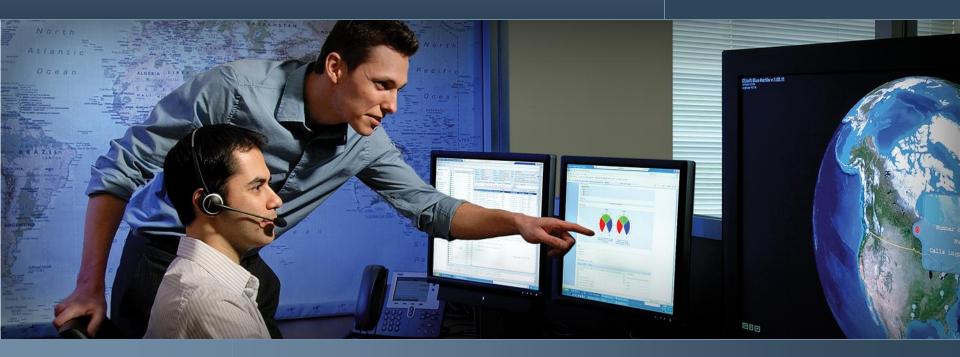


Regional Seminar Series New York, NY



The Use of the PI System for fleet-wide Monitoring and Optimization at NRG Energy

Mike Kanhai Manager, IT Plant Applications NRG Energy

November 5, 2010

Empowering Business in Real Time.

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#### AGENDA



- Who is NRG Energy?
- PI System Architecture
- How PI System is used at the Plants
- Fleet-wide Monitoring and Reporting
- Benefits Realized to date
- Future Plans

### NRG Energy



- Fortune 300 wholesale power generation company with HQ in Princeton, NJ & 5<sup>th</sup> largest in the Energy Industry.
- Owns and operates one of the industry's most diverse generation portfolios (includes <u>coal</u>, <u>natural gas</u>, <u>oil</u>, <u>nuclear</u>, <u>wind</u> and <u>solar</u> power) that provides ~24,000 Megawatts of electric generating capacity.
- In 2009, NRG purchased <u>Reliant Energy</u>, the second largest retail energy business in Texas, serving nearly 1.6 million business, industrial & residential customers.



- 17 Plants currently running a PI System
- PI-to-PI interfaces from Plants to HQ/Regional office
- Central PI Systems located in Texas and Corporate offices (NJ)
- PI Systems in Texas/LaGEN Emergency Management System (EMS)
- PI WebParts provides fleet-wide dashboards/reports

# The use of PI System at Corporate/Regional & Plants

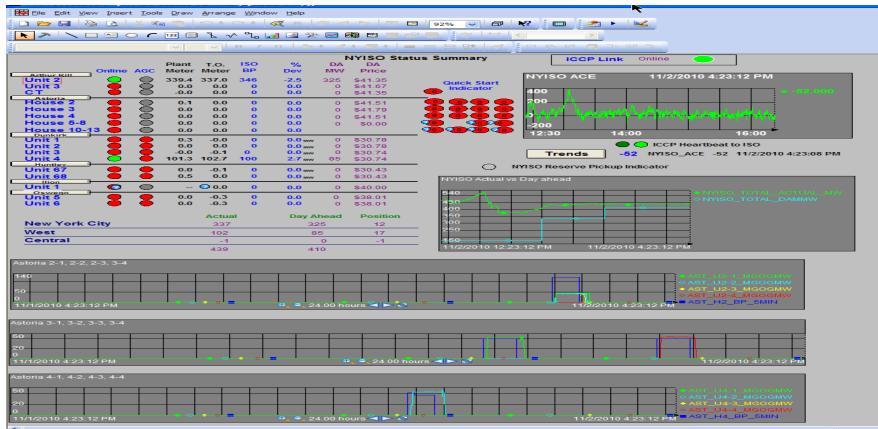


The versatility of PI System allows NRG to utilize this platform to deliver viable solutions that support various aspects of our business.

- Real-Time Trading (Princeton, NJ and Texas)
- Settlements Audit of ISOs
- Improving Overall Plant and Fleet Performance
- Monitoring NOx Emmissions
- Troubleshooting issues at Plants (unit trips, de-ratings, etc...)



 Real-Time Trading (Princeton and Texas) - when PI System was implemented at NRG it was initially used to by the real-time trading group to monitor how are plants were being dispatched





 Settlement Audits (ISOs) - NRG uses datalink to audit the megawatt generation the ISOs document for NRG

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25	94628.05		110044.03		Total MWH							
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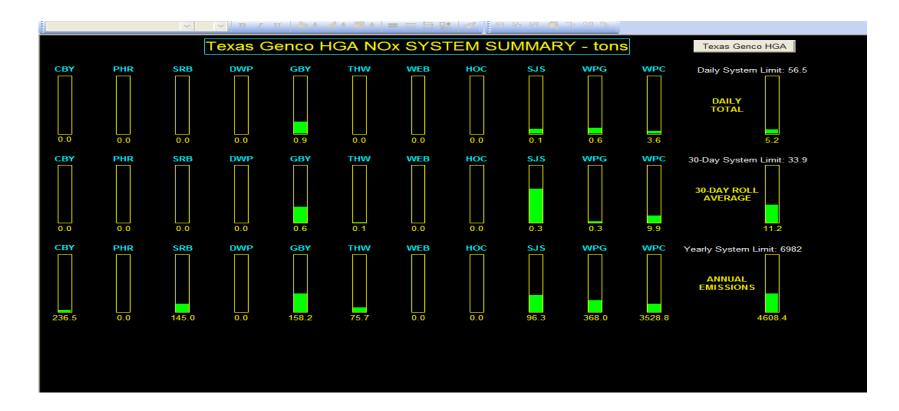


 Improving Plant Performance - utilize PI System to monitor the startup of our units, helps operators to identify issues during startup procedures





 Monitoring NOx Emissions - In the Texas ERCOT market we have to manage our NOx emissions. We use PI System to ensure we are within allocated limits for the region



### Future Plans for PI System at NRG



- Improve fleet-wide reporting
- Condition-based Maintenance (fleet-wide)
- Improving Plant Performance (fleet-wide)
- Operator Box initiative
- NERC monitoring (Plant Level)

### Steam Purity Report



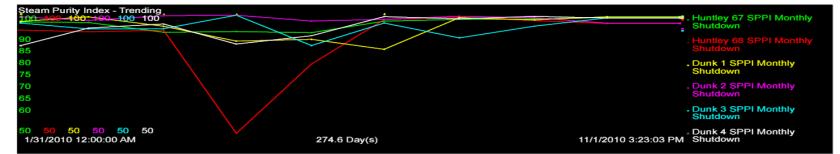
nt Operations > Steam Purity > Water Chemistry Report Monthly

#### Water Chemistry Report Monthly

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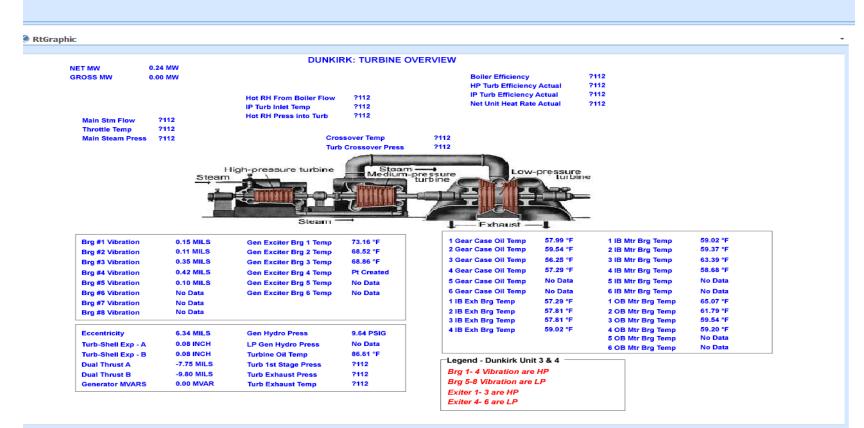
#### Steam Purity Index Table - Month Ending

Plant	Unit	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Huntley	Huntley 67	97.17	96.91	92.79	93.08	92.61	97.48	98.23	98.42	99.04			
Huntley	Huntley 68	93.71	93.00	93.62	50.00	79.36	98.18	99.12	97.74	96.49			
Dunkirk	Dunkirk 1	97.35	99.30	95.33	89.04	89.80	85.57	98.96	98.02	99.35			
Dunkirk	Dunkirk 2	100.00	99.29	97.81	100.00	97.53	98.24	99.57	98.95	96.62			
Dunkirk	Dunkirk 3	96.69	94.20	94.29	100.00	87.17	96.69	90.41	95.38	98.87			
Dunkirk	Dunkirk 4	87.14	94.56	96.30	87.79	91.32	99.40	98.48	99.49	98.82			

### Plant Operation & Maintenance Displays



#### DunkirkTurbine



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## Thank you

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