



PI System for Effective Operation

Presented by

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Senior Planning Analyst



conEdison
a conEdison, inc. company

Con Edison: Overview

Regulated Energy Utility providing Electric, Gas, and Steam



Electric: World's largest system of underground cables – 94,000 miles and 36,000 miles of overhead wires.

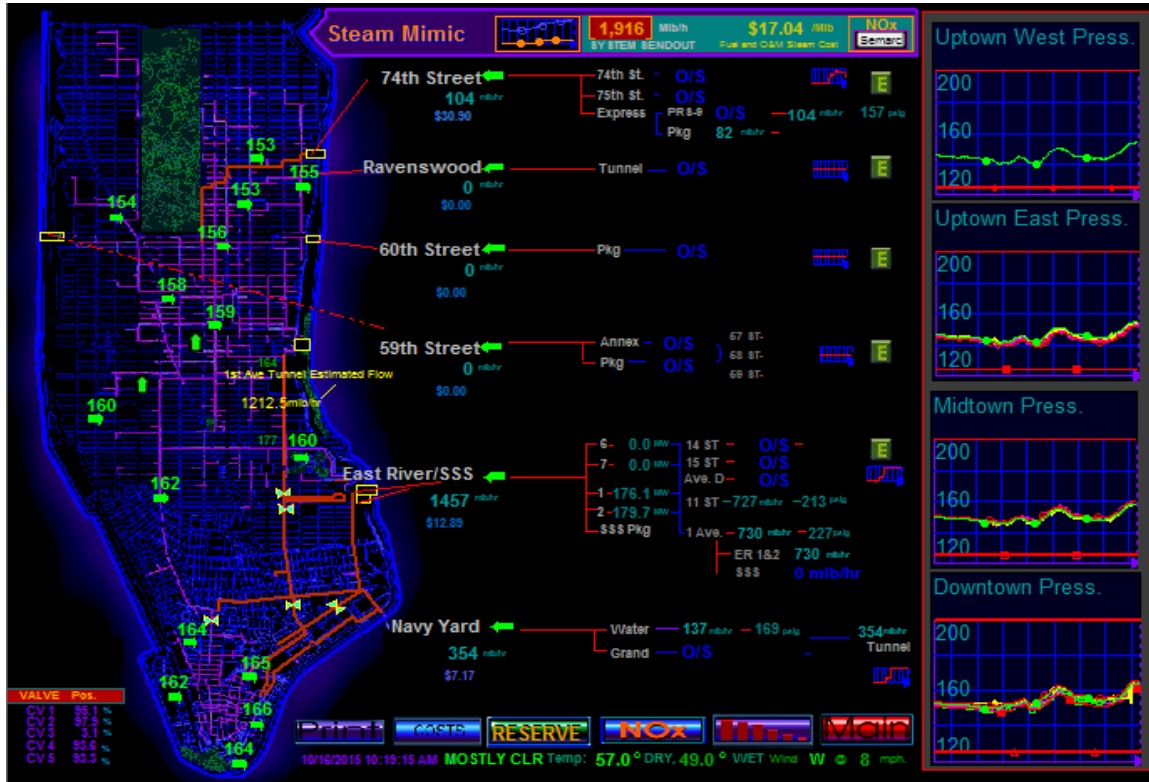
Serving 3 million Customers in NYC and Westchester.

Gas: Serving 1 million Customers in Manhattan, Bronx, parts of Queens and most of Westchester through 4,200 miles of gas mains and nearly 400,000 service pipes.

More than 200 Million Dekatherms a year.

Con Edison: Steam System

System Overview



World's largest Steam System

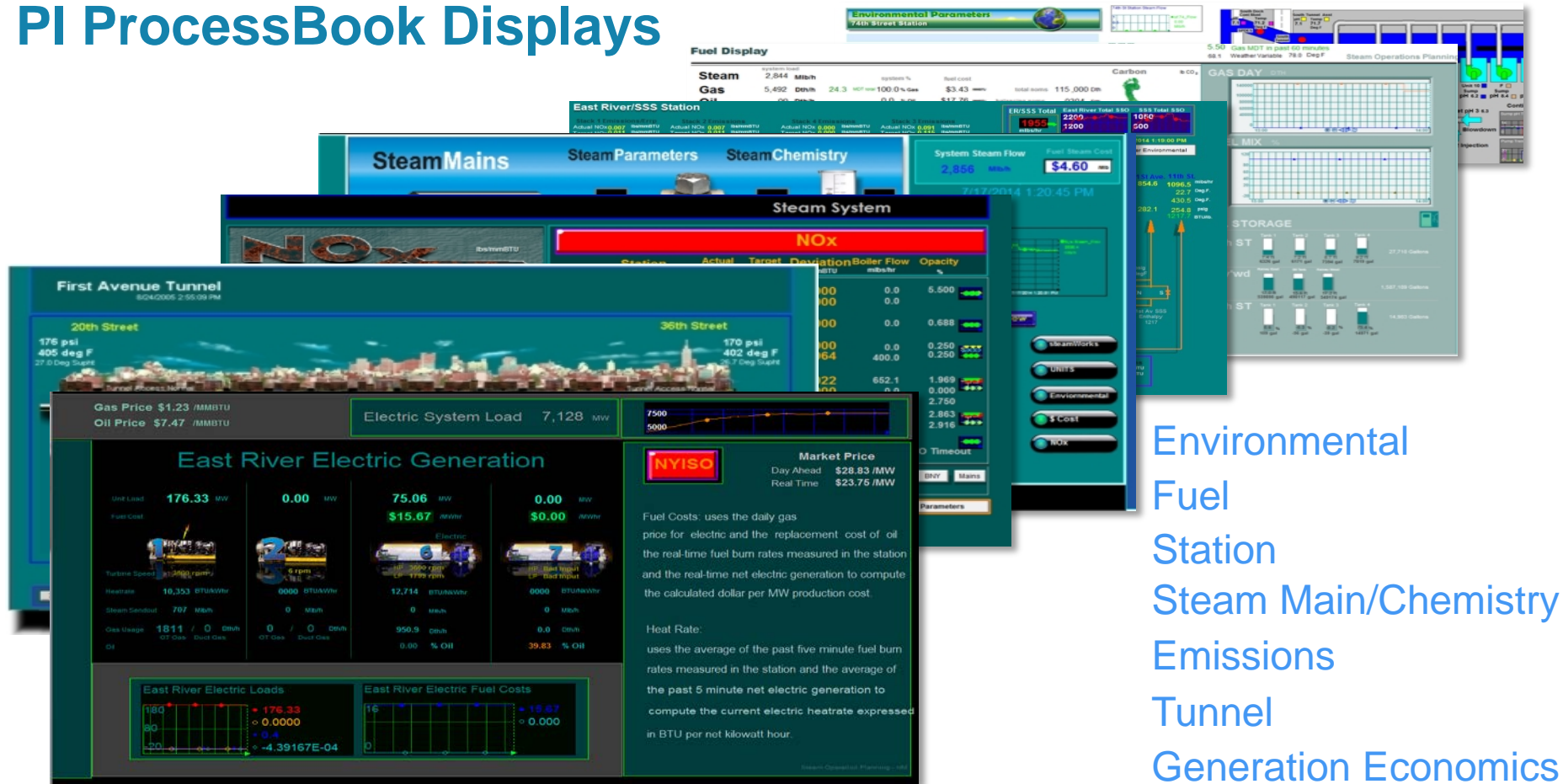
105 Miles of Steam Mains serving Manhattan

130 years of Service

~25 Billion pounds/year Serving 3 Million People

Used for Heat, Hot Water, A/C ...

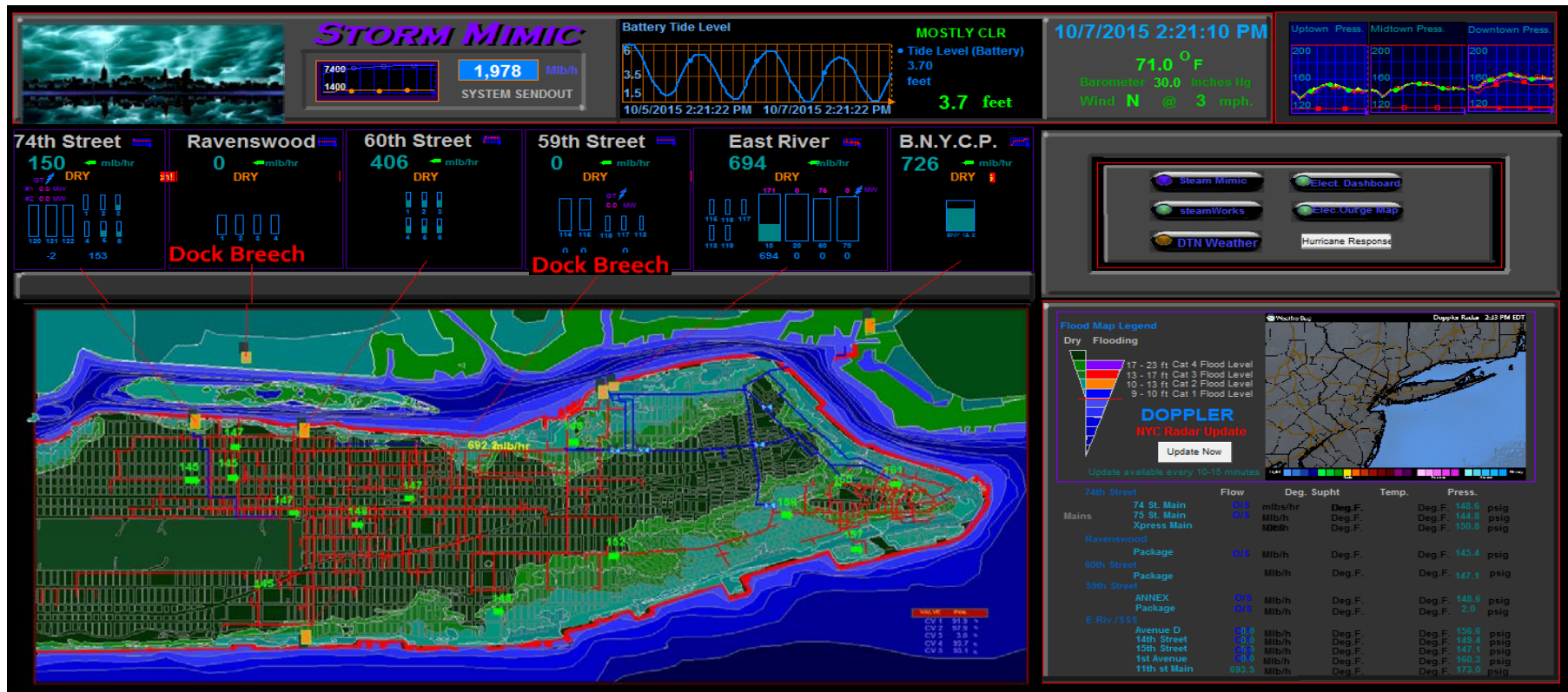
PI ProcessBook Displays



Environmental
Fuel
Station
Steam Main/Chemistry
Emissions
Tunnel
Generation Economics

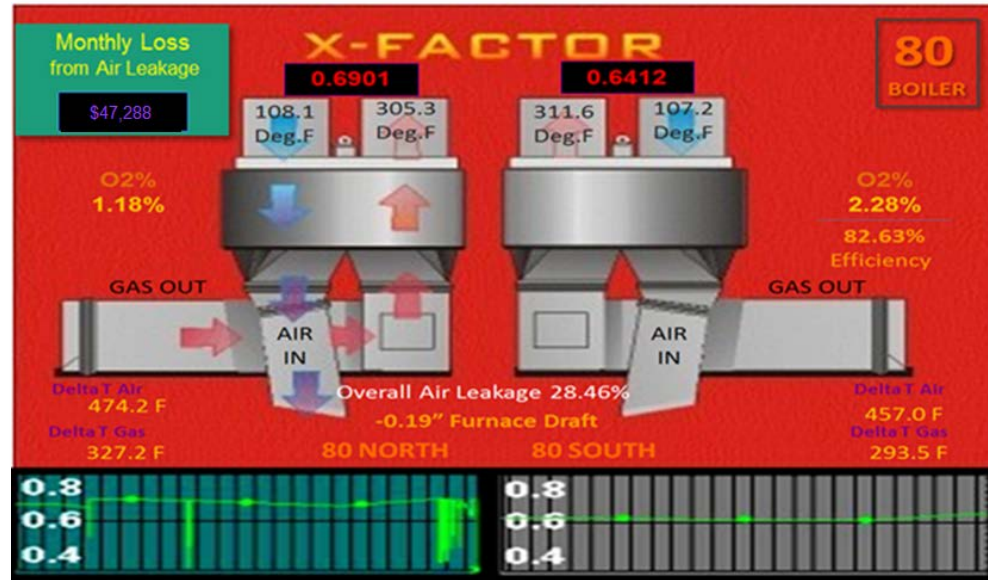
Storm mimic/ Corporate Emergency Response

Leveraging the PI System for Emergency Response decision making



Air Leakage (X- Ratio calculations)

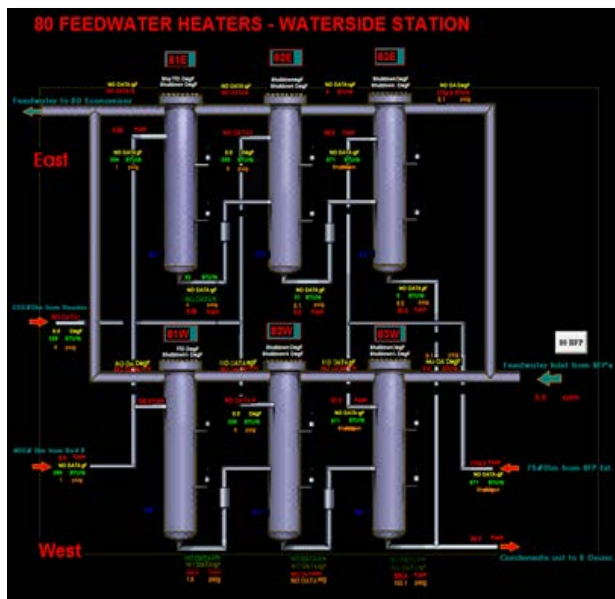
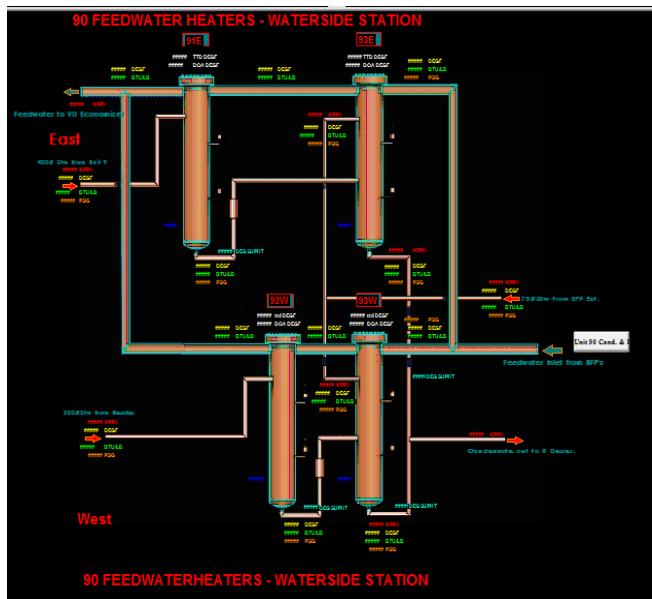
Using Real-time data to target Efficiency Improvements



- Problem Identified through PI System calculation
- Loss Quantified in the PI System
- Improvement Progress Tracked in the PI Server
- Savings = \$388,000

Feedwater Heater Testing

Using PI PE Steam Functions for on-line equipment assessment



- Frees up Manpower
- Provides Timely Feedback on critical equipment

Cost Management

Using Real-time data to generate Cost Awareness

Steam Cost

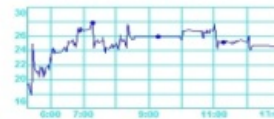


\$3.43 /MMBTU Gas Cost		Fuel Steam Cost			
\$17.76 /MMBTU Oil Cost		\$4.60 /Mib		13.40 % R.O.E.	
	Steam Flow	Heateate	Steam Cost Fuel + W&P	# Birs I/S	Mode
ER 60	0 Mib/h	0 BTU/lb	\$0.00 /Mib		Electric
ER 70	0 Mib/h	0 BTU/lb	\$0.00 /Mib		
ER 10	840 Mib/h		\$1.85 /Mib	1 ENRP I/S	
Duct	163 Mib/h	1255 BTU/lb	\$5.31 /Mib		
ER 20	861 Mib/h		\$1.82 /Mib	1 ENRP I/S	
Duct	163 Mib/h	1250 BTU/lb	\$5.29 /Mib		
ER 55S	255 Mib/h	1667 BTU/lb	\$6.55 /Mib	4 Pkg I/S	
60th St.	0 Mib/h	0 BTU/lb	\$0.00 /Mib	1 Pkg I/S	
74 HP's	0 Mib/h	0 BTU/lb	\$0.00 /Mib	0 HP's I/S	
74 Pkgs.	0 Mib/h	0 BTU/lb	\$0.00 /Mib	0 Pkg I/S	
RAV	0 Mib/h	0 BTU/lb	\$0.00 /Mib	0 Birs I/S	
			\$0.00		
59 Annex	0 Mib/h	0 BTU/lb	\$0.00 /Mib	0 Annex I/S	
59 Pkgs.	330 Mib/h	1378 BTU/lb	\$5.61 /Mib	3 Pkg I/S	
BNY	563 Mib/h		\$11.34 /Mib		Steam

Total Steam Cost
\$24.77 /Mib

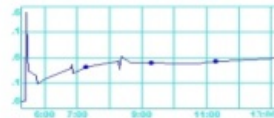
Sta./Unit	O&M	Fixed	TOTAL
East River			
60	\$0.00	\$6.04	
70	\$0.00	\$22.88	
ER1&2	\$0.58	\$11.44	
SSS	\$14.31	\$22.88	
60th St.	\$2.14	\$22.88	
74th St.			
HP Pkg	\$7.71	\$22.88	
	\$4.77	\$22.88	
RAV	\$32.20	\$22.88	
59th St.			
Ax	\$4.55	\$22.88	\$34.67
Pkg	\$4.66	\$22.88	
BNY		\$6.86	\$19.76

Total Cost to Steam Customer
Composite Steam Cost \$/Mib



The Total Steam Cost is a unit measure of the Operating Revenue, including taxes, divided the steam sales.

Fuel plus Water and Processing
Composite Steam Cost \$/Mib



The Fuel Cost is a unit measure of the cost of fuel (Gas burner tip portfolio price and the burner tip replacement cost of Oil, including taxes) needed to produce one thousand pounds (Mib) of steam for our customers plus the cost of water and processing.

These heat rates are calculated as an average over eight minutes and display how many BTU of heat (fuel) are required to produce one net pound of steam.

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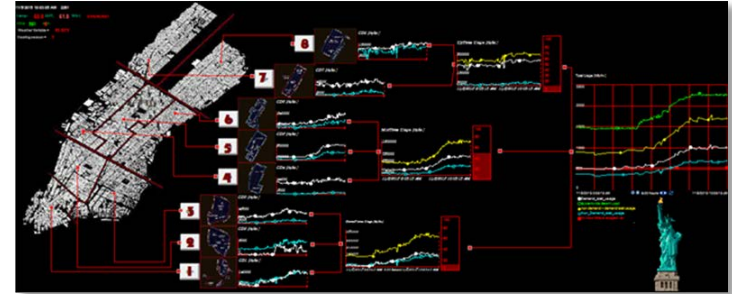
*Real-time
Feedback to
assist in
Steam
Department
goal of
reducing
Customer
Costs by 25%*

Future Plans

Integrate Customer Data

with existing

Station and Street
Condition Information



More efficient Operation for :

- Forecast
- Control of losses
- Emergency Management

Summary

PI System Benefits to Steam Ops

- Provides information to Enable Efficient Decisions in Real-Time
- Labor Saving
- More Frequent Assessment of Equipment Condition
- Real-Time Cost Awareness for improved Management
- Targets Cost Savings for Customers
- Provides user flexibility to create displays and calculations

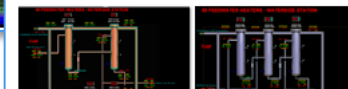
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“... Work
Smarter,
Not
Harder...”

Contact Information

“... Work
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Consolidated Edison



Questions

Please wait for the
microphone before asking
your questions



State your
name & company

Please don't forget to...

Complete the Survey
for this session



The **Power of Data**
DECISION READY IN REAL-TIME

Evaluation Form (Seminar Location - Date)

Name: _____

Company: _____

Email: _____

Quality and content of the presentations

Poor Good Excellent N/A

Welcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Journey To Real-Time Operational Intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Power of Connection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tank Level Management System	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using the PI System to Aid in Troubleshooting Operational Aspects of Oil and Gas Well Drilling and Completion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unleash your Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on the Spot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wrap-up/Seminar Conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Quality and organization of the seminar

Choice of date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time allowed for lunch/breaks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choice of presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Days and time allowed for the presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado