000,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO D3 - LOW

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software						$0		
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,879,122	$300,000	$250,000	$180,000	$13,920	$3,429,122	$193,920	$0

Market Participants

			One-Time Costs	Incremental Annual Costs				
		Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
	Receive Meter Data							
	Settle Load	Purchase and Install new load profiling software				$0		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$25,057,104		$25,057,104	$34,279,920
	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$0	$5,062,500	$25,071,984	$0	$30,134,484	$34,279,920

Scenario D3 - Low

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily
RTM	Monthly
Virtual	Monthly
ICAP	Monthly
TCC	Monthly
NYISO Receipts 1 day after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +1 day	New Daily settle avg rec't	Energy +5 days
Payment cycle would be shorter by (days)	29	Receipt cycle shorter by (da	29
Portion of 365-year	7.945%	Portion of 365-year	7.945%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.7151%	Benefit Acc Rec, annual rate	1.0130%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$25,057,104	Benefit Acc Rec, $MM/yr	$34,279,920

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/ye	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO D4 - LOW

NYISO

		Describe Change	One-Time Costs: Staff	One-Time Costs: Software	One-Time Costs: Consultant	Incremental Annual Costs: Staff	Incremental Annual Costs: Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software						$0		
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,879,122	$300,000	$250,000	$180,000	$13,920	$3,429,122	$193,920	$0

Market Participants

		Describe Change	One-Time Costs: Equipment, Software & Install	Incremental Annual Costs: Staff	Incremental Annual Costs: Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
	Receive Meter Data							
	Settle Load	Purchase and Install new load profiling software				$0		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$19,871,184		$19,871,184	$27,187,056
	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$0	$5,062,500	$19,886,064	$0	$24,948,564	$27,187,056

Scenario D4 - Low

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Daily, 7 day lag
RTM	Monthly
Virtual	Monthly
ICAP	Monthly
TCC	Monthly
NYISO Receipts 7 days after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +7 day	New Daily settle avg rec't	Energy +11 days
Payment cycle would be shorter by (days)	23	Receipt cycle shorter by (da	23
Portion of 365-year	6.301%	Portion of 365-year	6.301%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.5671%	Benefit Acc Rec, annual rate	0.8034%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$19,871,184	Benefit Acc Rec, $MM/yr	$27,187,056

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/ye	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W1 - LOW

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software						$0		
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice						$0		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$50,000	$300,000	$250,000	$180,000	$13,920	$600,000	$193,920	$0

Market Participants

	One-Time Costs	Incremental Annual Costs				
Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
Purchase and Install new load profiling software				$0		
Cost of Capital for accelerated TCC payment			$1,812,616		$1,812,616	$2,360,728
Cost of Capital for accelerated DAM payment			$16,847,232		$16,847,232	$23,051,808
Cost of Capital for accelerated RTM/Virtual payment			$3,476,184		$3,476,184	$4,931,888
Cost of Capital for accelerated ICAP payment			$10,400,000		$10,400,000	$14,800,000
Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
Total	$0	$5,062,500	$32,550,912	$0	$37,613,412	$45,144,424

Scenario W1 - Low

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$8
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Weekly, 1 week lag
RTM	Weekly, 1 week lag
Virtual	Weekly, 1 week lag
ICAP	Weekly, 1 week lag
TCC	Weekly, 1 week lag
NYISO Receipts 1 week after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 days
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.4808%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$1,812,616	Benefit Acc Rec, $MM/yr	$2,360,728

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 days
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$16,847,232	Benefit Acc Rec, $MM/yr	$23,051,808

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 days
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$3,476,184	Benefit Acc Rec, $MM/yr	$4,931,888

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +14.5 days	New Daily settle avg rec't	Energy +10.5 days
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (day	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$298	Benefit Acc Rec, $/MW-yr	$423
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$10,400,000	Ben Acc ICAP Rec, $MM/ye	$14,800,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W2 - LOW

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software						$0		
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$87,500	$6,120		$73,620	
		Total	$2,879,122	$300,000	$250,000	$180,000	$13,920	$3,429,122	$193,920	$0

Market Participants

	Describe Change	One-Time Costs: Equipment, Software & Install	Incremental Annual Costs: Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
Receive Meter Data							
Settle Load	Purchase and Install new load profiling software				$0		
Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$16,847,232		$16,847,232	$23,051,808
Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
	Total	$0	$5,062,500	$16,862,112	$0	$21,924,612	$23,051,808

Scenario W2 - Low

Assumptions	
NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Weekly, 1 week lag
RTM	Monthly
Virtual	Monthly
ICAP	Monthly
TCC	Monthly
NYISO Receipts avg 10.5 days after energy	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +10.5 days	New Daily settle avg rec't	Energy +14.5 days
Payment cycle would be shorter by (days)	19.5	Receipt cycle shorter by (da	19.5
Portion of 365-year	5.342%	Portion of 365-year	5.342%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.4808%	Benefit Acc Rec, annual rate	0.6812%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$16,847,232	Benefit Acc Rec, $MM/yr	$23,051,808

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/ye	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W3 - LOW

NYISO

		Describe Change	One-Time Costs			Incremental Annual Costs				
			Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
Metering	Receive Meter Data	Install meter data management software						$0		
Metering	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice						$0		
Invoicing	Prepare DAM Invoice	Prepare Daily Invoice								
Invoicing	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
Invoicing	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$50,000	$300,000	$250,000	$180,000	$13,920	$600,000	$193,920	$0

Market Participants

		Describe Change	One-Time Costs	Incremental Annual Costs				
			Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
Metering	Receive Meter Data							
Metering	Settle Load	Purchase and Install new load profiling software				$0		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$1,487,265		$1,487,265	$1,936,995
Invoicing	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$13,823,280		$13,823,280	$18,913,176
Invoicing	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$2,852,235		$2,852,235	$4,046,436
Invoicing	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$8,600,000		$8,600,000	$12,100,000
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
Payment	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$0	$5,062,500	$26,777,680	$0	$31,840,160	$36,996,607

Scenario W3 - Low

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	**Twice per month, 7 day lag**
RTM	**Twice per month, 7 day lag**
Virtual	**Twice per month, 7 day lag**
ICAP	**Twice per month, 7 day lag**
TCC	**Twice per month, 7 day lag**
NYISO Receipts avg 14 days after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		**Accelerated TCC Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.3945%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$1,487,265	Benefit Acc Rec, $MM/yr	$1,936,995

Accelerated DAM Payment		**Accelerated DAM Receipt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$13,823,280	Benefit Acc Rec, $MM/yr	$18,913,176

Accelerated RTM / Virtual Payment		**Accel RTM / Virtual DAM Rcpt**	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$2,852,235	Benefit Acc Rec, $MM/yr	$4,046,436

Accelerated ICAP Payment		**Accelerated ICAP Receipt**	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +18 days	New Daily settle avg rec't	Energy +14 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (day	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$245	Benefit Acc Rec, $/MW-yr	$347
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$8,600,000	Ben Acc ICAP Rec, $MM/ye	$12,100,000

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	**MW**	**$/MW-6 mth**	**$000**
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

SCENARIO W4 - LOW

NYISO

			One-Time Costs			Incremental Annual Costs				
		Describe Change	Staff	Software	Consultant	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter									
	Receive Meter Data	Install meter data management software						$0		
	Settle Load	Purcahase and install new load profiling software	$50,000	$300,000	$250,000			$600,000		
Invoicing	Prepare and Issue TCC Invoice	Prepare Daily Invoice	$2,829,122					$2,829,122		
	Prepare DAM Invoice	Prepare Daily Invoice								
	Prepare RTM / Virtual Invoice	Prepare Daily Invoice								
	Prepare ICAP Invoice	Prepare Daily Invoice								
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses				$112,500	$7,800		$120,300	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses				$67,500	$6,120		$73,620	
		Total	$2,879,122	$300,000	$250,000	$180,000	$13,920	$3,429,122	$193,920	$0

Market Participants

			One-Time Costs	Incremental Annual Costs				
		Describe Change	Equipment, Software & Install	Staff	Expenses	Total One-Time Costs	Total Annual Cost	Annual Benefit
Metering	Read Meter	Upgrade meter and telemetry for gen, tie-lines and large C&I				$0	$0	
	Receive Meter Data							
	Settle Load	Purchase and Install new load profiling software				$0		
Invoicing	Prepare and Issue TCC Invoice	Cost of Capital for accelerated TCC payment			$0		$0	$0
	Prepare DAM Invoice	Cost of Capital for accelerated DAM payment			$13,823,280		$13,823,280	$18,913,176
	Prepare RTM / Virtual Invoice	Cost of Capital for accelerated RTM/Virtual payment			$0		$0	$0
	Prepare ICAP Invoice	Cost of Capital for accelerated ICAP payment			$0		$0	$0
Payment	Process NYISO Receivables	Process Daily receipts, staff and EFT expenses		$2,193,750	$4,680		$2,198,430	
	Process NYISO Payables	Process Daily payments, staff and EFT expenses		$2,868,750	$10,200		$2,878,950	
		Total	$0	$5,062,500	$13,838,160	$0	$18,900,660	$18,913,176

Scenario W4 - Low

Assumptions

NYISO FTE Employee Salary (Mary M.)	$75,000
NYISO Employee Overhead (Mary M.)	50%
NYISO Load FTE Salary	$112,500
Electronic Funds Transfer (EFT) $ / transaction incoming (Chris F.)	$10
Electronic Funds Transfer (EFT) $ / transaction outgoing (Chris F.)	$6
Average Number Customers paying NYISO per month (Mary M.)	65
Average Number Customer with Payments from NYISO per month (Mary M.)	85
FTE Employee Salary (Mike M)	$75,000
Employee Overhead (Mike M.)	50%
Load FTE Salary	$112,500

Market	Settlement Schedule
DAM	Twice per month, 7 day lag
RTM	Monthly
Virtual	Monthly
ICAP	Monthly
TCC	Monthly
NYISO Receipts avg 14 days after energy flow	
NYISO payments 4 days after receipts	

Assumptions

Accelerated TCC Payment		Accelerated TCC Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for TCC Purchasers (Load)	9.000%	CoC TCC Sellers (TOs)	9.000%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
TCC Annual Revenue, $MM	$377,000,000	TCC Annual Rev, $MM	$491,000,000
Cost of Accelerated Payment for TCC, $/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated DAM Payment		Accelerated DAM Receipt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +14 days	New Daily settle avg rec't	Energy +18 days
Payment cycle would be shorter by (days)	16	Receipt cycle shorter by (da	16
Portion of 365-year	4.384%	Portion of 365-year	4.384%
Estimated Wtd Cost of Capital for DAM Purchasers (Load)	9.000%	CoC DAM Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.3945%	Benefit Acc Rec, annual rate	0.5589%
DAM LBMP Annual Revenue, $MM	$3,504,000,000	TCC Annual Rev, $MM	$3,384,000,000
Cost of Accelerated Payment for DAM, $MM/year	$13,823,280	Benefit Acc Rec, $MM/yr	$18,913,176

Accelerated RTM / Virtual Payment		Accel RTM / Virtual DAM Rcpt	
Present average payment	Energy +30 days	Present avg receipt	Energy +34 days
New Daily settlement average payment	Energy +30 days	New Daily settle avg rec't	Energy +34 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for RTM / Virtual Purchasers (Load)	9.000%	CoC RT/V Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
RTM / Virtual Annual Revenue, $MM	$723,000,000	RT/V Annual Rev, $MM	$724,000,000
Cost of Accelerated Payment for RTM / Virtual, $MM/year	$0	Benefit Acc Rec, $MM/yr	$0

Accelerated ICAP Payment		Accelerated ICAP Receipt	
Present average payment	Energy +34 days	Present avg receipt	Energy +30 days
New Daily settlement average payment	Energy +34 days	New Daily settle avg rec't	Energy +30 days
Payment cycle would be shorter by (days)	0	Receipt cycle shorter by (da	0
Portion of 365-year	0.000%	Portion of 365-year	0.000%
Estimated Wtd Cost of Capital for ICAP Purchasers (Load)	9.000%	CoC ICAP Sellers (Gen)	12.750%
Cost of Accelerated Payment, annual rate	0.0000%	Benefit Acc Rec, annual rate	0.0000%
$/MW-Annual ICAP Cost	$62,077	$/MW-Annual ICAP Rev	$62,077
Cost of Accelerated Payment for ICAP, $/MW-year	$0	Benefit Acc Rec, $/MW-yr	$0
NYCA ICAP Requirement	35,000	NYCA ICAP Requirement	35,000
Cost of Accelerated Payment for ICAP, $MM/year	$0	Ben Acc ICAP Rec, $MM/ye	$0

Strip Summer 2003	MW	$/MW-6 mth	$000
NYC	2,502	$67.32	168,435
LI	7	56.46	395
ROS	2,889	10.00	28,890
$/MW-Summer 6 months	5,398	$36.63	197,720
Strip Winter 2002/2003	MW	$/MW-6 mth	$000
NYC	4,540	$42.00	190,680
LI	-	6.00	-
ROS	3,487	3.90	13,599
$/MW-Winter 6 months	8,027	$25.45	204,279
$/MW-Annual ICAP Cost		$62.08	

Appendix D – True-Up Scenario Analysis

Likelihood of Generator Default

The likelihood of generator default was determined by applying the estimated 2002 payments to generators, ranked by Moody's credit rating for each generator, to the risk of default for each credit rating. Table D.1 shows the data and calculations.

Table D.1 – Generator Default Estimates

MWh Ranked by Senior Unsecured Debt of Generator	Detailed	Summary	1 month	4 months	12 months
Aa2	20.5%	20.5%	0.0%	0.0%	0.0%
A1	1.1%				
A2	0.8%				
A3	16.6%	18.4%	0.1%	0.3%	1.0%
Baa1	9.8%				
Baa2	14.0%				
Baa3	4.0%	27.8%	0.1%	0.5%	1.5%
Ba2	0.4%				
Ba3	8.4%	8.7%	0.1%	0.4%	1.1%
B1	0.8%				
B3	4.4%	5.2%	0.6%	2.4%	7.1%
Caa2	2.8%	2.8%	3.7%	13.9%	36.3%
D	11.2%	11.2%	3.7%	13.9%	36.3%
Unaccounted (use average)	5.3%	5.3%	1.2%	4.5%	11.9%
Weighted Cumulative Risk of Default	**100.0%**	**100.0%**	**0.7%**	**2.5%**	**6.8%**

The two left columns of Table D.1 show the percentage of MWh generated during the Top 5 hours of 2002, ranked by Moody's Credit Rating for the generator company, and the next column groups the detailed data into subtotals. For example, issuers rated A1, A2 or A3 provided 18.4 percent of the MWh generated during the Top 5 hours of 2002. The right column of Table D.1 is the one-year risk of default for each credit score, obtained from Moody's as an average of 1994-2002. The data are dollar weighted. For example, of the issue rated A1, A2 or A3 on each January 1 of 1994-2002, 1.0 percent defaulted during the following January 1-December 31.

To obtain the risk of default for 1 month and 4 months, it was assumed that the risk accumulates at a constant compound rate over the course of a year, similar to the way interest compounds. For issues rated D, the default rate for C-rated issuers was used. The weighted cumulative risk of default shown at the bottom of Table D.1 is the result of multiplying the percent of generation for each summary credit rating, by the cumulative risk of default. The results mean, for example, that in the 12 months following an energy transaction, there is a 6.8 percent chance that the generator on that transaction will have defaulted on a bond issue.

Results

Table D.2 and D.3 show the results of this analysis, assuming that the cumulative total value of Settlement Adjustments is the same if the Settlement Adjustment period is shortened; i.e., all

Settlement Adjustments now made within 12 months, are still made if the period is shortened to 4 months or 1 month.

Table D.2 - Potential Reduction in Exposure

Category ($ millions)	Value
Cumulative Total Value of Settlement Adjustments remains the same	$115.0
Default Risk, 12 months	6.8%
$ Exposure, 12 months	$7.8
Cumulative Total Value of Settlement Adjustments, 4 months	$115.0
Default Risk, 4 months	2.5%
$ Exposure, 4 months	$2.9
Cumulative Total Value of Settlement Adjustments, 1 month	$115.0
Default Risk, 1 month	0.7%
$ Exposure, 1 month	$0.8
Reduction in $ Exposure- 12 months to 4 months	$4.9
Reduction in $ Exposure- 4 months to 1 month	$2.1
Reduction in $ Exposure- 12 months to 1 month	$7.0

Table D.2 – True-Up Process Default Exposure Reduction

Scenario	Default Exposure Reduction
Status Quo – 12 month Settlement Adjustment	$0
Reduce Settlement Adjustment from 12 months to 4 months	$4,900,000
Reduce Settlement Adjustment from 4 months to 1 month	$2,100,000
Reduce Settlement Adjustment from 12 months to 1 month	$7,000,000
Issue Daily bills and eliminate Settlement Adjustments	$7,800,000

There is a reduction in exposure of $4.9 million in shortening the Settlement Adjustment period from 12 months to 4 months, and an additional reduction of $2.1 million in shortening the Settlement Adjustment period from 4 months to 1 month, for a total reduction in exposure of $7.0 million.

The following assumptions were made; changing the assumptions will change the results:

- Future values will be the same as historical for Settlement Adjustment rates, percent of MWh credit rank and default rate by credit rank.
- Settlement Adjustments are random and the average is zero.
- Bond default rates approximate the risk of default in payments to NYISO.

- The ratio of MWhs supplied by credit rating during the top five peak hours approximates revenue by credit rating during those hours. The Top 5 hours method was used (instead of Total MWh) because prices during these hours are higher than average; this method is more conservative than the Total MWh method.

Reducing the Rebill period to 1 month would leave $0.8 million of default exposure. This default exposure could also be eliminated if the Daily Settlement billing also served as the final bill, and Settlement Adjustments by the NYISO were eliminated. NYISO Settlement Adjustments could be eliminated if accurate meter data were available from all generators, tie-lines and LSEs the day after energy flow, as proposed in a number of the Settlement Scenarios. In that case, NYISO could calculate an accurate bill, within days of the energy flow, with no need for Settlement Adjustments. Any further adjustments would be attributable to intra-zonal reallocation, which could be settled between MAs and LSEs, without involving the NYISO. If the NYISO could entirely eliminate Settlement Adjustments, the total benefit would be elimination of $7.8 million in default exposure.