

Congestion Impact Calculation Update

NYISO ESPWG
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10/18/04

Jim Mitsche



Congestion Reporting Notes

- All Results are Unmitigated Bids Basis
 - Allows Better Year-to-Year Comparison
 - Tends to Increase Congestion Impact Over Mitigated Bids
- Zonal Load Impact for External Zones
 - Accounting-Like Zonal Allocation will be Difficult and Likely Require More Data
 - Today's Reporting Format Developed with Jerry Ancona
- 2003
 - Recalculation Should be Done
 - An Improved TCC Data Set is in Preparation
 - Convert to Unmitigated Bid Basis
 - Adopt New Zonal Reporting Scheme



2004 Q1 – Q3 New York Congestion PRELIMINARY

All Calculations Are Constrained – Unconstrained Values

Table 1
2004 Congestion Impact Metrics

1.1 Bid Production Cost Impact (\$ Millions)
(Economic or Societal Impact)

+ Number Means Congestion Increased the Supply Production Cost

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
Total	\$19	\$5	\$3	\$2	\$5	\$6	\$7	\$9	\$6	\$63

1.2 Congestion Payments Impact (\$ Millions)
(Accounting Impact)

+ Number Means the Congestion Component of LMP Increased Due to Congestion

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
Total Congestion Payments	\$155	\$53	\$37	\$31	\$65	\$82	\$95	\$106	\$61	\$687
TCC Hedge	\$84	\$33	\$26	\$22	\$36	\$46	\$50	\$65	\$39	\$402
Total Unhedged Congestion Payments	\$71	\$20	\$11	\$9	\$29	\$36	\$45	\$42	\$22	\$285

1.3 Load Payments Impact (\$ Millions)
(Bills Impact)

+ Number Means Congestion Caused Load Payments to Pay More

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
Total Load Payments	\$67	\$27	\$24	\$13	\$28	\$39	\$28	\$51	\$29	\$306
Hedge	\$85	\$33	\$26	\$22	\$36	\$46	\$50	\$65	\$39	\$402
Total Unhedged Load Payments	-\$17	-\$6	-\$3	-\$9	-\$8	-\$7	-\$22	-\$14	-\$10	-\$96

1.4 Generation Payments Impact (\$ Millions)
(Payments Impact)

A Negative Number Means Congestion Decreased Payments to Generators

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
Total	-\$17	-\$6	-\$3	-\$9	-\$8	-\$7	-\$22	-\$14	-\$10	-\$96



2004 Q1 – Q3 New York Congestion PRELIMINARY

All Calculations Are Constrained –
Unconstrained Values

Societal Impact

The SCUC Minimization
Objective

2.1 Bid Production Cost Impact

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
WEST	-\$2	-\$1	\$0	-\$1	-\$1	-\$2	-\$1	-\$1	-\$1	-\$11
GENESE	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1
CENTRL	-\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1	-\$3
NORTH	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MHKVL	-\$7	-\$3	-\$3	-\$2	-\$1	-\$4	-\$9	-\$11	-\$7	-\$47
CAPITL	-\$2	-\$1	\$0	\$0	-\$2	-\$3	-\$5	-\$6	-\$2	-\$20
HUDVL	-\$3	-\$2	\$0	\$0	\$0	-\$1	-\$3	-\$2	-\$4	-\$15
MILLWD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
DUNWOD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
N.Y.C.	\$36	\$16	\$10	\$8	\$10	\$19	\$22	\$28	\$16	\$166
LONGIL	\$4	\$5	\$3	\$3	\$11	\$13	\$17	\$19	\$16	\$89
New York	\$26	\$13	\$9	\$7	\$16	\$23	\$21	\$24	\$16	\$157
NPX	\$0	-\$1	\$0	\$0	-\$1	-\$1	-\$2	-\$3	-\$2	-\$9
OH	-\$1	-\$1	-\$1	-\$1	-\$1	-\$1	-\$1	-\$2	\$0	-\$8
PJM	-\$7	-\$4	-\$3	-\$3	-\$4	-\$8	-\$8	-\$8	-\$5	-\$51
HQ	\$1	-\$3	-\$2	-\$1	-\$6	-\$6	-\$3	-\$3	-\$4	-\$26
Imports	-\$7	-\$8	-\$5	-\$5	-\$12	-\$17	-\$14	-\$15	-\$10	-\$94
Total	\$19	\$5	\$3	\$2	\$5	\$6	\$7	\$9	\$6	\$63

+ Number Means Congestion
Increases Supplier Production Cost



2004 Q1 – Q3 New York Unhedged Congestion Payments PRELIMINARY

All Calculations Are Constrained – Unconstrained Values

Accounting Impact

LMP, Congestion
Component Change ONLY

2.2 Congestion Payments Impact (\$ Millions)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
WEST	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1
GENESE	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CENTRL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1
NORTH	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MHKVL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CAPITL	\$1	\$0	\$0	\$0	\$1	\$0	\$1	\$1	\$0	\$4
HUDVL	\$2	\$0	\$0	-\$1	-\$1	-\$2	\$0	-\$1	-\$1	-\$4
MILLWD	\$0	\$0	\$0	-\$1	-\$1	-\$2	\$0	\$1	\$0	-\$5
DUNWOD	\$2	\$0	\$0	\$0	\$1	\$1	\$2	\$2	\$1	\$9
N.Y.C.	\$54	\$13	\$7	\$7	\$16	\$26	\$22	\$19	\$8	\$172
LONGIL	\$12	\$7	\$5	\$4	\$14	\$13	\$21	\$20	\$14	\$110
New York	\$70	\$20	\$11	\$9	\$29	\$36	\$45	\$42	\$22	\$284
NPX	\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1
OH	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PJM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
HQ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Imports	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1
Total	\$71	\$20	\$11	\$9	\$29	\$36	\$45	\$42	\$22	\$285

+ Number Means Congestion
Increases Load Cost



2004 Q1 – Q3 New York Unhedged Congestion Load Impact

All Calculations Are Constrained – Unconstrained Values

Bills Impact

Energy, Losses, &
Congestion Components
Change

2.3 Load Payments Impact (\$ Millions)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
WEST	-\$10	-\$4	-\$2	-\$3	-\$4	-\$5	-\$6	-\$6	-\$4	-\$43
GENESE	-\$8	-\$3	-\$3	-\$3	-\$4	-\$4	-\$6	-\$5	-\$3	-\$40
CENTRL	-\$8	-\$3	-\$2	-\$2	-\$3	-\$4	-\$5	-\$4	-\$3	-\$34
NORTH	-\$3	-\$1	-\$1	-\$1	-\$1	-\$1	-\$1	-\$1	-\$1	-\$11
MHKVL	-\$4	-\$1	-\$1	-\$1	-\$2	-\$2	-\$2	-\$2	-\$2	-\$17
CAPITL	-\$7	-\$3	-\$2	-\$2	-\$3	-\$3	-\$4	-\$4	-\$2	-\$30
HUDVL	-\$3	-\$2	-\$1	-\$2	-\$4	-\$4	-\$4	-\$4	-\$3	-\$26
MILLWD	-\$2	-\$1	-\$1	-\$1	-\$2	-\$4	-\$2	-\$1	-\$1	-\$16
DUNWOD	-\$1	-\$1	-\$1	-\$1	-\$2	-\$2	-\$2	-\$1	-\$1	-\$11
N.Y.C.	\$27	\$4	\$1	-\$1	\$1	\$11	-\$2	-\$2	-\$5	\$34
LONGIL	-\$1	\$2	\$2	\$0	\$7	\$6	\$10	\$9	\$7	\$42
New York	-\$20	-\$12	-\$11	-\$16	-\$18	-\$10	-\$26	-\$21	-\$17	-\$151
NPX	-\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1
OH	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PJM	\$0	\$0	\$0	\$0	\$1	\$2	\$2	\$1	\$0	\$7
HQ	-\$2	\$0	\$1	\$1	\$4	\$2	\$0	\$0	\$0	\$6
Exports	-\$3	\$0	\$1	\$1	\$5	\$3	\$3	\$2	\$0	\$12
Total	-\$23	-\$12	-\$10	-\$16	-\$13	-\$7	-\$23	-\$19	-\$17	-\$139
Schedule 1 Energy & Losses Residual	\$10	\$5	\$6	\$4	\$3	\$0	\$2	-\$1	\$1	\$29
Congestion Residual	-\$5	\$1	\$1	\$2	\$3	\$0	-\$1	\$6	\$6	\$14
Total	-\$17	-\$6	-\$3	-\$9	-\$8	-\$7	-\$22	-\$14	-\$10	-\$96

+ Number Means Congestion
Increases Load Payments



2004 Q1 – Q3 New York Unhedged Congestion Supply Impact PRELIMINARY

All Calculations Are Constrained – Unconstrained Values

Payments Impact

Energy, Losses, &
Congestion
Components Change

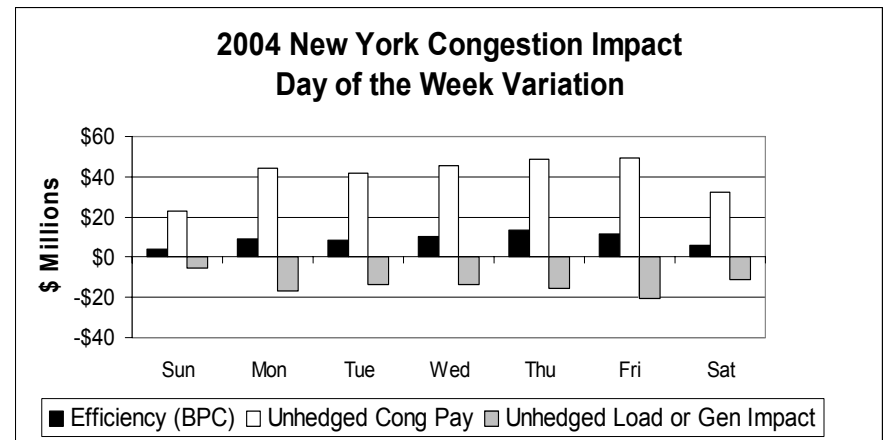
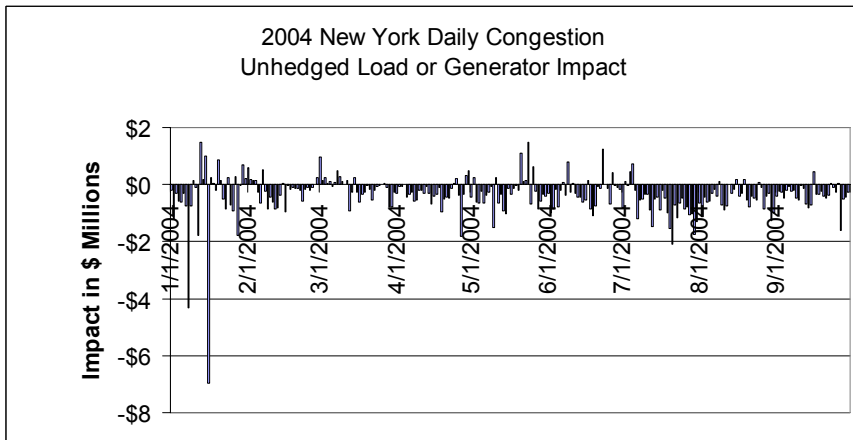
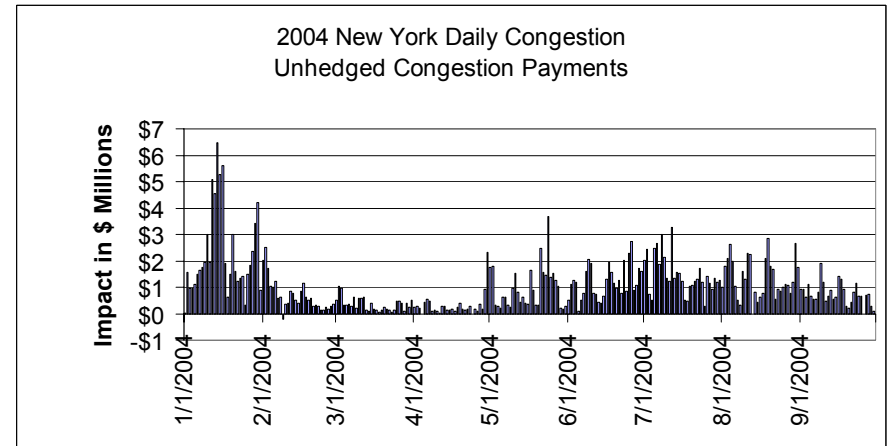
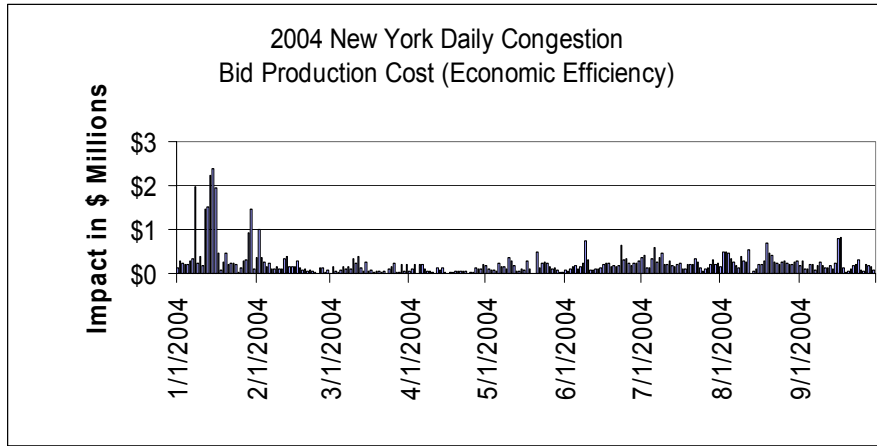
2.4 Generation Payments Impact (\$ Millions)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Q 1-3 Total
WEST	-\$15	-\$5	-\$3	-\$4	-\$8	-\$8	-\$11	-\$9	-\$6	-\$68
GENESE	-\$3	-\$1	\$0	-\$1	-\$1	-\$1	-\$2	-\$2	-\$2	-\$13
CENTRL	-\$23	-\$8	-\$5	-\$5	-\$8	-\$11	-\$19	-\$20	-\$13	-\$111
NORTH	-\$3	-\$1	-\$1	-\$1	-\$3	-\$2	-\$4	-\$3	-\$2	-\$22
MHKVL	-\$2	-\$1	\$0	\$0	-\$1	-\$1	-\$1	-\$1	-\$1	-\$9
CAPITL	-\$6	-\$2	\$0	-\$1	-\$4	-\$5	-\$7	-\$8	-\$5	-\$37
HUDVL	-\$14	-\$6	-\$2	-\$2	-\$3	-\$4	-\$9	-\$7	-\$7	-\$54
MILLWD	-\$8	-\$3	-\$2	-\$2	-\$3	-\$3	-\$3	-\$4	-\$2	-\$29
DUNWOD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1
N.Y.C.	\$66	\$22	\$12	\$9	\$14	\$27	\$26	\$32	\$18	\$225
LONGIL	\$6	\$8	\$6	\$5	\$18	\$16	\$24	\$27	\$23	\$133
New York	-\$2	\$3	\$3	-\$3	\$1	\$9	-\$5	\$6	\$3	\$14
NPX	\$0	-\$1	\$0	\$0	-\$1	-\$1	-\$2	-\$3	-\$2	-\$10
OH	-\$3	-\$1	-\$1	-\$2	-\$3	-\$3	-\$3	-\$4	-\$1	-\$20
PJM	-\$10	-\$5	-\$4	-\$3	-\$4	-\$8	-\$7	-\$8	-\$6	-\$56
HQ	-\$2	-\$3	-\$1	\$0	-\$1	-\$4	-\$5	-\$4	-\$5	-\$24
Imports	-\$16	-\$9	-\$6	-\$6	-\$8	-\$16	-\$17	-\$19	-\$13	-\$110
Total	-\$17	-\$6	-\$3	-\$9	-\$8	-\$7	-\$22	-\$14	-\$10	-\$96

+ Number Means Gen
Payments Went Up
Due to Congestion

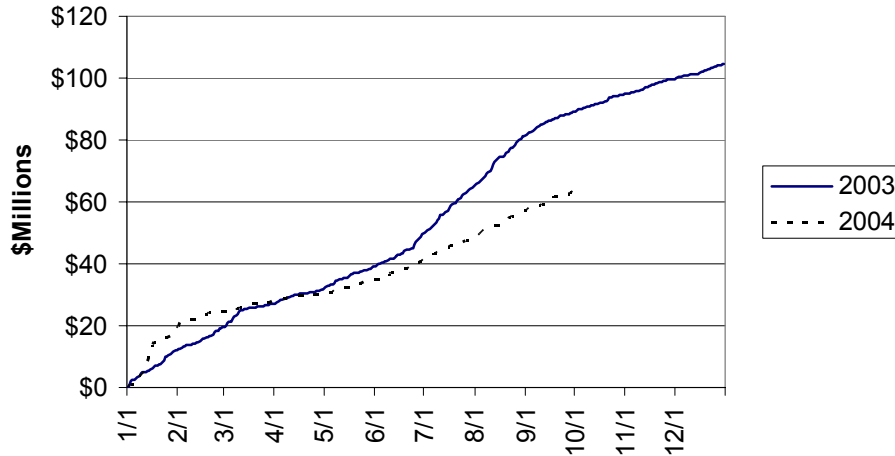


2004 Q1 – Q3 New York Congestion PRELIMINARY

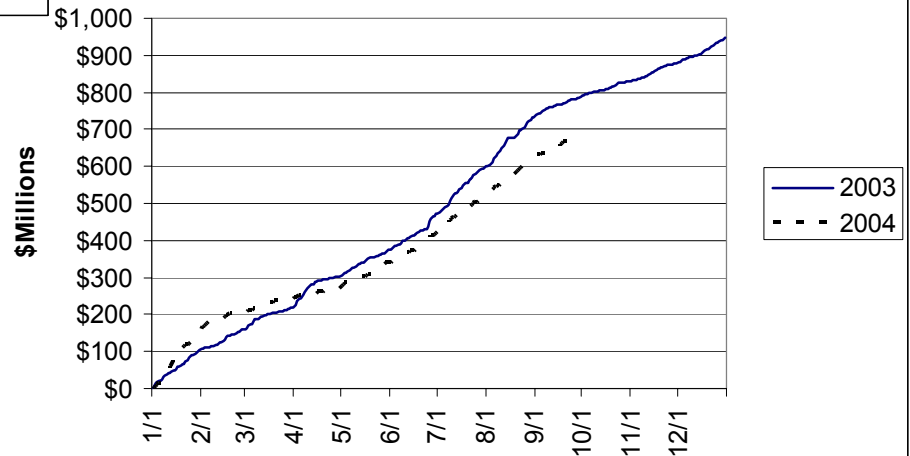


2003 and 2004 Cumulative Totals Preliminary

2003 and 2004 Cumulative Congestion Production Cost Impact (Economic Efficiency)

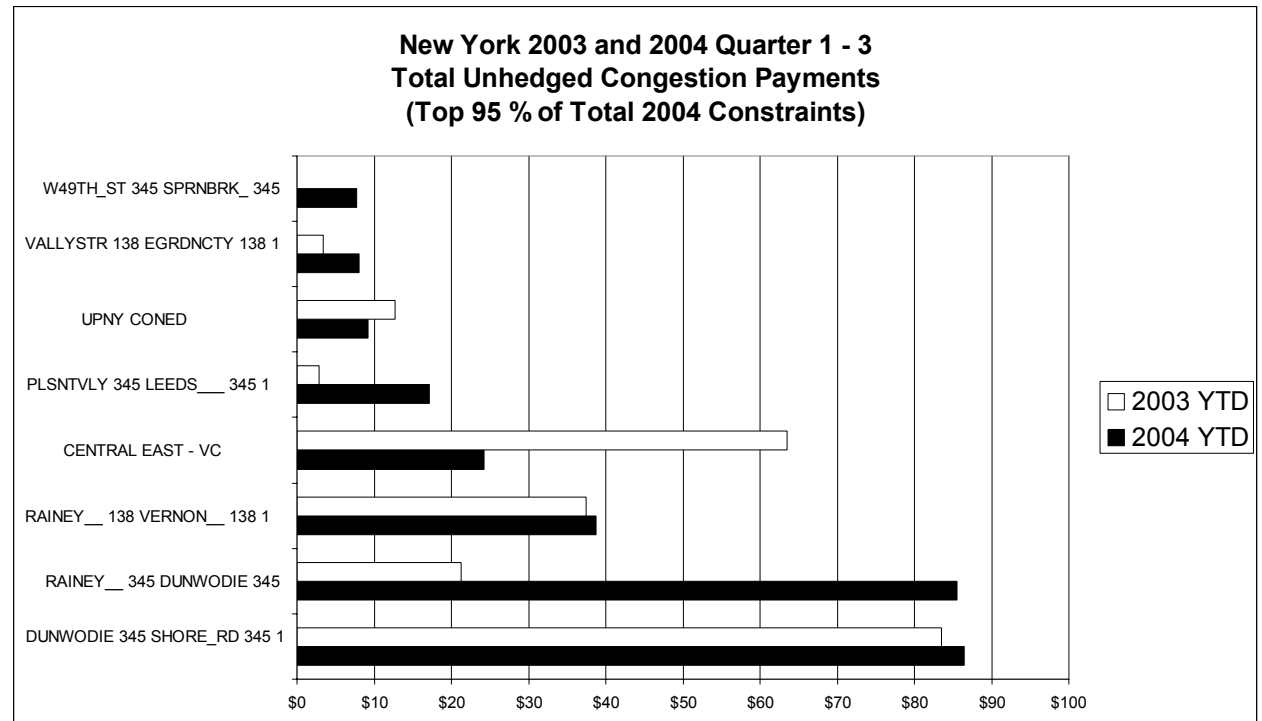


2003 and 2004 Cumulative Congestion Payments LMP Congestion Component Accounting Cost



2004 Q1 – Q3 New York Unhedged Congestion Load & Congestion Payments by Constraint (95% or more of Total)

Monitored Facility	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	2004 YTD	% of YTD	2004 Cum % of YTD	2003 YTD	2003 Cum % of YTD
DUNWODIE 345 SHORE_RD 345 1	\$11	\$6	\$3	\$1	\$6	\$10	\$18	\$20	\$11	\$86	30%	30%	\$83	34%
RAINEY_ 345 DUNWODIE 345	\$56	\$13	\$1	\$0	\$0	\$4	\$5	\$6	\$1	\$85	30%	60%	\$21	9%
RAINEY_ 138 VERNON_ 138 1	\$0	\$0	\$2	\$2	\$9	\$10	\$5	\$7	\$4	\$39	14%	74%	\$37	15%
CENTRAL EAST - VC	\$0	\$0	\$1	\$3	\$3	\$2	\$8	\$5	\$0	\$24	9%	82%	\$64	26%
PLSNTVLY 345 LEEDS_ 345 1	\$0	\$0	\$0	\$0	\$4	\$4	\$2	\$4	\$2	\$17	6%	88%	\$3	1%
UPNY CONED	\$0	\$0	\$0	\$0	\$0	\$1	\$6	\$1	\$2	\$9	3%	92%	\$13	5%
VALLYSTR 138 EGRDNCTY 138 1	\$1	\$1	\$0	\$0	\$1	\$1	\$2	\$1	\$1	\$8	3%	94%	\$3	1%
W49TH_ST 345 SPRNBRK_ 345	\$0	\$0	\$0	\$0	\$0	\$3	\$2	\$2	\$1	\$8	3%	97%	\$0	0%



Observations

- 2004 Congestion Impact Not Dramatically Different than 2003, but is Lower
- After a Congested January, Summer 2004 Congestion was Lower than 2003
- The Upstate/Imports to Zone J and K Congestion Impact Divide Continues
- Individual Constraints 2003 vs 2004
 - Consistent
 - Dunwoodie – Shore Rd 345
 - Rainey – Vernon 138 kV
 - Up
 - Dunwoodie – Rainey 345 (mostly due to January 2004)
 - Pleasant Valley – Leeds 345 kV
 - Sprainbrook – 49th Street
 - Down
 - Central East Interface



Future Efforts

First Priorities

- Align SCUC and PROBE Modeling **Underway**
 - SMD2 and AMP
 - Refine Representation of Multiple SCUC Passes
- Monthly Analysis, Quarterly Summaries and Publication
- Recompute 2003 Metrics

Next Priorities

- Unusual Day Analysis
- Develop Automated SCUC – PROBE Results Comparison
- Automate Calculation Process
- Assist in Approach to Economic Transmission Planning

