

Making Paper Versus Making Power

ACI Energy Management System (EM-SYS)

AGENDA

➤ Introduction

- ✓ Abitibi-Consolidated Inc (ACI)
- ✓ Guy Roussel

➤ What we did

- ✓ Problem and solution
- ✓ **ACI Energy Management SYstem (EM-SYS)**
- ✓ ACI EM-SYS Guided Tour

➤ How we did it

- ✓ A picture is worth a thousand words

➤ Conclusion

Abitibi-Consolidated is...



The #1 newsprint producer in the world



The largest producer of uncoated groundwood (“value-added paper” or VAP) in the world



The #1 recycler of old newspapers and magazines in North America



The leading producer of lumber east of the Rockies



A supplier of products in almost 100 countries



Abitibi-Consolidated is...

- **A global company with 60 facilities in 7 countries on 3 continents:**
 - Approximately 17,000 employees
 - 27 paper mills, 1 market pulp mill, 22 sawmills, 3 remanufacturing facilities and 10 recycling centres
- **Each year, we manufacture:**
 - Close to 6 million tonnes of newsprint
 - 1.9 million tonnes of value-added papers
 - Over 2 billion board feet of lumber
 - 444,000 tonnes of market pulp
 - And we consume some 2 million tonnes of recycled papers



Guy Roussel...

➤ **Is not a PI expert**

➤ **Is cheap !**

(and his wife agrees !!!)

➤ **Has a Motto:**

a) We have to know where we are

b) We have to know where we want to be

c) We need the tools to go from “a” to “b”

➤ **Has a Modus Operandi:**

1. Get organized

2. Get the buy-in

3. Get moving

ACI/Energy Management System

PROBLEM AND SOLUTION

“ We are bringing more than a system to the mills, we are bringing a cultural change”

❖ **The problem**

- ◆ The province of Ontario decided to open the electricity market, May 1 2002

❖ **What was at stake (2000 data)**

- ◆ ACI Energy cost of \$760M, including \$500M in electricity
- ◆ ON mills paid \$90M for their electricity

❖ **Playing the game:**

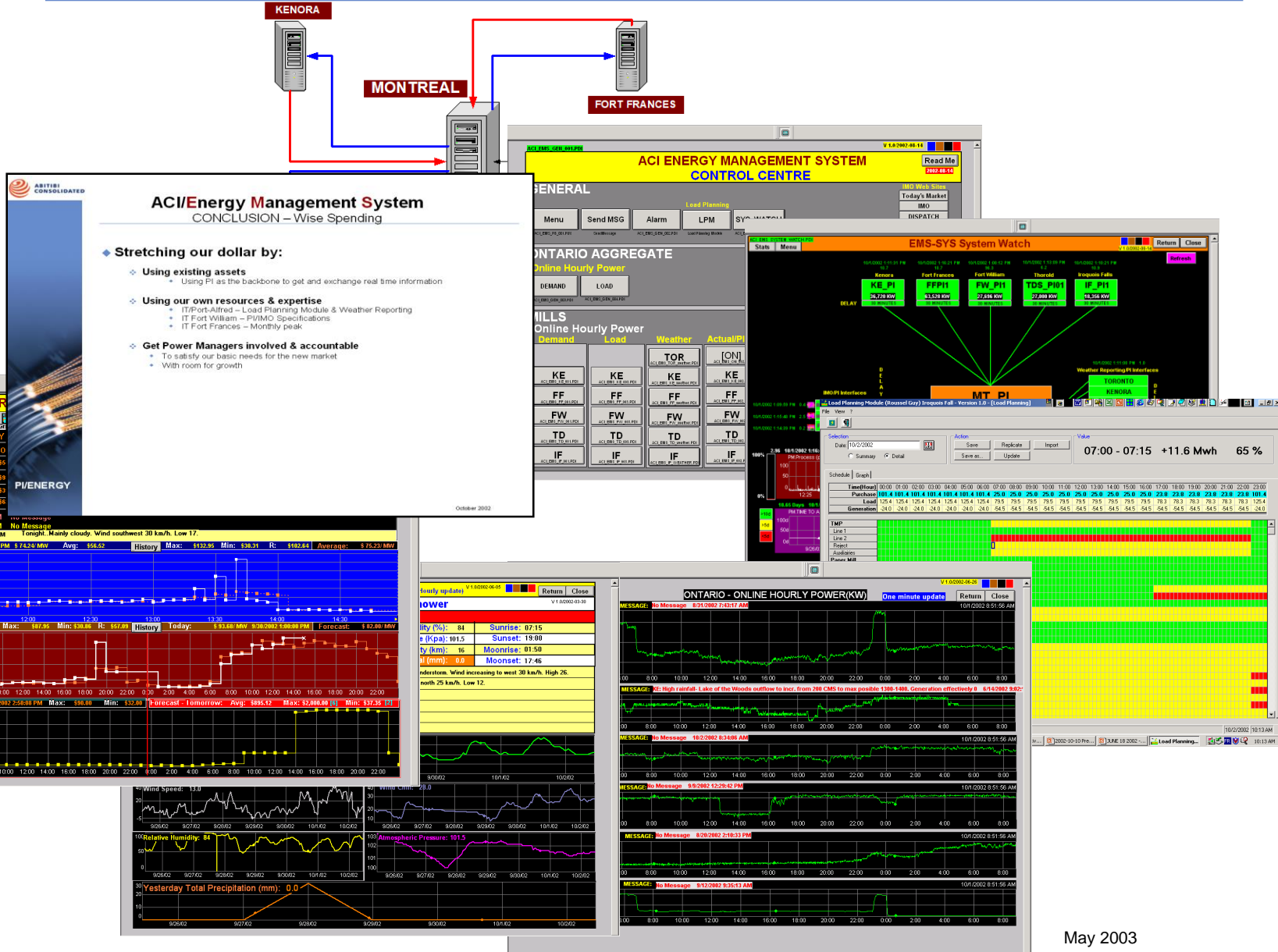
- ◆ You can make money or...
- ◆ Loose your shirt !!!

❖ **The proposed solutions**

- ◆ Plan A:
 - ◆ Off the shelf solution (>\$3M)
- ◆ Plan B:
 - ◆ ACI Solution using PI

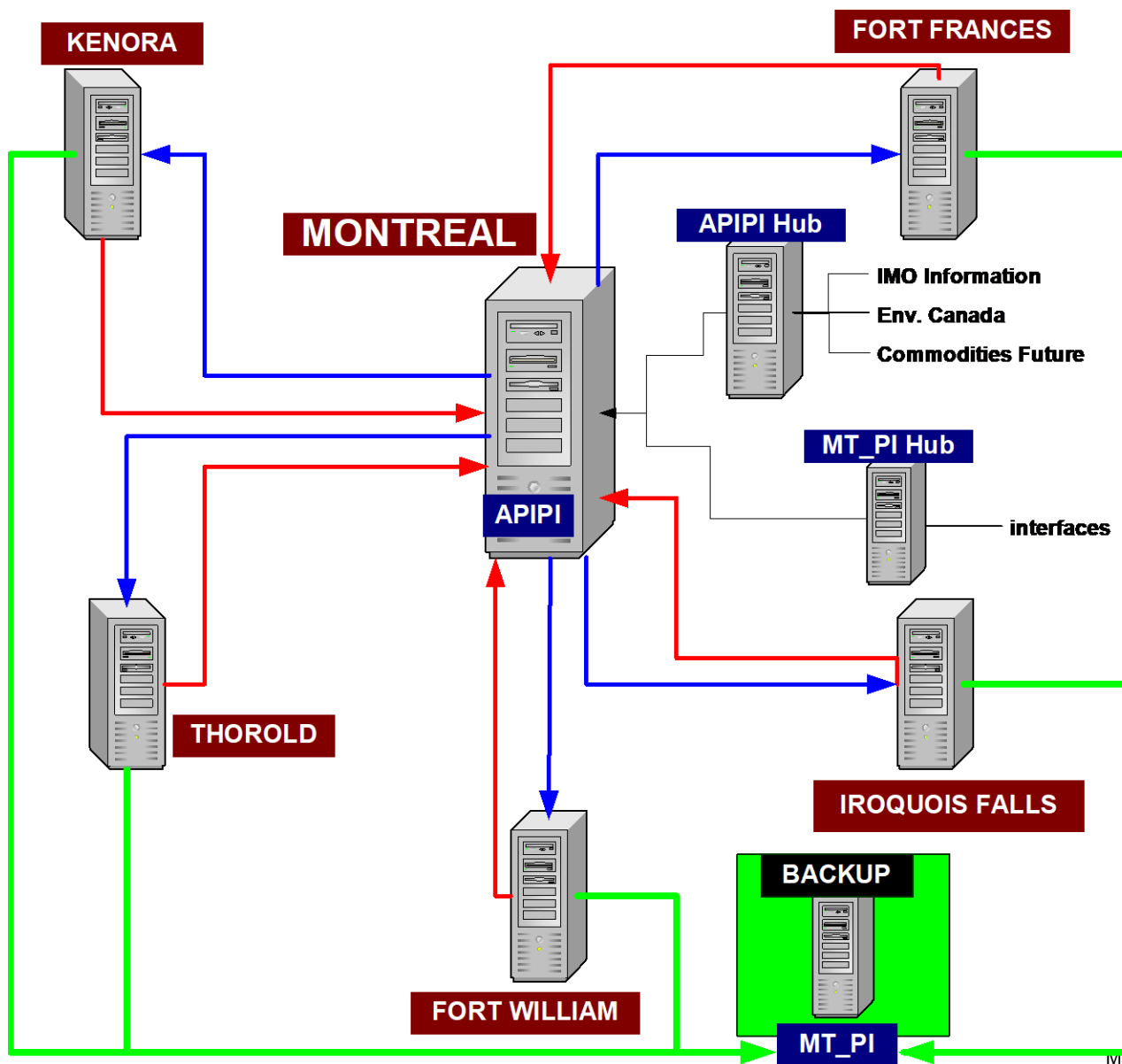
ACI/Energy Management System

a guided tour



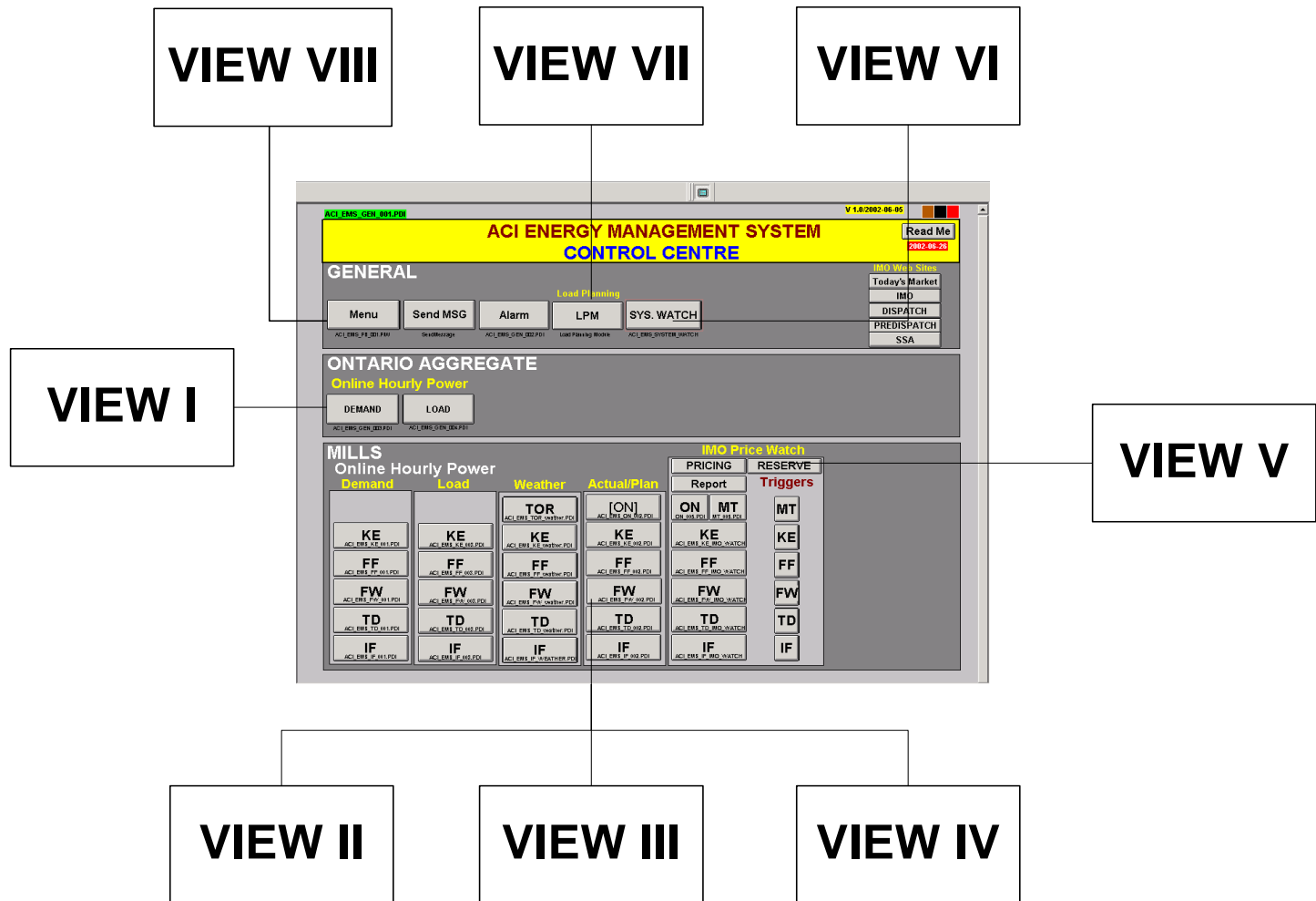
ACI/Energy Management System

Infrastructure (April 2003)



ACI/Energy Management System

Organization



ACI ENERGY MANAGEMENT SYSTEM

CONTROL CENTRE

Read Me

2002-08-14

GENERAL

Menu

Send MSG

Alarm

Load Planning

SYS. WATCH

ACI_EMS_PB_001.PDI

SendMessage

ACI_EMS_GEN_002.PDI

Load Planning Module

ACI_EMS_SYSTEM_WATCH

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

LOAD

ACI_EMS_GEN_003.PDI

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

IMO Price Watch

THE FUTURE

KE

ACI_EMS_KE_001.PDI

FF

ACI_EMS_FF_001.PDI

FW

ACI_EMS_FW_001.PDI

TD

ACI_EMS_TD_001.PDI

IF

ACI_EMS_IF_001.PDI

KE

ACI_EMS_KE_003.PDI

FF

ACI_EMS_FF_003.PDI

FW

ACI_EMS_FW_003.PDI

TD

ACI_EMS_TD_003.PDI

IF

ACI_EMS_IF_003.PDI

TOR

ACI_EMS_TOR_weather.PDI

KE

ACI_EMS_KE_weather.PDI

FF

ACI_EMS_FF_weather.PDI

FW

ACI_EMS_FW_weather.PDI

TD

ACI_EMS_TD_weather.PDI

IF

ACI_EMS_IF_WEATHER.PDI

[ON]

ACI_EMS_ON_002.PDI

KE

ACI_EMS_KE_002.PDI

FF

ACI_EMS_FF_002.PDI

FW

ACI_EMS_FW_002.PDI

TD

ACI_EMS_TD_002.PDI

IF

ACI_EMS_IF_002.PDI

PRICING

Report

ON

ON_005.PDI

MT

MT_005.PDI

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH

RESERVE

Triggers

MT

KE

FF

FW

TD

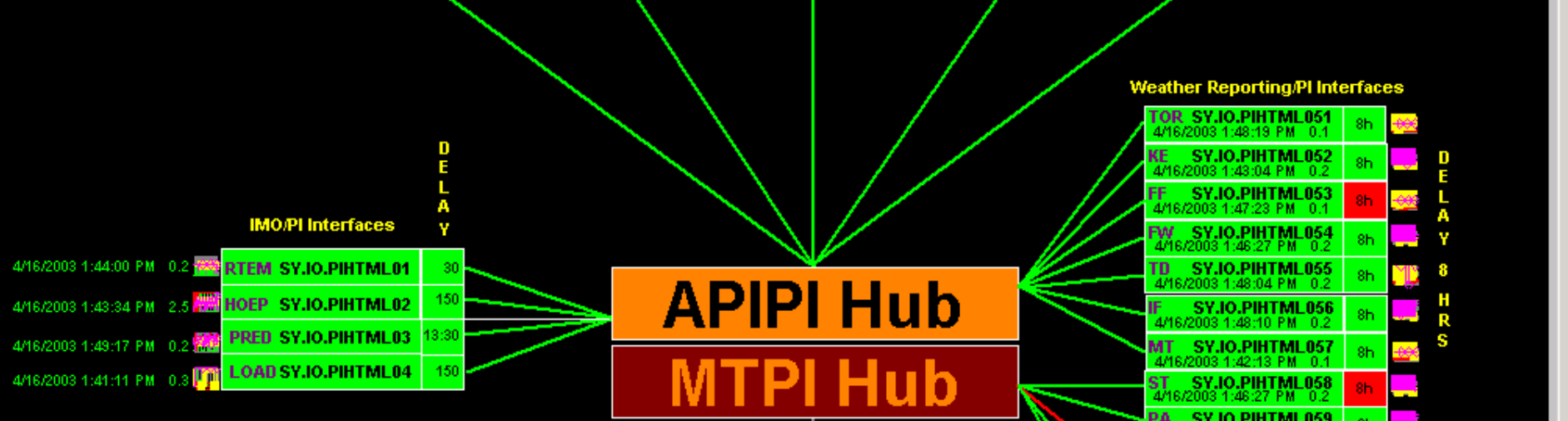
IF

MT-SYS System Watch

Stats Menu

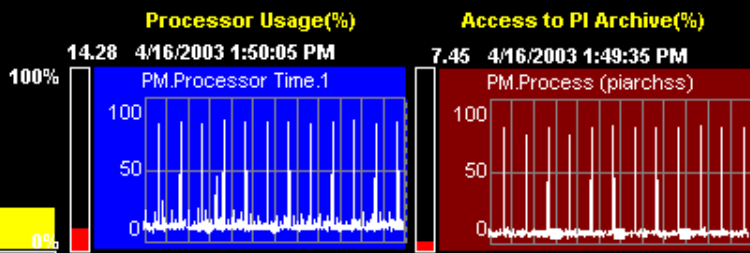
Refresh

4/16/2003 1:42:43 PM 16.4	4/16/2003 1:41:15 PM 21.3	4/16/2003 1:42:47 PM 101.8	4/16/2003 1:41:15 PM 6.7	4/16/2003 1:42:55 PM 10.5
Kenora	Fort Frances	Fort William	Thorold	Iroquois Falls
KE_PI	FFPI1	FW_PI1	TDS_PI01	IF_PI1
34,560 KW	69,503 KW	45,024 KW	46,313 KW	26,551 KW
30 MINUTES	30 MINUTES	30 MINUTES	30 MINUTES	30 MINUTES



BACKUP SYSTEM

Diagram showing the backup system architecture. A central **MT_PI** box is connected to a list of backup targets: 1 TO, 2 KE, 3 FF, 4 FW, 5 TD, 6 IF, 7 MT. Above the MT_PI box are labels for the backup targets: KE, FF, FW, TD, IF. To the left of MT_PI are labels for the backup targets: RTEM, HOEP, PRED. Below the MT_PI box are two progress bars showing backup status: 14.28 4/16/2003 1:50:05 PM (0% to 100%) and 7.45 4/16/2003 1:49:35 PM (0% to 100%).



MESSAGE CENTER

4/16/2003 8:39:13 AM ON: Welcome to ACI Energy Management System

ACI ENERGY MANAGEMENT SYSTEM

CONTROL CENTRE

Read Me

2002-08-14

GENERAL

Menu

ACI_EMS_PB_001.PDI

Send MSG

SendMessage

Alarm

ACI_EMS_GEN_002.PDI

Load Planning

LPM

Load Planning Module

SYS. WATCH

ACI_EMS_SYSTEM_WATCH

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

ACI_EMS_GEN_003.PDI

LOAD

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

		<div>TOR</div> <div>ACI_EMS_TOR_weather.PDI</div>	<div>[ON]</div> <div>ACI_EMS_ON_002.PDI</div>
<div>KE</div> <div>ACI_EMS_KE_001.PDI</div>	<div>KE</div> <div>ACI_EMS_KE_003.PDI</div>	<div>KE</div> <div>ACI_EMS_KE_weather.PDI</div>	<div>KE</div> <div>ACI_EMS_KE_002.PDI</div>
<div>FF</div> <div>ACI_EMS_FF_001.PDI</div>	<div>FF</div> <div>ACI_EMS_FF_003.PDI</div>	<div>FF</div> <div>ACI_EMS_FF_weather.PDI</div>	<div>FF</div> <div>ACI_EMS_FF_002.PDI</div>
<div>FW</div> <div>ACI_EMS_FW_001.PDI</div>	<div>FW</div> <div>ACI_EMS_FW_003.PDI</div>	<div>FW</div> <div>ACI_EMS_FW_weather.PDI</div>	<div>FW</div> <div>ACI_EMS_FW_002.PDI</div>
<div>TD</div> <div>ACI_EMS_TD_001.PDI</div>	<div>TD</div> <div>ACI_EMS_TD_003.PDI</div>	<div>TD</div> <div>ACI_EMS_TD_weather.PDI</div>	<div>TD</div> <div>ACI_EMS_TD_002.PDI</div>
<div>IF</div> <div>ACI_EMS_IF_001.PDI</div>	<div>IF</div> <div>ACI_EMS_IF_003.PDI</div>	<div>IF</div> <div>ACI_EMS_IF_WEATHER.PDI</div>	<div>IF</div> <div>ACI_EMS_IF_002.PDI</div>

IMO Price Watch

PRICING

Report

ON

ON_005.PDI

MT

MT_005.PDI

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH

RESERVE

Triggers

MT

KE

FF

FW

TD

IF

THE FUTURE

ACI ENERGY MANAGEMENT SYSTEM CONTROL CENTRE

Read Me

2002-08-14

GENERAL

Load Planning

Menu

Send MSG

Alarm

LPM

SYS. WATCH

ACI_EMS_PB_001.PDI

ONTARIO

Online Hour

DEMAND

ACI_EMS_GEN_003.PDI

MILLS

Online Hour

Demand

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

ACI PI Messenger

Send Messages

Mill name: Iroquois Falls

Configuration

Timestamp: 02-Oct-02 10:07:29

Message:

Status:

Send message

Reset message

Exit

THE FUTURE

TOR

ACI_EMS_TOR_weather.PDI

[ON]

ACI_EMS_ON_002.PDI

ON

ON_005.PDI

MT

MT_005.PDI

MT

KE

ACI_EMS_KE_001.PDI

KE

ACI_EMS_KE_003.PDI

KE

ACI_EMS_KE_weather.PDI

KE

ACI_EMS_KE_002.PDI

KE

ACI_EMS_KE_IMO_WATCH

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_001.PDI

FF

ACI_EMS_FF_003.PDI

FF

ACI_EMS_FF_weather.PDI

FF

ACI_EMS_FF_002.PDI

FF

ACI_EMS_FF_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_001.PDI

FW

ACI_EMS_FW_003.PDI

FW

ACI_EMS_FW_weather.PDI

FW

ACI_EMS_FW_002.PDI

FW

ACI_EMS_FW_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_001.PDI

TD

ACI_EMS_TD_003.PDI

TD

ACI_EMS_TD_weather.PDI

TD

ACI_EMS_TD_002.PDI

TD

ACI_EMS_TD_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_001.PDI

IF

ACI_EMS_IF_003.PDI

IF

ACI_EMS_IF_weather.PDI

IF

ACI_EMS_IF_002.PDI

IF

ACI_EMS_IF_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH



ACI ENERGY MANAGEMENT SYSTEM CONTROL CENTRE

Read Me

2002-08-14

GENERAL

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

Menu

ACI_EMS_PB_001.PDI

Send MSG

SendMessage

Alarm

ACI_EMS_GEN_002.PDI

LPM

Load Planning Module

SYS. WATCH

ACI_EMS_SYSTEM_WATCH

Load Planning

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

ACI_EMS_GEN_003.PDI

LOAD

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

IMO Price Watch

PRICING

Report

RESERVE

Triggers

THE FUTURE

KE

ACI_EMS_KE_001.PDI

FF

ACI_EMS_FF_001.PDI

FW

ACI_EMS_FW_001.PDI

TD

ACI_EMS_TD_001.PDI

IF

ACI_EMS_IF_001.PDI

KE

ACI_EMS_KE_003.PDI

FF

ACI_EMS_FF_003.PDI

FW

ACI_EMS_FW_003.PDI

TD

ACI_EMS_TD_003.PDI

IF

ACI_EMS_IF_003.PDI

TOR

ACI_EMS_TOR_weather.PDI

KE

ACI_EMS_KE_weather.PDI

FF

ACI_EMS_FF_weather.PDI

FW

ACI_EMS_FW_weather.PDI

TD

ACI_EMS_TD_weather.PDI

IF

ACI_EMS_IF_WEATHER.PDI

[ON]

ACI_EMS_ON_002.PDI

KE

ACI_EMS_KE_002.PDI

FF

ACI_EMS_FF_002.PDI

FW

ACI_EMS_FW_002.PDI

TD

ACI_EMS_TD_002.PDI

IF

ACI_EMS_IF_002.PDI

ON

ON_005.PDI

MT

MT_005.PDI

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH

MT

KE

FF

FW

TD

IF



Selection

Date: 10/2/2002

☐ Summary ☒ Detail

Action

Save

Replicate

Import

Save as...

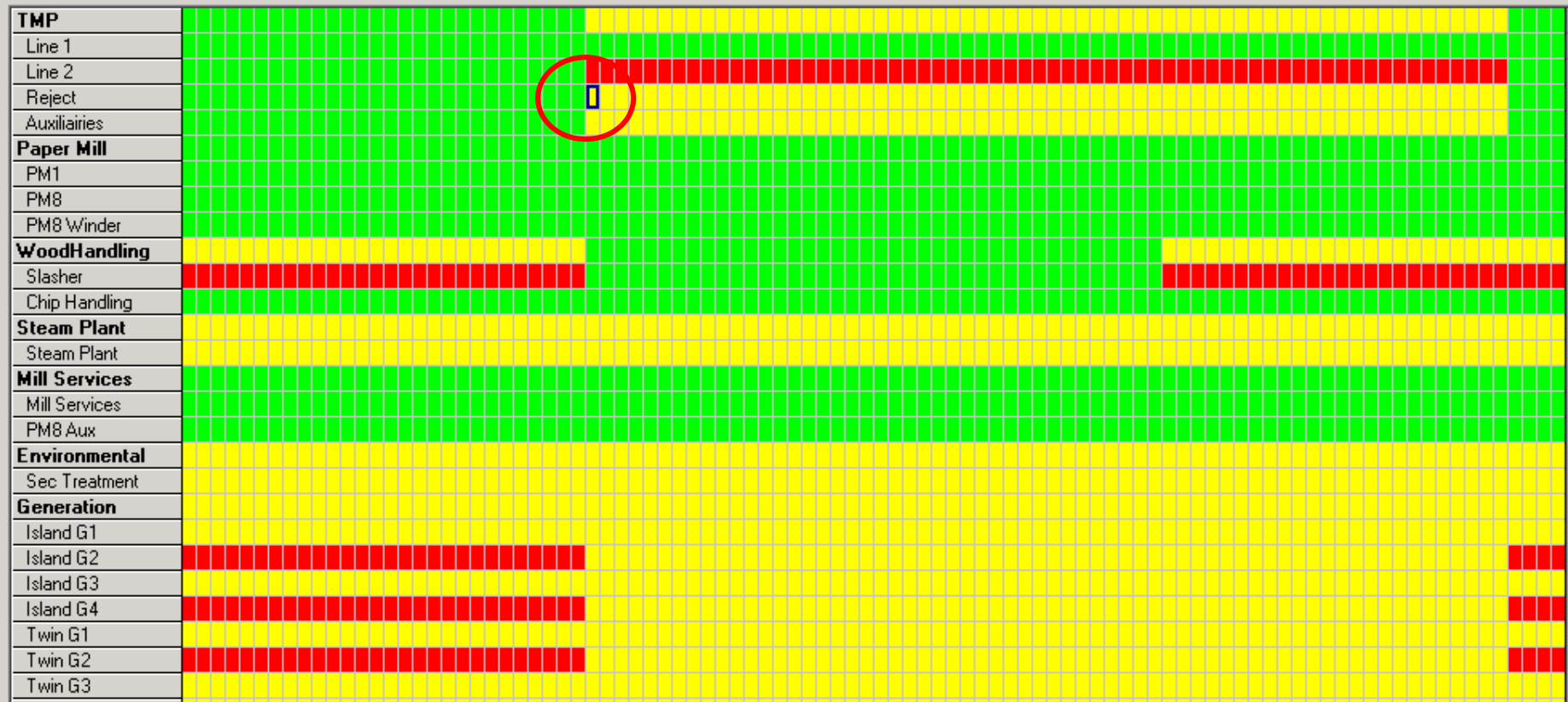
Update

Value

07:00 - 07:15 +11.6 Mwh 65 %

Schedule | Graph

Time(Hour)	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Purchase	101.4	101.4	101.4	101.4	101.4	101.4	101.4	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.8	23.8	23.8	23.8	23.8	23.8	101.4
Load	125.4	125.4	125.4	125.4	125.4	125.4	125.4	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.5	78.3	78.3	78.3	78.3	78.3	78.3	125.4
Generation	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-24.0



Date: 10/2/2002

☐ Summary ☒ Detail

Save

Dedicated

Import

Save as...

Update

07:00 - 07:15 +11.6 Mwh 65 %

Schedule | Graph

Time(Hour)	00:00	01:00	02:00	03:00
Purchase	101.4	101.4	101.4	101.4
Load	125.4	125.4	125.4	125.4
Generation	-24.0	-24.0	-24.0	-24.0

 Update

Start Time: 09:00

End Time: 20:30

% Utilization:

On Off

Off

Total	19000	Kw
-------	-------	----

Kw

Generation adjustment

Adjust

0 Kw

Selected

Select	Equipement
--------	------------

KW

W	Default Load
---	--------------

Dispatchable

[illegible]

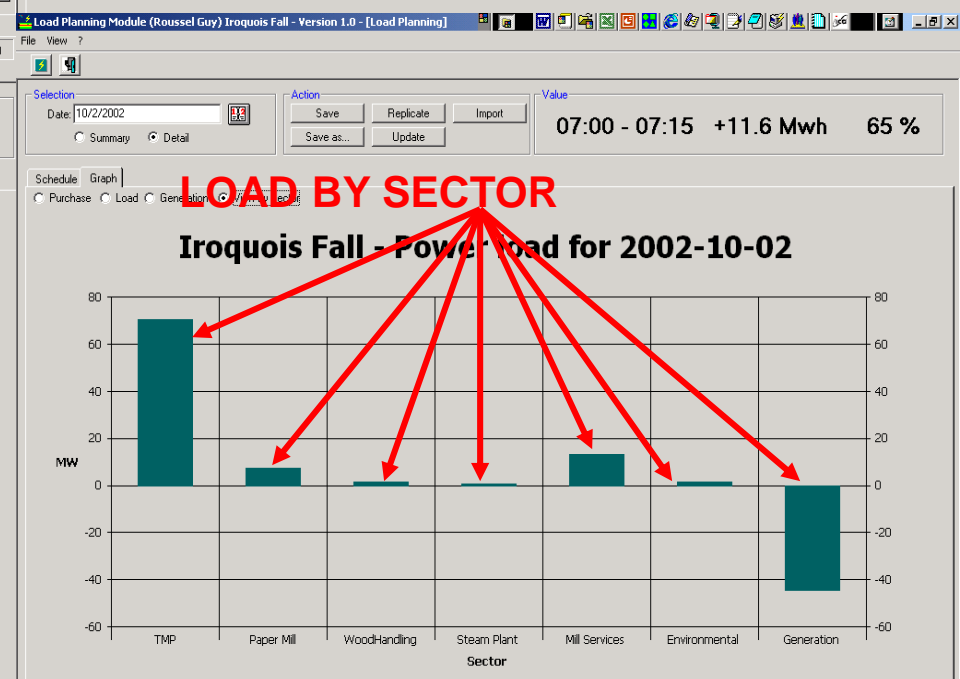
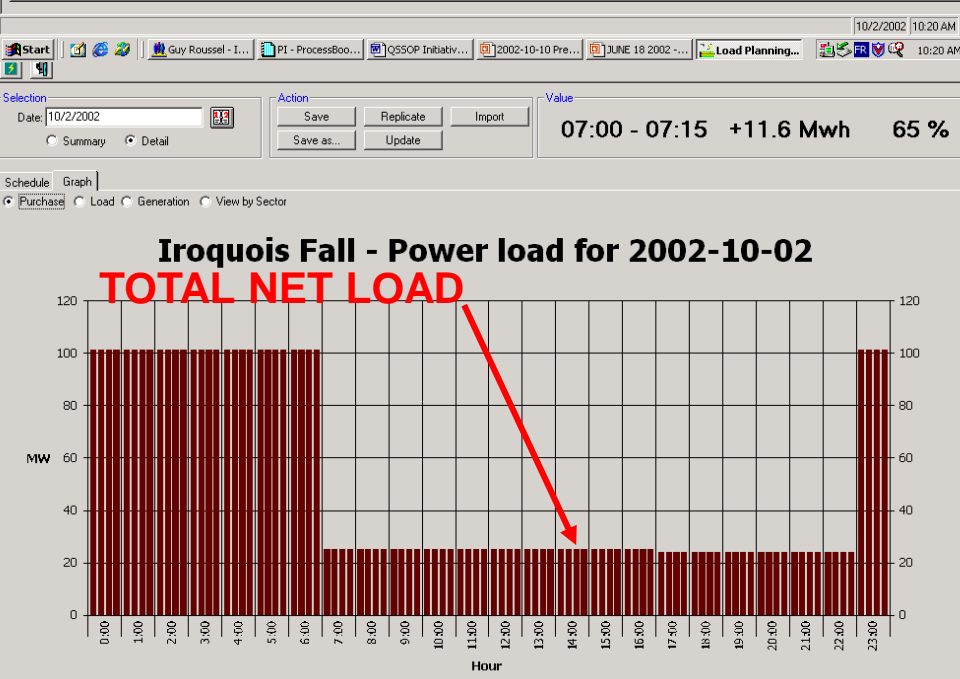
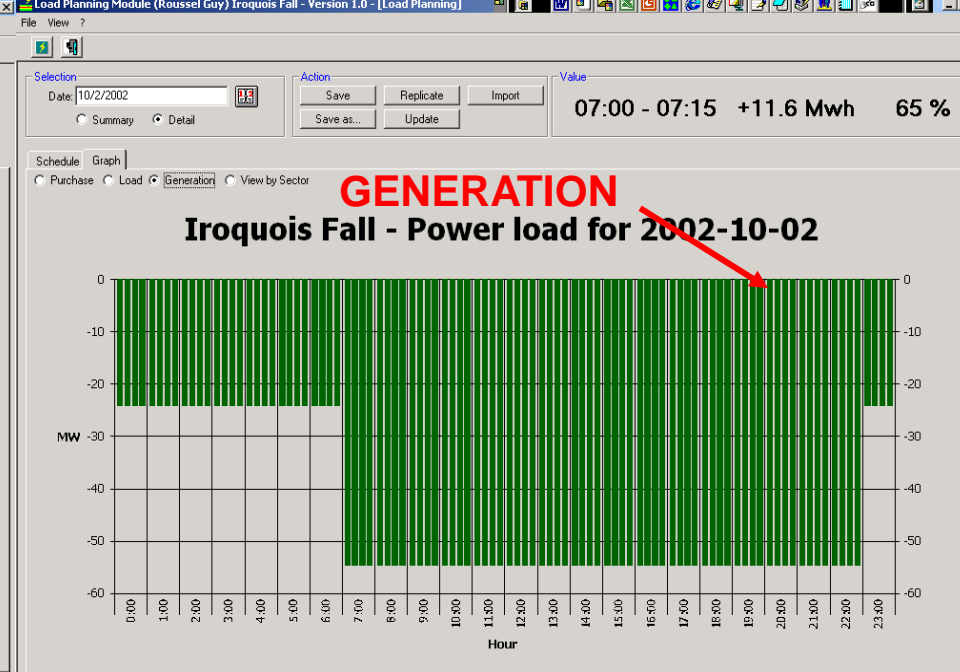
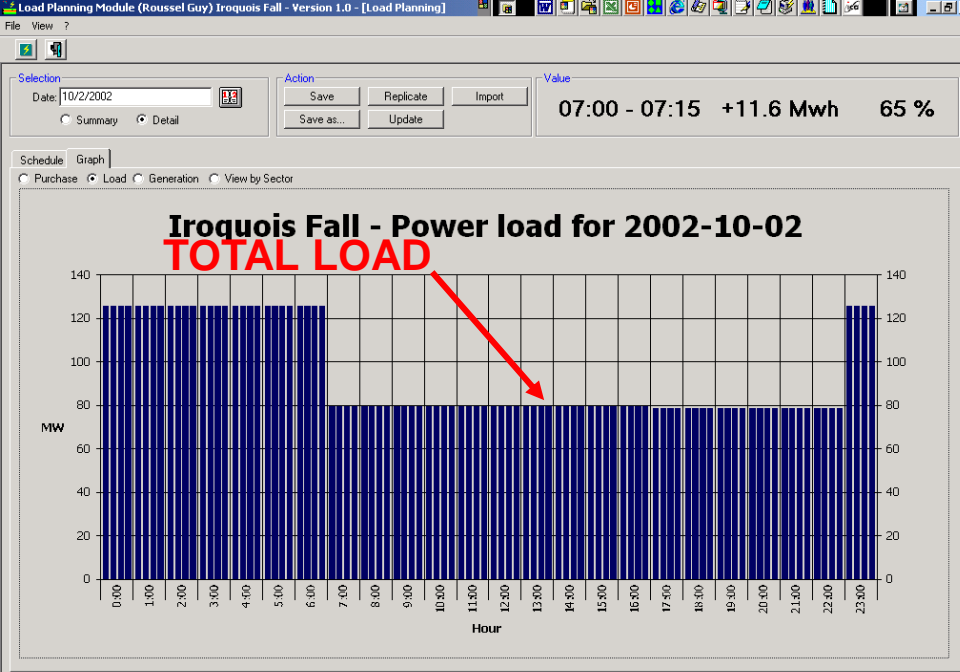
	Select	Equipment	KW	Default Load	Dispatchable
	<input checked="" type="checkbox"/>	Line 2	19000	38000	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Reject	0	17900	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Auxiliaries	0	8000	<input type="checkbox"/>
	<input type="checkbox"/>	PM1	0	1500	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	PM8	0	5000	<input type="checkbox"/>
	<input type="checkbox"/>	PM8 Winder	0	1000	<input type="checkbox"/>
	<input type="checkbox"/>	Slasher	0	1200	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Chip Handling	0	800	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Steam Plant	0	900	<input type="checkbox"/>
	<input type="checkbox"/>	Mill Services	0	5000	<input type="checkbox"/>
	<input type="checkbox"/>	PM8 Aux	0	8000	<input type="checkbox"/>
	<input type="checkbox"/>	Sec Treatment	0	2500	<input type="checkbox"/>
	<input type="checkbox"/>	Island G1	0	-10000	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Island G2	0	-10000	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Island G3	0	-10000	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Island G4	0	-10000	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Twin G1	0	-4500	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Twin G2	0	-4500	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Twin G3	0	-4500	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Twin G4	0	-4500	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Twin G5	0	-4500	<input checked="" type="checkbox"/>

Apply

Quit

0	20:00	21:00	22:00	23:00
8	23.8	23.8	23.8	101.4
8	78.3	78.3	78.3	125.4
5	-54.5	-54.5	-54.5	-24.0

[illegible]





ACI ENERGY MANAGEMENT SYSTEM CONTROL CENTRE

Read Me

2002-08-14

GENERAL

Load Planning

Menu	Send MSG	Alarm	LPM	SYS. WATCH
ACI_EMS_PB_001.PDI	SendMessage	ACI_EMS_GEN_002.PDI	Load Planning Module	ACI_EMS_SYSTEM_WATCH

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

LOAD

ACI_EMS_GEN_003.PDI

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

IMO Price Watch

PRICING

RESERVE

Report

Triggers

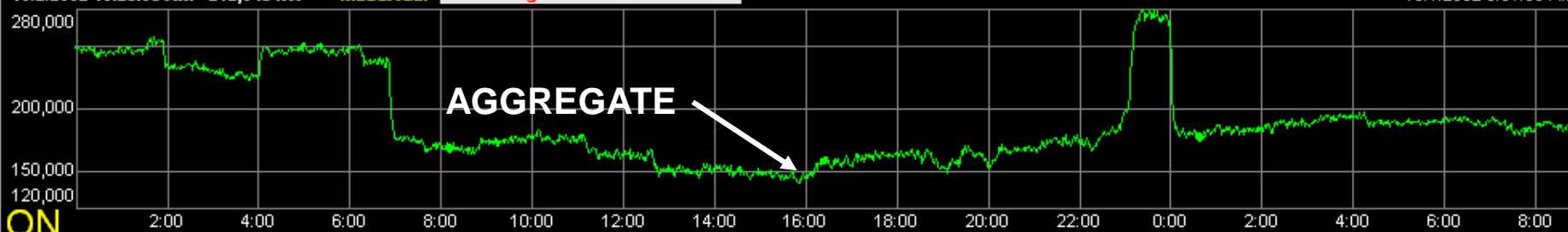
THE FUTURE

		TOR	[ON]	ON	MT
		ACI_EMS_TOR_weather.PDI	ACI_EMS_ON_002.PDI	ON_005.PDI	MT_005.PDI
KE	KE	KE	KE	KE	MT
ACI_EMS_KE_001.PDI	ACI_EMS_KE_003.PDI	ACI_EMS_KE_weather.PDI	ACI_EMS_KE_002.PDI	ACI_EMS_KE_IMO_WATCH	KE
FF	FF	FF	FF	FF	FF
ACI_EMS_FF_001.PDI	ACI_EMS_FF_003.PDI	ACI_EMS_FF_weather.PDI	ACI_EMS_FF_002.PDI	ACI_EMS_FF_IMO_WATCH	FF
FW	FW	FW	FW	FW	FW
ACI_EMS_FW_001.PDI	ACI_EMS_FW_003.PDI	ACI_EMS_FW_weather.PDI	ACI_EMS_FW_002.PDI	ACI_EMS_FW_IMO_WATCH	FW
TD	TD	TD	TD	TD	TD
ACI_EMS_TD_001.PDI	ACI_EMS_TD_003.PDI	ACI_EMS_TD_weather.PDI	ACI_EMS_TD_002.PDI	ACI_EMS_TD_IMO_WATCH	TD
IF	IF	IF	IF	IF	IF
ACI_EMS_IF_001.PDI	ACI_EMS_IF_003.PDI	ACI_EMS_IF_weather.PDI	ACI_EMS_IF_002.PDI	ACI_EMS_IF_IMO_WATCH	IF

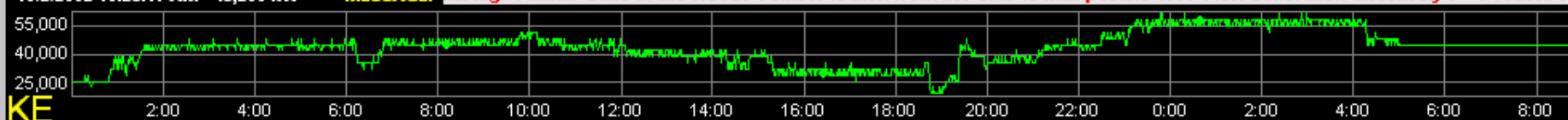
Montreal Time**ONTARIO - ONLINE HOURLY POWER(KW)****One minute update****Return****Close**

10/1/2002 8:51:56 AM

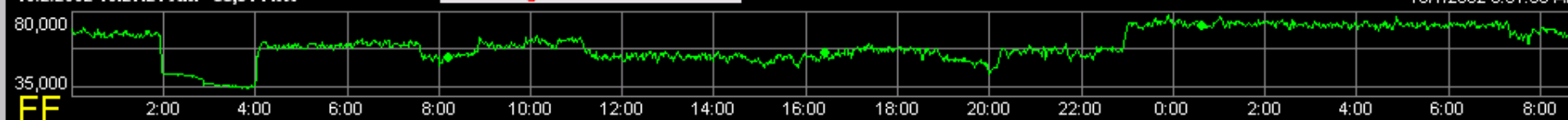
10/2/2002 10:28:08 AM 212,048 kW

MESSAGE: No Message 8/31/2002 7:43:17 AM

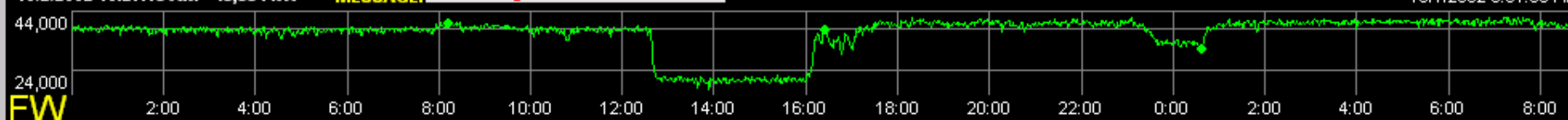
10/2/2002 10:28:17 AM 43,200 kW

MESSAGE: KE: High rainfall- Lake of the Woods outflow to incr. from 200 CMS to max possible 1300-1400. Generation effectively 0 6/14/2002 9:02:17 AM

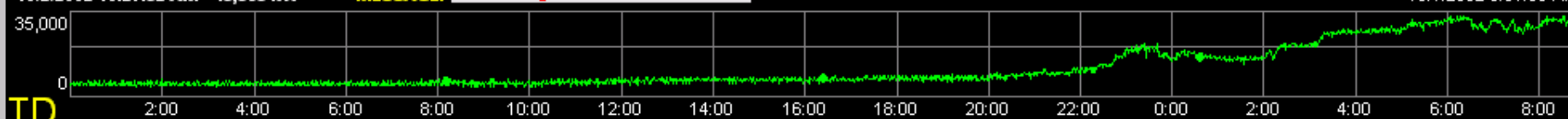
10/2/2002 10:27:21 AM 55,914 kW

MESSAGE: No Message 10/2/2002 8:34:06 AM

10/2/2002 10:27:13 AM 45,354 kW

MESSAGE: No Message 9/9/2002 12:29:42 PM

10/2/2002 10:27:52 AM 45,563 kW

MESSAGE: No Message 8/20/2002 2:10:33 PM

10/2/2002 10:27:23 AM 19,857 kW

MESSAGE: No Message 9/12/2002 9:35:13 AM

ONTARIO - ONLINE HOURLY DEMAND

Montreal Time

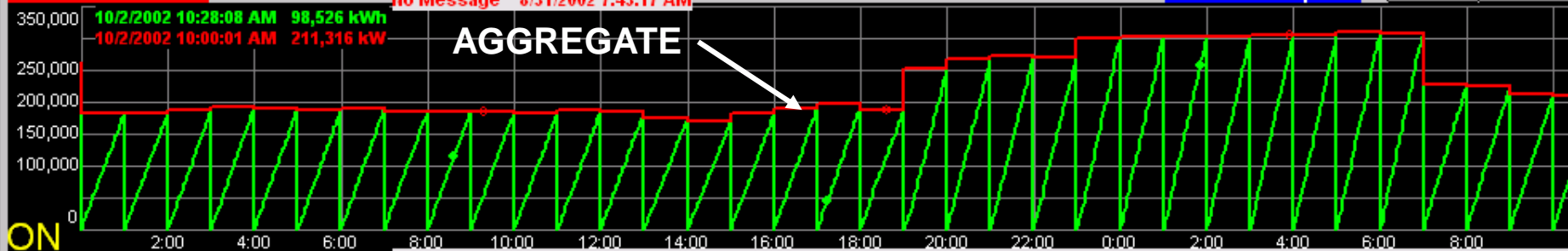
No Message 8/31/2002 7:43:17 AM

One minute update

Return

Close

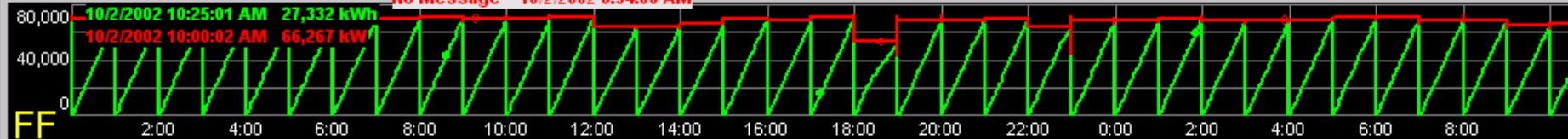
AGGREGATE



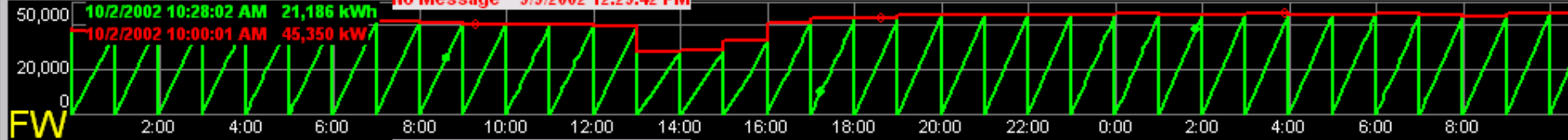
KE: High rainfall- Lake of the Woods outflow to incr. from 200 CMS to max possible 1300-1400. Generation effectively 0 6/14/2002 9:02:10 AM



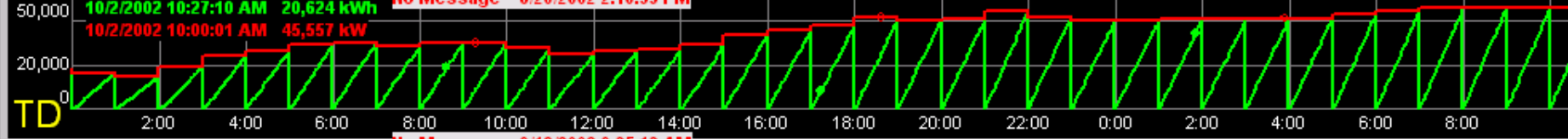
No Message 10/2/2002 8:34:06 AM



No Message 9/9/2002 12:29:42 PM



No Message 8/20/2002 2:10:33 PM



No Message 9/12/2002 9:35:13 AM



ACI ENERGY MANAGEMENT SYSTEM CONTROL CENTRE

GENERAL

Load Planning

Menu

ACI_EMS_PB_001.PDI

Send MSG

SendMessage

Alarm

ACI_EMS_GEN_002.PDI

LPM

Load Planning Module

SYS. WATCH

ACI_EMS_SYSTEM_WATCH

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

ACI_EMS_GEN_003.PDI

LOAD

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

IMO Price Watch

PRICING

Report

RESERVE

Triggers

THE FUTURE

KE

ACI_EMS_KE_001.PDI

FF

ACI_EMS_FF_001.PDI

FW

ACI_EMS_FW_001.PDI

TD

ACI_EMS_TD_001.PDI

IF

ACI_EMS_IF_001.PDI

KE

ACI_EMS_KE_003.PDI

FF

ACI_EMS_FF_003.PDI

FW

ACI_EMS_FW_003.PDI

TD

ACI_EMS_TD_003.PDI

IF

ACI_EMS_IF_003.PDI

TOR

ACI_EMS_TOR_weather.PDI

KE

ACI_EMS_KE_weather.PDI

FF

ACI_EMS_FF_weather.PDI

FW

ACI_EMS_FW_weather.PDI

TD

ACI_EMS_TD_weather.PDI

IF

ACI_EMS_IF_WEATHER.PDI

[ON]

ACI_EMS_ON_002.PDI

KE

ACI_EMS_KE_002.PDI

FF

ACI_EMS_FF_002.PDI

FW

ACI_EMS_FW_002.PDI

TD

ACI_EMS_TD_002.PDI

IF

ACI_EMS_IF_002.PDI

ON

ON_005.PDI

MT

MT_005.PDI

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH

MT

KE

FF

FW

TD

IF

ACI_EMS_IF_001.PDI

IROQUOIS FALLS - HOURLY ENERGY

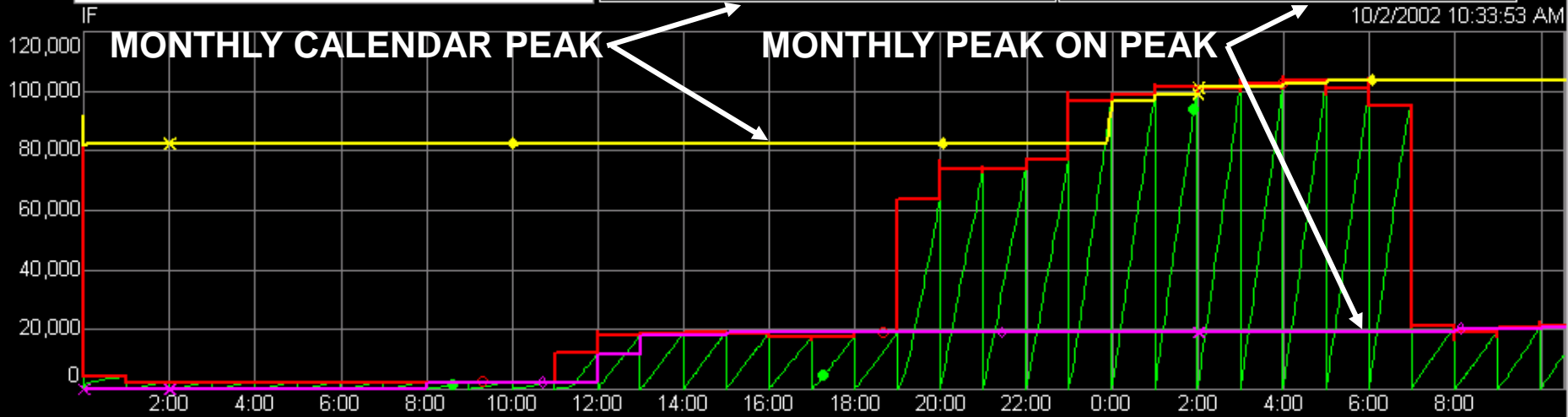
Hourly Energy: 11,668 kW 10/2/2002 10:33:23 AM

Hourly Forecast: 21,429 kW

Peak Load: 103,763 kW

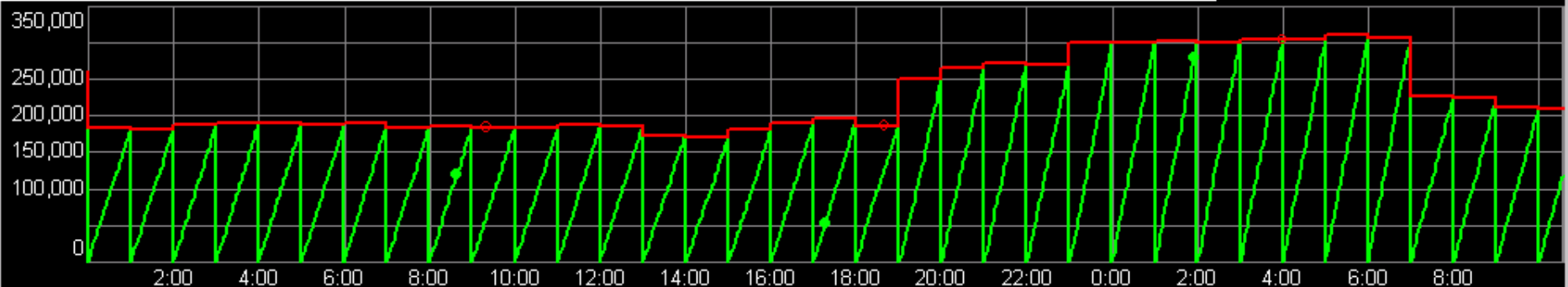
On-PK Demand: 20,693 kW

10/2/2002 10:33:53 AM



ONTARIO DEMAND 10/2/2002 10:33:08 AM 116,127 kW 10/2/2002 10:00:01 AM 210,331 kW

10/2/2002 10:33:54 AM



MESSAGE CENTER

10/2/2002 8:34:06 AM No Message

TORONTO

10/2/2002 10:00:00 AM Light Rainshower

V 1.0/2002-03-30

WARNING:

Temp (C): 21.0	Normal Max (C): 18.3	Wind Direction: W	Rel. Humidity (%): 84	Sunrise: 07:15
WindChill: 28.0	Min: 6.2	Speed (km/h): 13	Atm Pressure (Kpa): 101.5	Sunset: 19:00
Dew Point: 19.0	Avg: 12.3	Gusting: 0	Visibility (km): 16	Moonrise: 01:50
YESTERDAY	Max Temp: 29.5	Min Temp: 19.4	Precip. Total (mm): 0.0	Moonset: 17:46

5.00 AM EDT Wednesday 2 October 2002, Cloudy with a 70 percent chance of showers. Risk of a thunderstorm. Wind increasing to west 30 km/h. High 26.

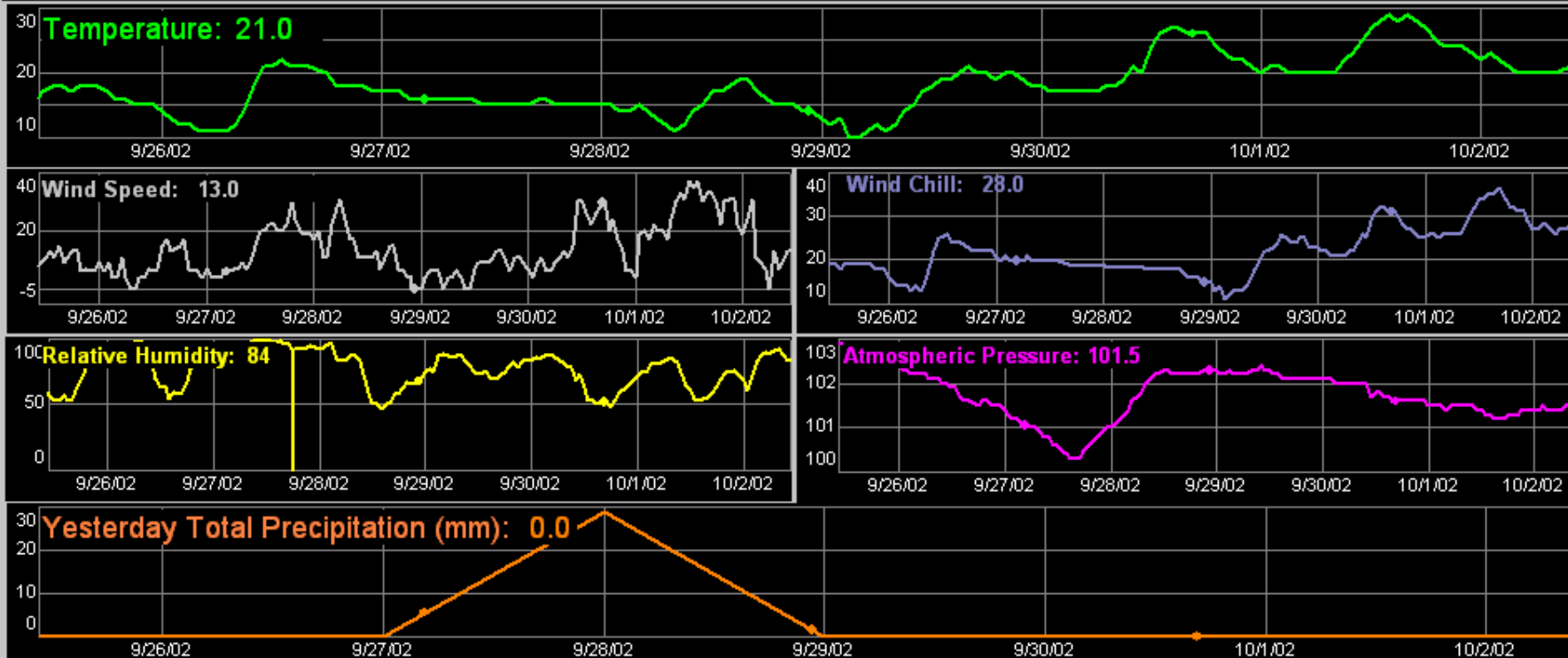
Tonight..Mainly cloudy with 70 percent chance of showers. Risk of a thunderstorm this evening. Wind north 25 km/h. Low 12.

Thursday..Becoming sunny in the morning. Wind north 25 km/h diminishing in the morning. High 16.

Friday..Cloudy. Low 12. High 26.

Saturday..Periods of rain. Low 16. High 23.

Sunday..Sunny with cloudy periods. Low 6. High 18.

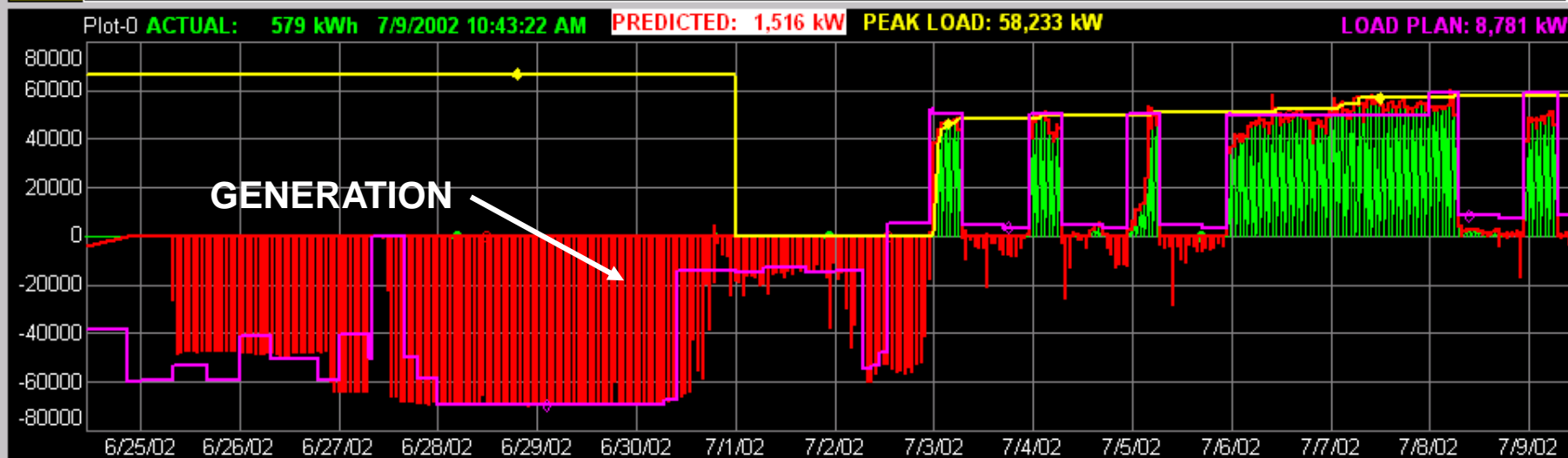
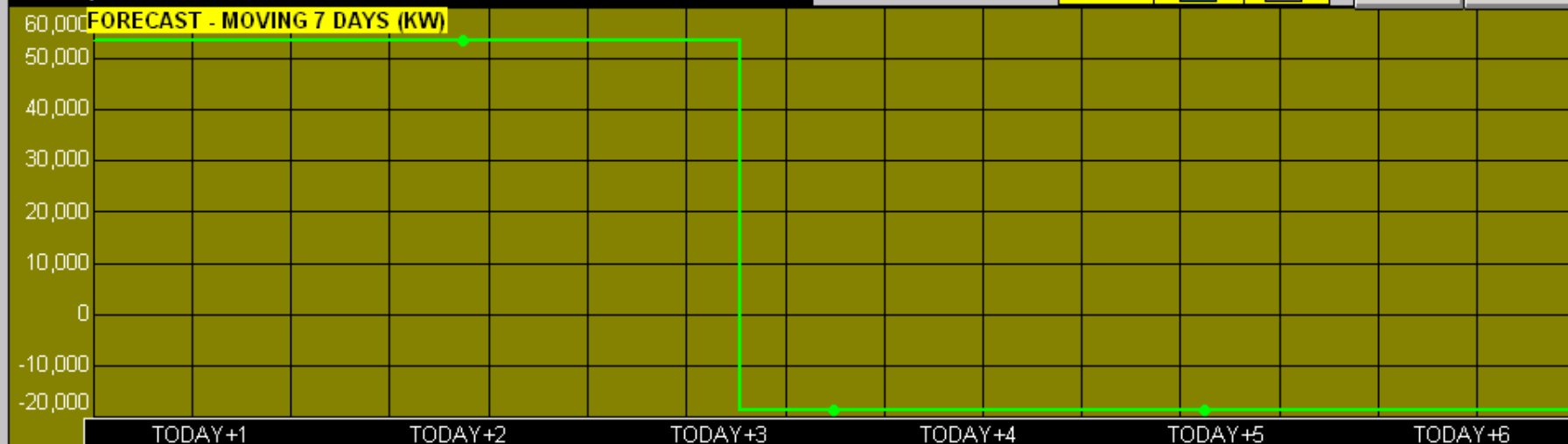


MOVING 21 DAYS/31DAYS

Return

Close

IROQUOIS FALLS - ACTUAL AND LOAD PLANNING



MESSAGE CENTER

10/2/2002 8:34:06 AM No Message

HO

ACI ENERGY MANAGEMENT SYSTEM CONTROL CENTRE

Read Me

2003-02-27

GENERAL

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

Load Planning

Menu

ACI_EMS_PB_001.PDI

Send MSG

SENDMESSAGE

Alarm

ACI_EMS_GEN_002.PDI

LPM

LOAD PLANNING MODULE

SYS. WATCH

ACI_EMS_SYSTEM_WATCH

Market Demand

ACI_EMS_GEN_DISPATCH
MARKET_DEMAND.PDI

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

ACI_EMS_GEN_003.PDI

LOAD

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

IMO Price Watch

PRICING

RESERVE

Report

Triggers

KE

ACI_EMS_KE_001.PDI

FF

ACI_EMS_FF_001.PDI

FW

ACI_EMS_FW_001.PDI

TD

ACI_EMS_TD_001.PDI

IF

ACI_EMS_IF_001.PDI

KE

ACI_EMS_KE_003.PDI

FF

ACI_EMS_FF_003.PDI

FW

ACI_EMS_FW_003.PDI

TD

ACI_EMS_TD_003.PDI

IF

ACI_EMS_IF_003.PDI

TOR

ACI_EMS_TOR_weather.PDI

KE

ACI_EMS_KE_weather.PDI

FF

ACI_EMS_FF_weather.PDI

FW

ACI_EMS_FW_weather.PDI

TD

ACI_EMS_TD_weather.PDI

IF

ACI_EMS_IF_weather.PDI

[ON]

ACI_EMS_ON_002.PDI

KE

ACI_EMS_KE_002.PDI

FF

ACI_EMS_FF_002.PDI

FW

ACI_EMS_FW_002.PDI

TD

ACI_EMS_TD_002.PDI

IF

ACI_EMS_IF_002.PDI

ON

ON_005.PDI

MT

MT_005.PDI

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH

MT

KE

FF

FW

TD

IF

MONTHLY MAX: 3-Apr-03 19:00:00 21,025 MW

V 1.0/2003-03-23

APIPI Server

ACI_EMS_GEN_DISPATCH_MARKET_DEMAND.PDI

Ontario - Market Demand

Refresh

Return

Close

5 MINUTE MARKET DEMAND

MAX: 3-Apr-03 19:35:00 21,118 MW

ACTUAL: 4/24/2003 12:55:00 PM 18,285 MW

HOURLY MOVING AVERAGE

MAX: 1-Apr-03 00:00:59.02281 21,054 MW

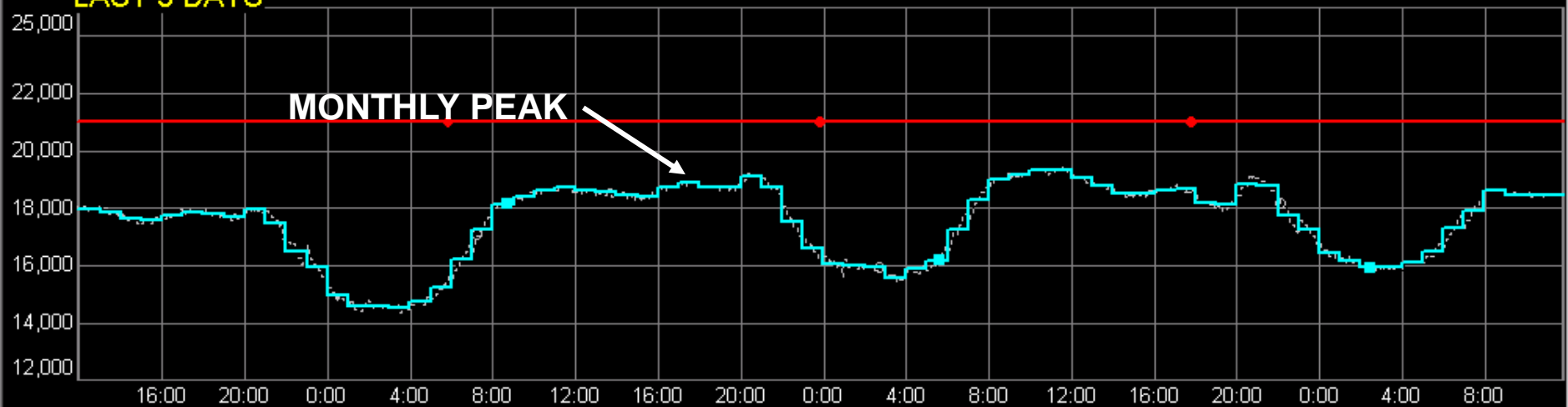
ACTUAL: 4/24/2003 12:55:00 PM 18,337 MW

MONTHLY MAX

MAX: 3-Apr-03 19:00:00 **21,025 MW**

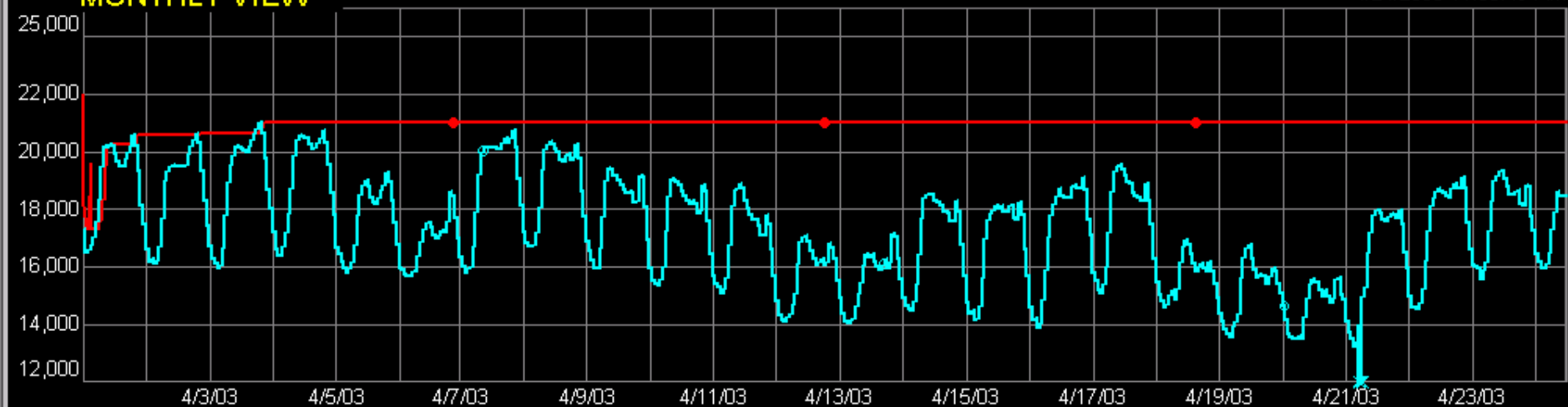
LAST 3 DAYS

4/24/2003 11:50:49 AM



MONTHLY VIEW

4/24/2003 11:50:49 AM



ACI/Energy Management System

The Independent electrical Market Operator (IMO)

❖ RTEM (Real Time Energy Market)

- ◆ 5 minute pricing

❖ HOEP (Hourly Ontario Energy Price)

- ❖ Hourly average of RTEM

❖ Predispatch (Forecast for tomorrow)

- ◆ Hourly pricing



IMO PRICE WATCH - ENERGY

Refresh



Return

Close

RTEM/HOEP



FORECAST



RESERVE

YESTERDAY

TODAY



TODAY



TOMORROW

TODAY

RTEM	HOEP	RTEM	HOEP	Today	Remainder	[Nb of hours]	10N	10S	30R
Avg: \$38.64	\$39.81	\$56.52	\$54.11	Avg: \$67.73	\$82.61	\$895.12	\$1.13	\$7.36	\$1.13
Max: \$192.68	\$87.95	\$132.95	\$93.68	Max: \$90.00	\$90.00 [1]	\$2,000.00 [6]	\$46.40	\$56.07	\$46.40
Min: \$29.85	\$30.86	\$30.31	\$31.19	Min: \$32.00	\$38.50 [0]	\$37.35 [2]	\$0.39	\$3.17	\$0.39
R: \$162.83	\$57.09	\$102.64	\$62.49	R: \$58.00	\$51.50	\$1,962.65	\$46.01	\$52.90	\$46.01

RTEM: \$74.24

9/30/2002 2:45:00 PM

HOEP: \$93.68

9/30/2002 1:00:00 PM

Tomorrow: [6]

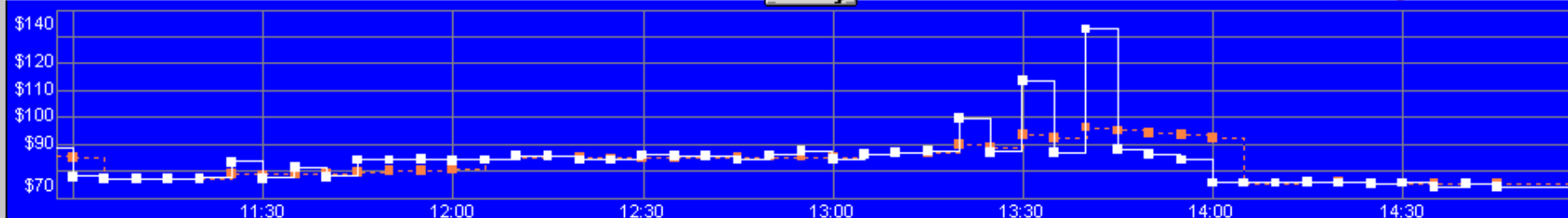
Max: \$2,000.00 Min: \$37.35 [2]

[ON] MSG: 8/31/2002 7:43:17 AM No Message

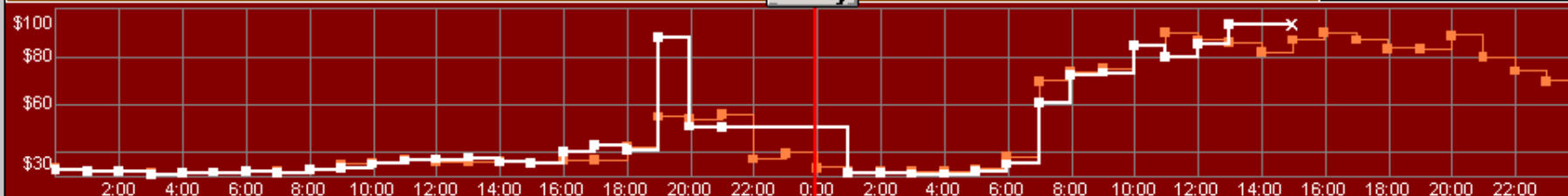
[ALL] MSG: 9/24/2002 4:11:29 PM No Message

TOR - Now: 27 C 9/30/2002 2:00:00 PM Tonight..Mainly cloudy. Wind southwest 30 km/h. Low 17.

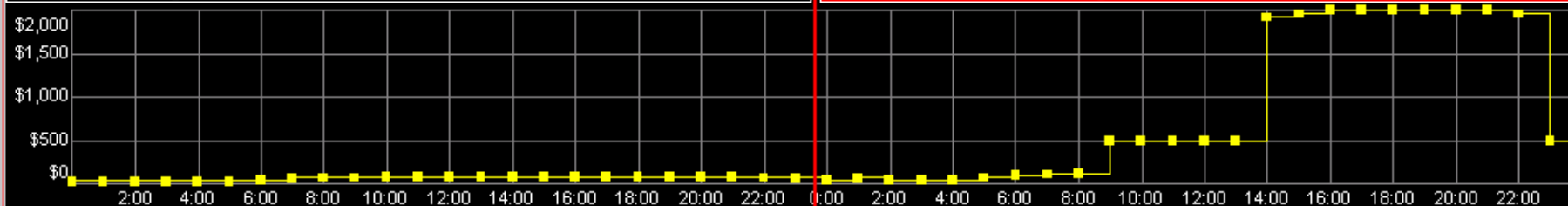
RTEM - Today: 9/30/2002 2:45:00 PM \$ 74.24/ MW Avg: \$56.52 History Max: \$132.95 Min: \$30.31 R: \$102.64 Average: \$ 75.23/ MW



HOEP: - Yesterday: Avg: \$39.81 Max: \$87.95 Min: \$30.86 R: \$57.09 History Today: \$ 93.68/ MW 9/30/2002 1:00:00 PM Forecast: \$ 82.00/ MW



Forecast - Today: \$ 82.00/ MW 9/30/2002 2:50:08 PM Max: \$90.00 Min: \$32.00 Forecast - Tomorrow: Avg: \$895.12 Max: \$2,000.00 [6] Min: \$37.35 [2]



IMO PRICE WATCH - ENERGY

V 1.0/2002-08-14

Refresh

Return

Close

RTEM/HOEP



FORECAST



RESERVE

YESTERDAY

TODAY



TODAY



TOMORROW

TODAY

RTEM	HOEP	RTEM	HOEP	Today	Remainder	[Nb of hours]	10N	10S	30R
Avg: \$31.07	\$31.07	\$25.95	\$25.62	Avg: \$74.62	\$97.15	\$28.09	\$1.09	\$2.17	\$1.09
Max: \$72.09	\$51.53	\$49.67	\$28.76	Max: \$164.43	\$164.43 [1]	\$28.09 [24]	\$23.20	\$23.20	\$23.20
Min: \$24.00	\$24.99	\$22.77	\$23.88	Min: \$25.00	\$28.09 [0]	\$28.09 [24]	\$0.87	\$2.11	\$0.87
R: \$48.09	\$26.54	\$26.90	\$4.88	R: \$139.43	\$136.34	\$0.00	\$22.33	\$21.09	\$22.33

RTEM: \$50.45

APIPI:ACI_ON IMO_ONZNRTEM_ENERGY.PV (5/5/2003 8:05:00 AM)

HOEP: \$28.76
5/5/2003 7:00:00 AM

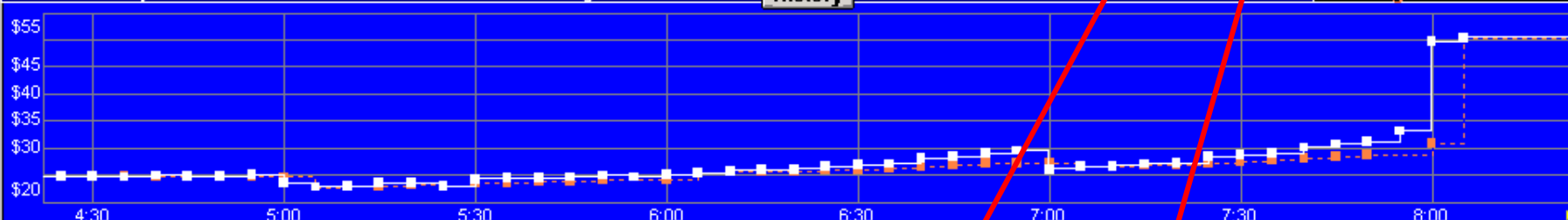
Tomorrow: [24] [24]
Max: \$28.09 Min: \$28.09

[ON] MSG: 4/16/2003 8:39:13 AM ON: Welcome to ACI Energy Management System

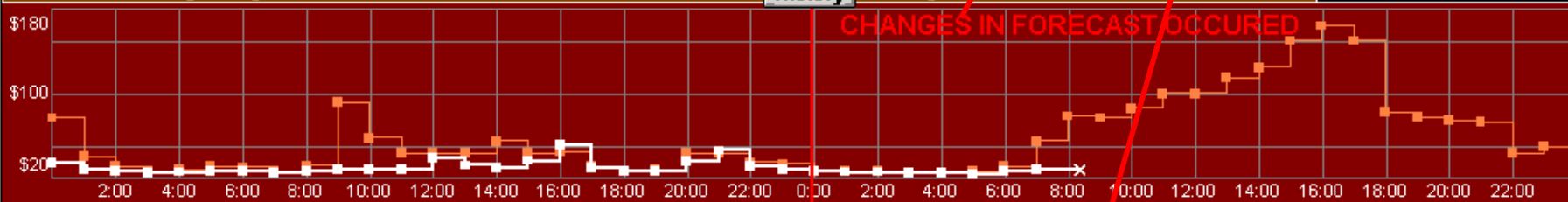
[ALL] MSG: 4/16/2003 8:39:13 AM ON: Welcome to ACI Energy Management System

TOR - Now: 10 C 5/5/2003 6:00:00 AM Tonight : Showers and risk of a thunderstorm. Wind southeast 20 km/h. Low 7.

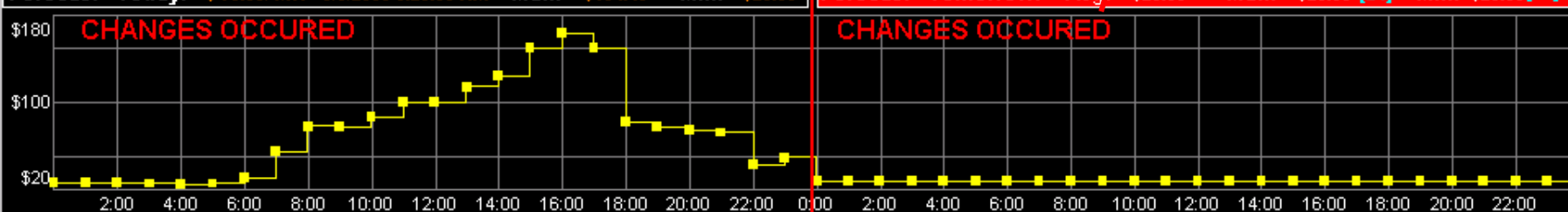
RTEM - Today: 5/5/2003 8:05:00 AM \$ 50.45/MW Avg: \$25.95 History Max: \$49.67 Min: \$22.77 R: \$26.90 Average: \$ 50.45/MW



HOEP: - Yesterday: Avg: \$31.07 Max: \$51.53 Min: \$24.99 R: \$26.54 History Today: \$ 28.76/MW 5/5/2003 7:00:00 AM Forecast: \$ 78.66/MW



Forecast - Today: \$ 78.66/MW 5/5/2003 8:20:36 AM Max: \$164.43 Min: \$25.00 Forecast - Tomorrow: Avg: \$28.09 Max: \$28.09 [24] Min: \$28.09 [24]



Refresh

Return

Close

IMO PRICE WATCH - ENERGY

STATISTICS

	KENORA		F. FRANCES		FORT WILLIAM		THOROLD		I. FALLS		YESTERDAY		TODAY	
	RTEM	HOEP	RTEM	HOEP	RTEM	HOEP	RTEM	HOEP	RTEM	HOEP	RTEM	HOEP	RTEM	HOEP
	\$82.51	\$76.43	\$82.51	\$76.43	\$82.51	\$76.43	\$82.51	\$76.43	\$82.51	\$76.43				
HIGH/LOW	Triggers	Triggers	Triggers	Triggers	Triggers	Triggers	Triggers	Triggers	Triggers	Triggers	Avg:			
LEV-3	\$100.00	\$120.00	\$1,000.00	\$300.00	\$450.00	\$450.00	\$528.00	\$1,000.00	\$180.00	\$180.00	Max:	\$120.44	\$99.88	\$85.62
LEV-2	\$70.00	\$80.00	\$600.00	\$200.00	\$150.00	\$200.00	\$300.00	\$1,000.00	\$170.00	\$170.00	Min:	\$30.22	\$30.44	\$30.37
LEV-1	\$50.00	\$60.00	\$300.00	\$100.00	\$100.00	\$150.00	\$150.00	\$1,000.00	\$150.00	\$100.00	R:	\$90.22	\$69.44	\$55.25
LEV-1	\$20.00	\$20.00	\$20.00	\$20.00	\$0.00	\$0.00	\$0.00	\$0.00	\$111.00	\$65.00				
LEV-2	\$15.00	\$15.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$110.00	\$60.00				
LEV-3	\$10.00	\$10.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.00	\$50.00				

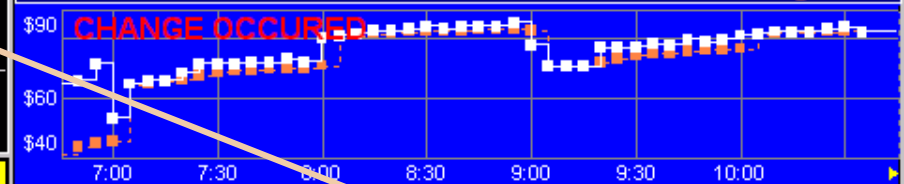
RTEM: \$82.51 10/2/2002 10:35:00 AM
 HOEP: \$76.43 10/2/2002 9:00:00 AM

IMO Forecast - ENERGY

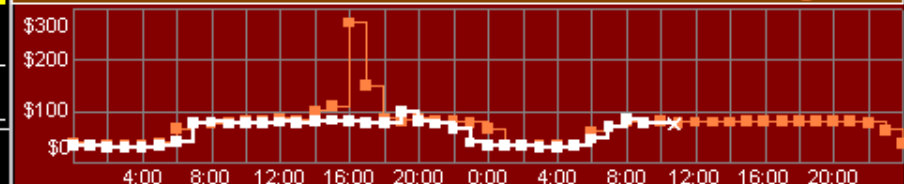
Today	Avg:	\$66.91	Max:	\$80.00	Min:	\$31.06	R:	\$48.94
Tomorrow	Avg:	\$36.41	Max:	\$36.41	Min:	\$36.41	R:	\$0.00

	KE	FF	FW	TD	IF
HIGH/LOW	Triggers	Triggers	Triggers	Triggers	Triggers
LEV-3	\$250.00	\$300.00	\$450.00	\$528.00	\$180.00
LEV-2	\$170.00	\$200.00	\$200.00	\$200.00	\$170.00
LEV-1	\$100.00	\$100.00	\$150.00	\$100.00	\$100.00
LEV-1	\$20.00	\$20.00	\$0.00	\$0.00	\$50.00
LEV-2	\$15.00	\$0.00	\$0.00	\$0.00	\$30.00
LEV-3	\$10.00	\$0.00	\$0.00	\$0.00	\$20.00

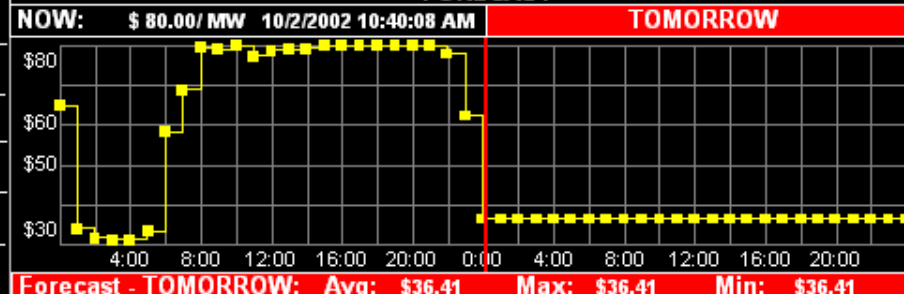
RTEM: 10/2/2002 10:35:00 AM \$ 82.51/ MW Max: \$85.62 Min: \$30.37 Avg: \$82.81

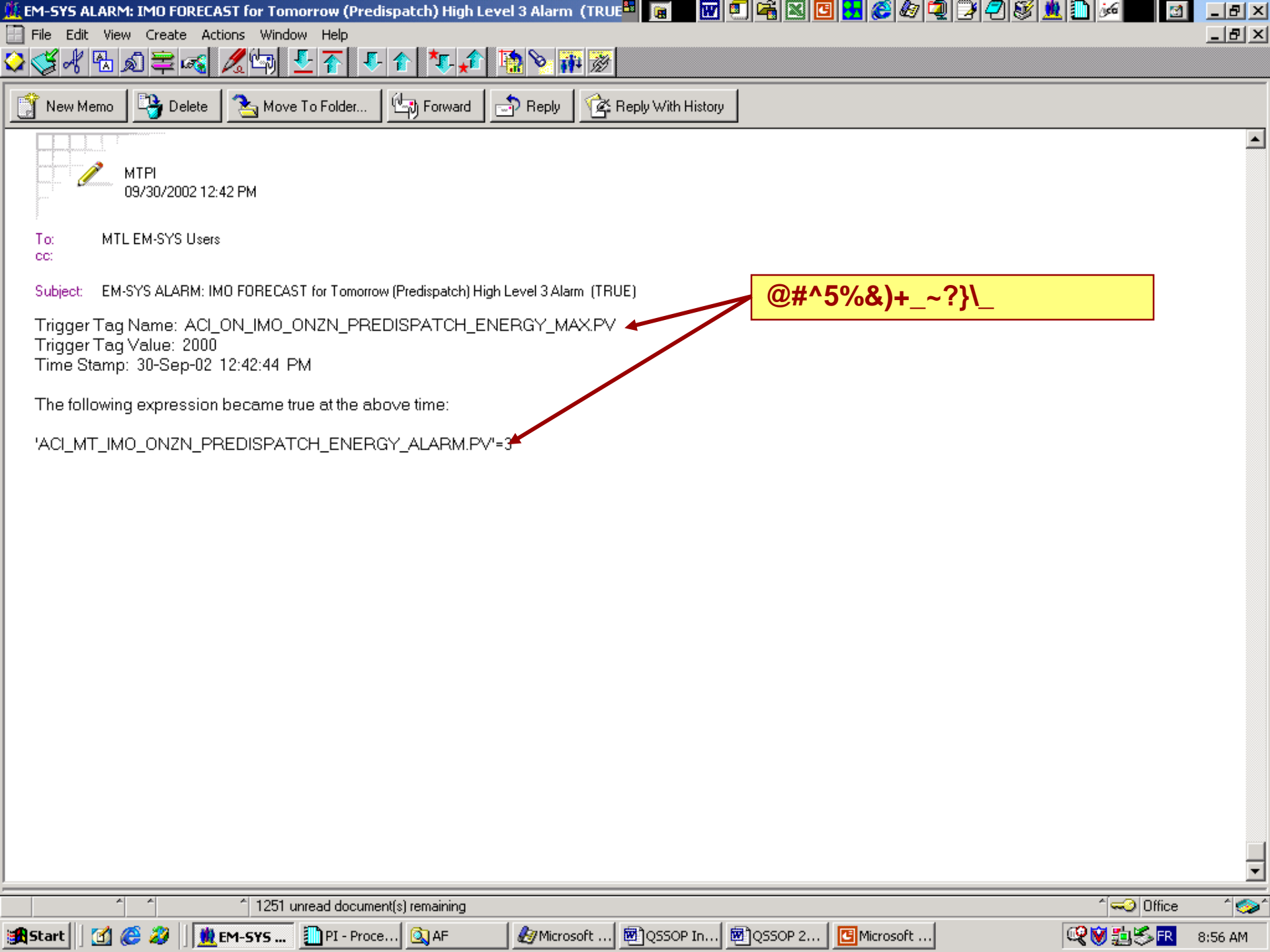


HOEP: 10/2/2002 9:00:00 AM \$ 76.43/ MW Max: \$83.30 Min: \$30.53 Avg: \$80.00



FORECAST





MTPI
09/30/2002 12:42 PM

To: MTLE M-SYS Users
cc:

Subject: EM-SYS ALARM: IMO FORECAST for Tomorrow (Predispatch) High Level 3 Alarm (TRUE)

Trigger Tag Name: ACI_ON_IMO_ONZN_PREDISPATCH_ENERGY_MAX.PV
Trigger Tag Value: 2000
Time Stamp: 30-Sep-02 12:42:44 PM

The following expression became true at the above time:

'ACI_MT_IMO_ONZN_PREDISPATCH_ENERGY_ALARM.PV'=3

@#^5%&)+_~?}_

ACI Energy Management System

10/2/2002 10:55 AM

IMO ONLINE PRICING						
2002/10/02 10:55	Hour	HOEP		RESERVE - Average		
		TODAY	FORECAST	10N	10S	30R
TODAY 2002/10/02	00:00	\$32.20	\$65.00	\$0.40	\$3.64	\$0.40
	01:00	\$31.42	\$33.81	\$0.41	\$3.22	\$0.41
	02:00	\$30.97	\$31.54	\$0.39	\$3.17	\$0.39
	03:00	\$30.79	\$31.17	\$0.39	\$3.17	\$0.39
	04:00	\$30.53	\$31.06	\$0.39	\$3.17	\$0.39
	05:00	\$31.41	\$33.26	\$0.39	\$3.38	\$0.39
	06:00	\$45.10	\$58.20	\$0.41	\$6.69	\$0.41
	07:00	\$68.72	\$68.98	\$0.63	\$9.77	\$0.63
	08:00	\$83.30	\$79.53	\$0.64	\$10.15	\$0.64
	09:00	\$76.43	\$79.00	\$0.59	\$10.13	\$0.59
	10:00		\$80.00			
	11:00		\$77.35			
	12:00		\$78.68			
	13:00		\$79.00			
	14:00		\$79.21			
	15:00		\$80.00			
	16:00		\$80.00			
	17:00		\$80.00			
	18:00		\$80.00			
	19:00		\$80.00			
	20:00		\$80.00			
	21:00		\$80.00			
	22:00		\$77.90			
	23:00		\$62.36			
TOMORROW 2002/10/03	00:00		\$36.41	\$0.39	\$5.12	\$0.39
	01:00		\$36.41	\$0.39	\$5.12	\$0.39
	02:00		\$36.41	\$0.39	\$5.12	\$0.39
	03:00		\$36.41	\$0.39	\$5.12	\$0.39
	04:00		\$36.41	\$0.39	\$5.12	\$0.39
	05:00		\$36.41	\$0.39	\$5.12	\$0.39
	06:00		\$36.41	\$0.39	\$5.12	\$0.39
	07:00		\$36.41	\$0.39	\$5.12	\$0.39
	08:00		\$36.41	\$0.39	\$5.12	\$0.39
	09:00		\$36.41	\$0.39	\$5.12	\$0.39
	10:00		\$36.41	\$0.39	\$5.12	\$0.39
	11:00		\$36.41	\$0.39	\$5.12	\$0.39
	12:00		\$36.41	\$0.39	\$5.12	\$0.39
	13:00		\$36.41	\$0.39	\$5.12	\$0.39
	14:00		\$36.41	\$0.39	\$5.12	\$0.39
	15:00		\$36.41	\$0.39	\$5.12	\$0.39
	16:00		\$36.41	\$0.39	\$5.12	\$0.39

ACTUAL

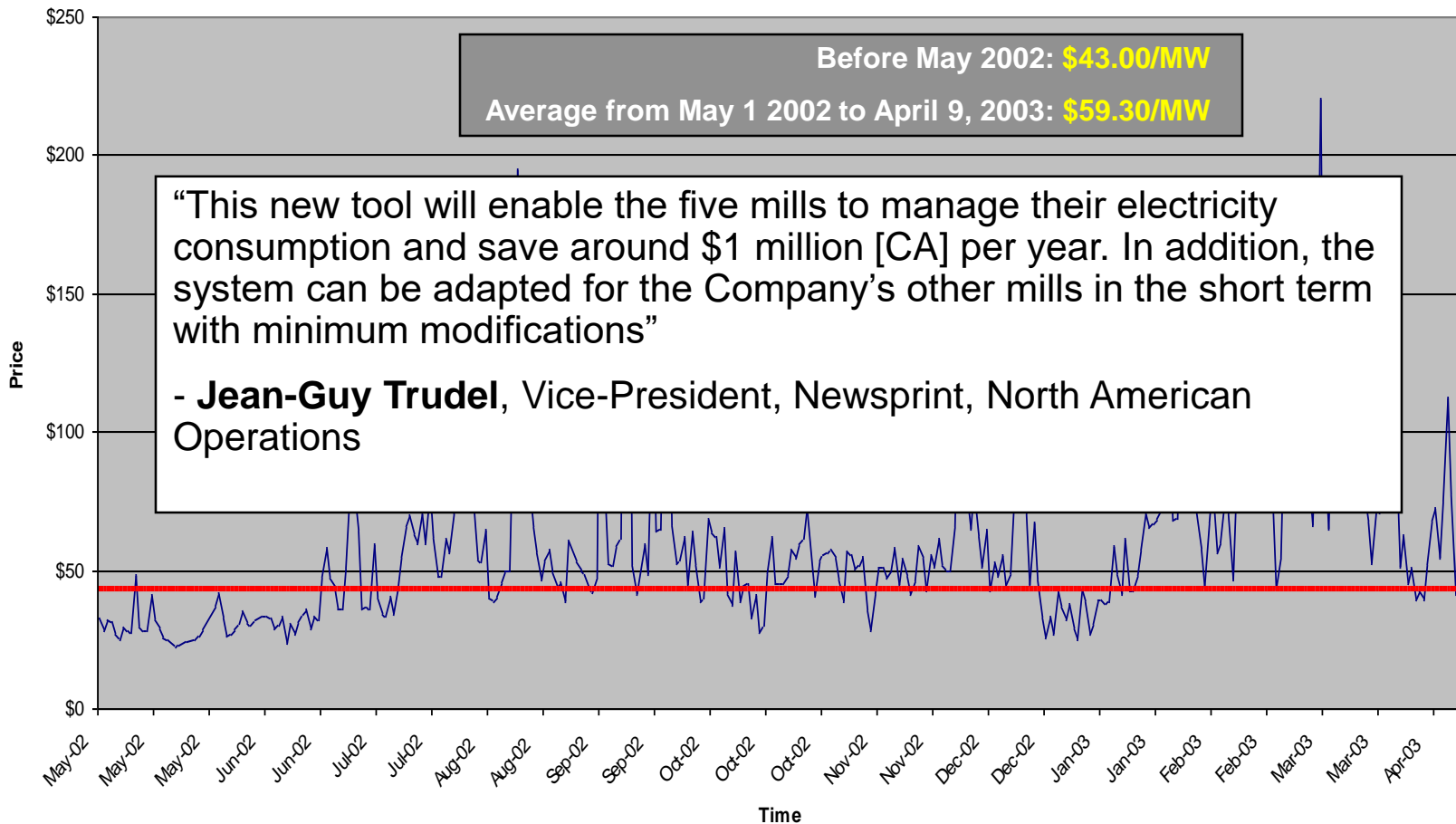
FORECAST

RESERVE

ACI/Energy Management System

One year after Market opening

HOEP Daily Average



Average from May 1 2002 to December 31, 2002: **\$52.69/MW**

Average from January 1 2003 to April 9, 2003: **\$75.06/MW**

MONTREAL PI SYSTEM

[Read Me](#)

2003-02-27

ENERGY

COMMODITIES

[Summary](#)[Gas](#)[Oil](#)

LOCATIONS

[Ontario](#)[Quebec](#)[Newfoundland](#)[USA](#)

KPI

[Summary](#)

ACI/Energy Management System

Expanding to other commodities

SYSTEM
Overview[System](#)

NATURAL GAS FUTURES

Source: FUTURESOURCE.COM

LAST 8 HOURS

NATURAL GAS

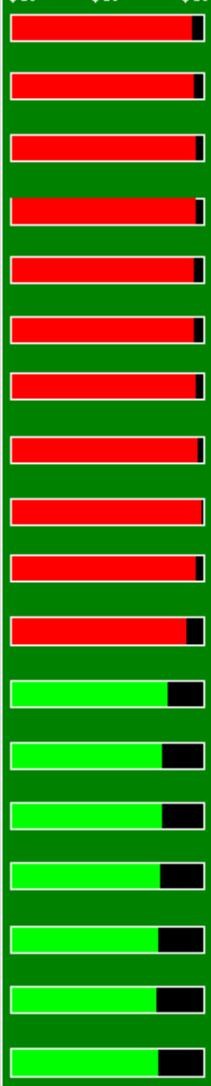
From To
May '03 Oct '04

May '03	\$0.007
4/16/2003 2:25:55 PM	\$5.660
Jun '03	\$0.011
4/16/2003 2:25:10 PM	\$5.750
Jul '03	\$0.011
4/16/2003 2:21:09 PM	\$5.790
Aug '03	\$0.001
4/16/2003 2:24:59 PM	\$5.760
Sep '03	\$0.022
4/16/2003 2:14:02 PM	\$5.730
Oct '03	\$0.012
4/16/2003 2:21:05 PM	\$5.700
Nov '03	\$0.015
4/16/2003 2:09:56 PM	\$5.770
Dec '03	\$0.010
4/16/2003 2:19:43 PM	\$5.840
Jan '04	\$0.035
4/16/2003 2:06:23 PM	\$5.930
Feb '04	\$0.012
4/16/2003 2:14:41 PM	\$5.760
Mar '04	\$0.003
4/16/2003 1:42:18 PM	\$5.470
Apr '04	(\$0.052)
4/16/2003 1:52:37 PM	\$4.900
May '04	(\$0.004)
4/16/2003 2:07:35 PM	\$4.730
Jun '04	(\$0.004)
4/16/2003 2:09:21 PM	\$4.660
Jul '04	(\$0.030)
4/16/2003 8:27:14 AM	\$4.659
Aug '04	(\$0.064)
4/16/2003 12:14:15 PM	\$4.600
Sep '04	(\$0.029)
4/16/2003 11:56:11 AM	\$4.570
Oct '04	(\$0.034)
4/16/2003 2:23:00 PM	\$4.580

Web Sites

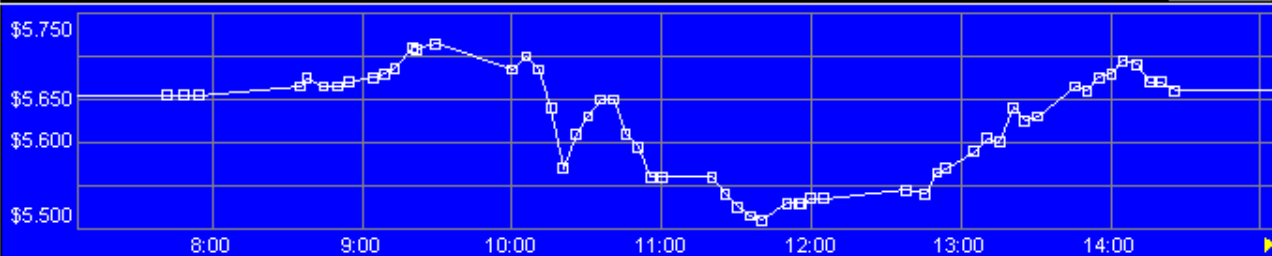
Natural Gas

\$0. \$3. \$6.



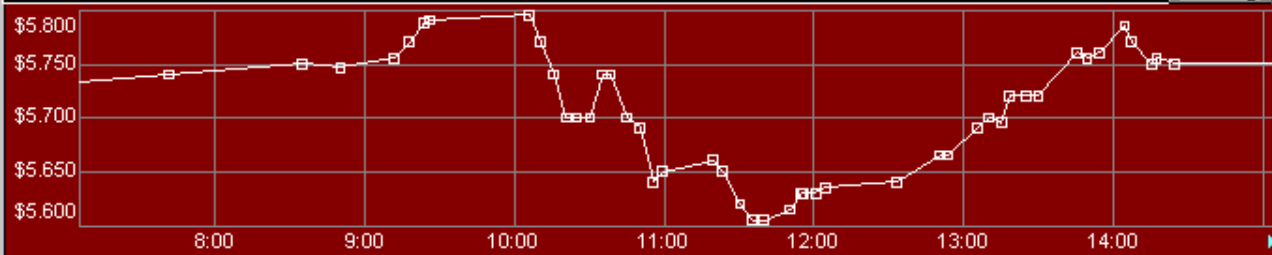
May '03 Actual: 4/16/2003 2:25:55 PM \$ 5.660 Change:

History



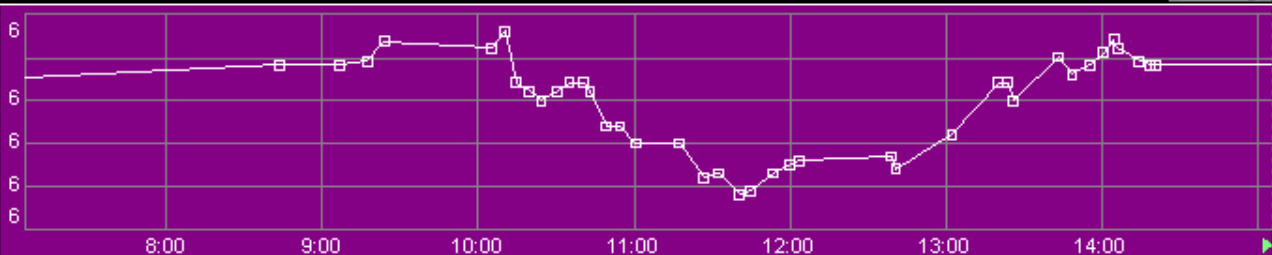
Jun '03 Actual: 4/16/2003 2:25:10 PM \$ 5.750 Change:

History



Jul '03 Actual: 4/16/2003 2:21:09 PM \$ 5.790 Change: \$0.011

History



Crude Oil Falls on Expectation of Global Surplus, Even With Production Cut

New York, April 16 (Bloomberg) -- Crude oil fell on expectations that production from the Organization of Petroleum Exporting Countries will swell global supplies.

Bloomberg Last Updated: April 16, 2003 14:18 EDT

Web Sites

Bloomberg

BRENT CRUDE OIL FUTURES

Source: FUTURESOURCE.COM

BRENT CRUDE OIL

Web Sites

Crude Oil

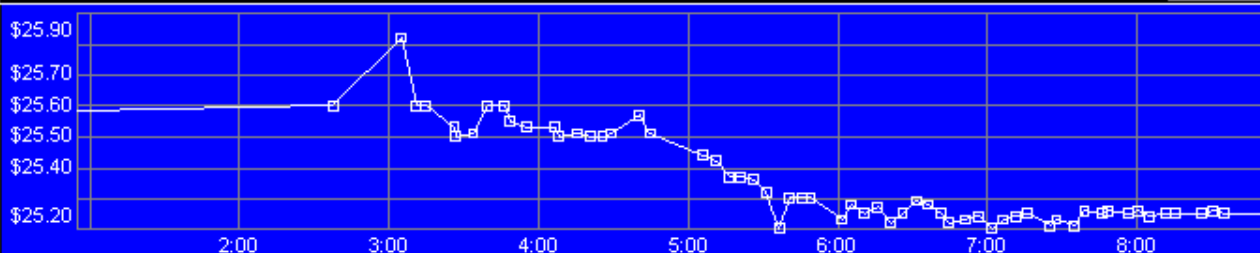
From
Jun '03 To
Dec '05Jun '03 (\$0.210)
4/23/2003 8:35:18 AM \$25.250Jul '03 (\$0.160)
4/23/2003 8:28:06 AM \$25.240Aug '03 (\$0.140)
4/23/2003 7:24:06 AM \$25.090Sep '03 (\$0.090)
4/23/2003 6:01:09 AM \$24.970Oct '03 (\$0.430)
4/22/2003 2:44:28 PM \$24.890Nov '03 (\$0.460)
4/22/2003 2:44:28 PM \$24.700Dec '03 (\$0.110)
4/23/2003 7:27:58 AM \$24.400Jan '04 (\$0.070)
4/23/2003 6:54:36 AM \$24.250Feb '04 (\$0.510)
4/22/2003 2:44:28 PM \$24.140Mar '04 (\$0.520)
4/22/2003 2:44:28 PM \$23.960Apr '04 (\$0.540)
4/22/2003 2:44:28 PM \$23.780May '04 (\$0.590)
4/22/2003 2:44:28 PM \$23.610Jun '04 (\$0.620)
4/22/2003 2:44:28 PM \$23.460Sep '04 (\$0.590)
4/22/2003 2:44:28 PM \$23.290Dec '04 (\$0.020)
4/23/2003 6:34:45 AM \$23.100Mar '05 (\$0.570)
4/22/2003 2:44:28 PM \$22.900Jun '05 (\$0.590)
4/22/2003 2:44:28 PM \$22.660Dec '05 (\$0.610)
4/22/2003 2:44:28 PM \$22.640

\$0. \$16. \$32.

LAST 8 HOURS

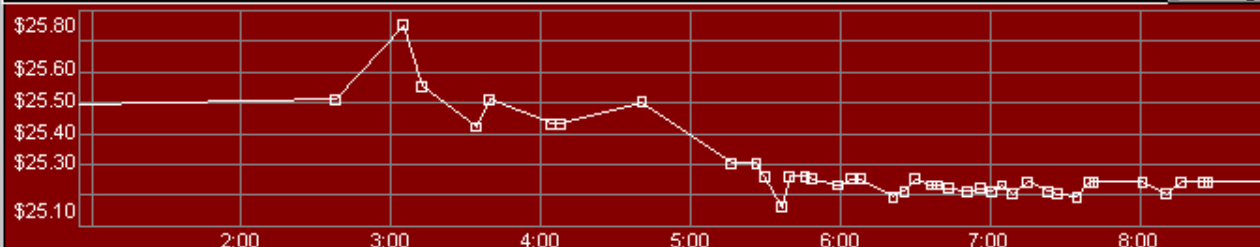
Jun '03 Actual: 4/23/2003 8:35:18 AM \$ 25.25 Change: (\$0.210)

History



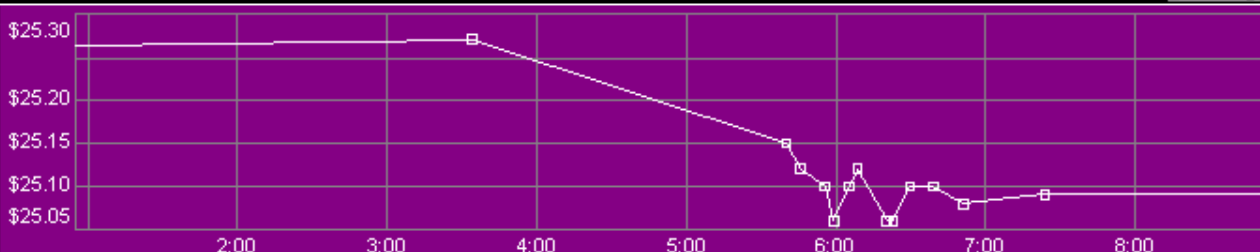
Jul '03 Actual: 4/23/2003 8:28:06 AM \$ 25.24 Change: (\$0.160)

History



Aug '03 Actual: 4/23/2003 7:24:06 AM \$ 25.09 Change: (\$0.140)

History



Australian Steelmaker Targets Listing on Vietnam's 21-Share Stock Exchange

Hanoi, Vietnam, April 23 (Bloomberg) -- A unit of Australian steelmaker Vietnam Industrial Investments Ltd. said it may sell shares on Vietnam's stock market this year, bolstering a 2 1/2-year-old exchange on which just 21 companies' equities trade.

Bloomberg Last Updated: April 23, 2003 03:00 EDT

Web Sites

Bloomberg

FUTURES - Summary

Source: FUTURESOURCE.COM

[Refresh](#)

[Return](#)

[Close](#)

NATURAL GAS

From To

May '03 Oct '04

May '03 **\$0.007**

4/16/2003 1:51:00 PM \$5.660

Jun '03 **\$0.016**

4/16/2003 1:50:05 PM \$5.755

Jul '03 **\$0.001**

4/16/2003 1:49:00 PM \$5.780

Aug '03 **\$0.001**

4/16/2003 1:50:53 PM \$5.760

Sep '03 **(\$0.008)**

4/16/2003 1:39:31 PM \$5.700

Oct '03 **\$0.012**

4/16/2003 1:45:00 PM \$5.700

Nov '03 **(\$0.005)**

4/16/2003 1:24:42 PM \$5.750

Dec '03 **(\$0.005)**

4/16/2003 1:38:56 PM \$5.825

Jan '04 **\$0.005**

4/16/2003 1:44:00 PM \$5.900

Feb '04 **(\$0.008)**

4/16/2003 1:28:59 PM \$5.740

Mar '04 **\$0.003**

4/16/2003 1:42:18 PM \$5.470

Apr '04 **(\$0.032)**

4/16/2003 1:48:42 PM \$4.920

May '04 **(\$0.004)**

4/16/2003 10:54:16 AM \$4.760

Jun '04 **(\$0.004)**

4/16/2003 10:54:16 AM \$4.760

Jul '04 **(\$0.030)**

4/16/2003 8:27:14 AM \$4.659

Aug '04 **(\$0.064)**

4/16/2003 12:14:15 PM \$4.600

Sep '04 **(\$0.029)**

4/16/2003 11:56:11 AM \$4.570

Oct '04 **(\$0.044)**

4/16/2003 11:07:51 AM \$4.570

Web Sites

Natural Gas

\$0. \$3. \$6.

BRENT CRUDE OIL

From To

Jun '03 N/A

Jun '03 **\$0.020**

4/16/2003 2:00:05 PM \$25.180

Jul '03 **(\$0.020)**

4/16/2003 2:00:05 PM \$25.100

Aug '03 **(\$0.080)**

4/16/2003 12:54:29 PM \$24.890

Sep '03 **(\$0.180)**

4/16/2003 12:27:59 PM \$24.650

Oct '03 **(\$0.150)**

4/16/2003 12:28:13 PM \$24.530

Nov '03 **(\$0.180)**

4/16/2003 12:28:55 PM \$24.350

Dec '03 **\$0.000**

4/16/2003 1:23:36 PM \$24.370

Jan '04 **(\$0.080)**

4/16/2003 5:16:02 AM \$24.130

Feb '04 **\$0.190**

4/15/2003 3:12:12 PM \$24.070

Mar '04 **\$0.190**

4/15/2003 3:12:12 PM \$23.940

Apr '04 **\$0.190**

4/15/2003 3:12:12 PM \$23.820

Jun '04 **(\$0.120)**

4/16/2003 12:02:14 PM \$23.550

Sep '04 **\$0.150**

4/15/2003 3:12:12 PM \$23.500

Dec '04 **(\$0.180)**

4/16/2003 12:14:26 PM \$23.150

Mar '05 **\$0.140**

4/15/2003 3:12:12 PM \$23.140

Jun '05 **\$0.130**

4/15/2003 3:12:12 PM \$22.950

Dec '05 **\$0.130**

4/15/2003 3:12:12 PM \$22.950

N/A **\$0.330**

4/16/2003 7:06:04 AM \$24.950

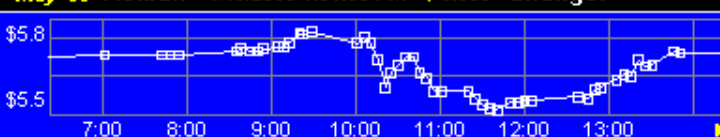
Web Sites

Crude Oil

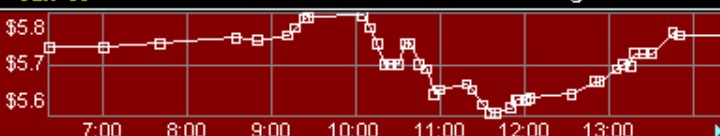
\$0. \$16. \$32.

NATURAL GAS

May '03 Actual: 4/16/2003 1:51:00 PM \$ 5.660 Change:



Jun '03 Actual: 4/16/2003 1:50:05 PM \$ 5.755 Change:



Jul '03 Actual: 4/16/2003 1:49:00 PM \$ 5.780 Change: \$0.001



BRENT CRUDE OIL

Jun '03 Actual: 4/16/2003 2:00:05 PM \$ 25.18 Change: \$0.02



Jul '03 Actual: 4/16/2003 2:00:05 PM \$ 25.10 Change: (\$0.02)



Aug '03 Actual: 4/16/2003 12:54:29 PM \$ 24.89 Change: (\$0.08)



Bloomberg HEADLINE: Last Updated: April 16, 2003 12:31 EDT

Crude Oil Falls on Expectation of Global Surplus, Even With Production Cut

Web Sites

[Bloomberg](#)



ACI ENERGY MANAGEMENT SYSTEM CONTROL CENTRE

Read Me

2002-08-14

GENERAL

Load Planning

Menu

ACI_EMS_PB_001.PDI

Send MSG

SendMessage

Alarm

ACI_EMS_GEN_002.PDI

LPM

Load Planning Module

SYS. WATCH

ACI_EMS_SYSTEM_WATCH

IMO Web Sites

Today's Market

IMO

DISPATCH

PREDISPATCH

SSA

ONTARIO AGGREGATE

Online Hourly Power

DEMAND

ACI_EMS_GEN_003.PDI

LOAD

ACI_EMS_GEN_004.PDI

MILLS

Online Hourly Power

Demand

Load

Weather

Actual/Plan

IMO Price Watch

PRICING

Report

RESERVE

Triggers

THE FUTURE

KE

ACI_EMS_KE_001.PDI

FF

ACI_EMS_FF_001.PDI

FW

ACI_EMS_FW_001.PDI

TD

ACI_EMS_TD_001.PDI

IF

ACI_EMS_IF_001.PDI

KE

ACI_EMS_KE_003.PDI

FF

ACI_EMS_FF_003.PDI

FW

ACI_EMS_FW_003.PDI

TD

ACI_EMS_TD_003.PDI

IF

ACI_EMS_IF_003.PDI

TOR

ACI_EMS_TOR_weather.PDI

KE

ACI_EMS_KE_weather.PDI

FF

ACI_EMS_FF_weather.PDI

FW

ACI_EMS_FW_weather.PDI

TD

ACI_EMS_TD_weather.PDI

IF

ACI_EMS_IF_WEATHER.PDI

[ON]

ACI_EMS_ON_002.PDI

KE

ACI_EMS_KE_002.PDI

FF

ACI_EMS_FF_002.PDI

FW

ACI_EMS_FW_002.PDI

TD

ACI_EMS_TD_002.PDI

IF

ACI_EMS_IF_002.PDI

ON

ON_005.PDI

MT

MT_005.PDI

KE

ACI_EMS_KE_IMO_WATCH

FF

ACI_EMS_FF_IMO_WATCH

FW

ACI_EMS_FW_IMO_WATCH

TD

ACI_EMS_TD_IMO_WATCH

IF

ACI_EMS_IF_IMO_WATCH

MT

KE

FF

FW

TD

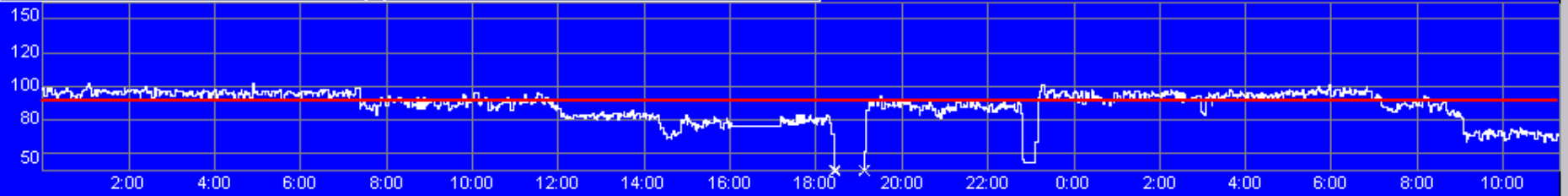
IF

MILL A - KEY PERFORMANCE INDICATORS (ELECTRICITY)

STATISTICS

	MARKET VALUE ESTIMATION			ACTUAL VERSUS PLAN									YESTERDAY		TODAY		
	MARKET	COST	NET	ACTUAL			MONTH TO DATE			YEAR TO DATE			RTEM	HOEP	RTEM	HOEP	
				ACTUAL	PLAN	NET	ACTUAL	PLAN	NET	ACTUAL	PLAN	NET					
MILL	\$4,444.11	\$3,784.37	\$668.60	MW	MW	MW	MW	MW	MW	MW	MW	MW	Avg:	\$63.59	\$63.59	\$49.71	\$46.39
TMP													Max:	\$120.44	\$99.88	\$85.62	\$83.30
PM													Min:	\$30.22	\$30.44	\$30.37	\$30.53
GWD													R:	\$90.22	\$69.44	\$55.25	\$52.77
SEC T.																	
STEAM																	
SERV																	

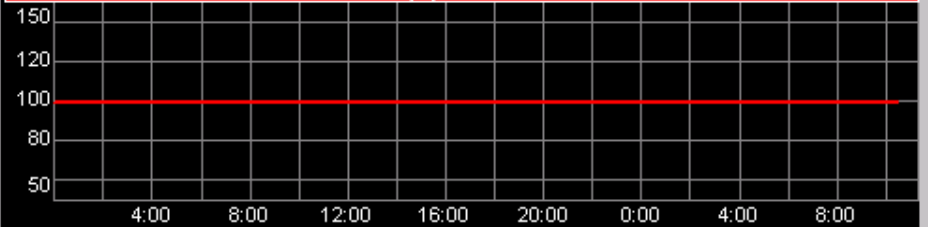
KPI: MILL - ACTUAL VERSUS PLAN (%): 10/2/2002 11:18:08 AM 70.31 (22.58 MW) 10/2/2002 11:18:09 AM



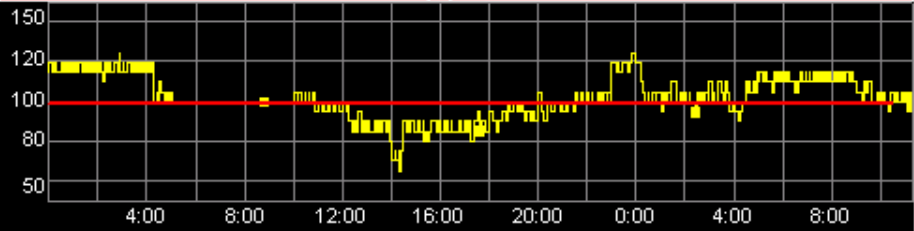
KPI TMP - ACTUAL VERSUS PLAN (%): 10/2/2002 11:18:08 AM 98.79 (0.56 MW)



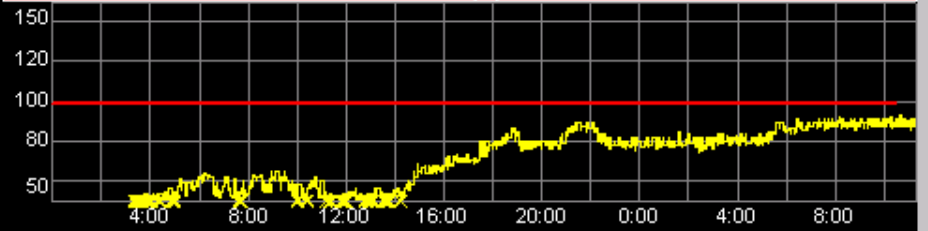
KPI PM - ACTUAL VERSUS PLAN (%): 10/2/2002 11:18:08 AM -125.85 (77.62 MW)



KPI GWD - ACTUAL VERSUS PLAN (%): 10/2/2002 11:18:08 AM 94.41 (2.43 MW)



KPI SEC TRT - ACTUAL VERSUS PLAN (%): 10/2/2002 11:18:08 AM 89.37 (5.46 MW)



ACI/Energy Management System

PART I CONCLUSION – Wise Spending

◆ Stretching our dollar by:

❖ Using existing assets

- ◆ Using the PI System as the backbone to get and exchange real time information

❖ Using our own resources & expertise

- ◆ IT/Port-Alfred – Load Planning Module & Weather Reporting
- ◆ IT Fort William – PI/IMO Specifications
- ◆ IT Fort Frances – Monthly peak

❖ Get Power Managers involved & accountable

- ◆ To satisfy our basic needs for the new market
- ◆ With room for growth



Part II

How we did it

Prerequisites

Team

Deadline

Roles

Timing

Delivering

Expectations

Vision

Selling

Conclusion



Prerequisites

Before you start anything...

A picture is worth a
thousand words



Your worst enemy or your best friend ?

**MAY
2002**



Timing

Timing is everything

Too early for the game...



Timing

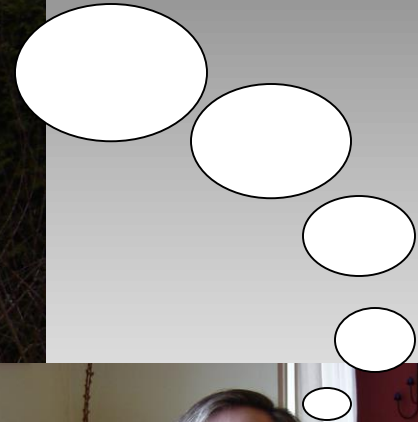
Timing is everything

...Or too late ?



Expectations

Clarify the expectations



Expectations

Clarify the expectations





Selling

Got the picture !!!



Team

Know your people

The Overly Organized



Team

Know your people

The Overly Risk Averter



ACI EM-SYS

May 2003

Team

Know your people

The Overly Risk Taker



Roles

Roles & Responsibilities

At the RIGHT place



Delivering

Product Delivery

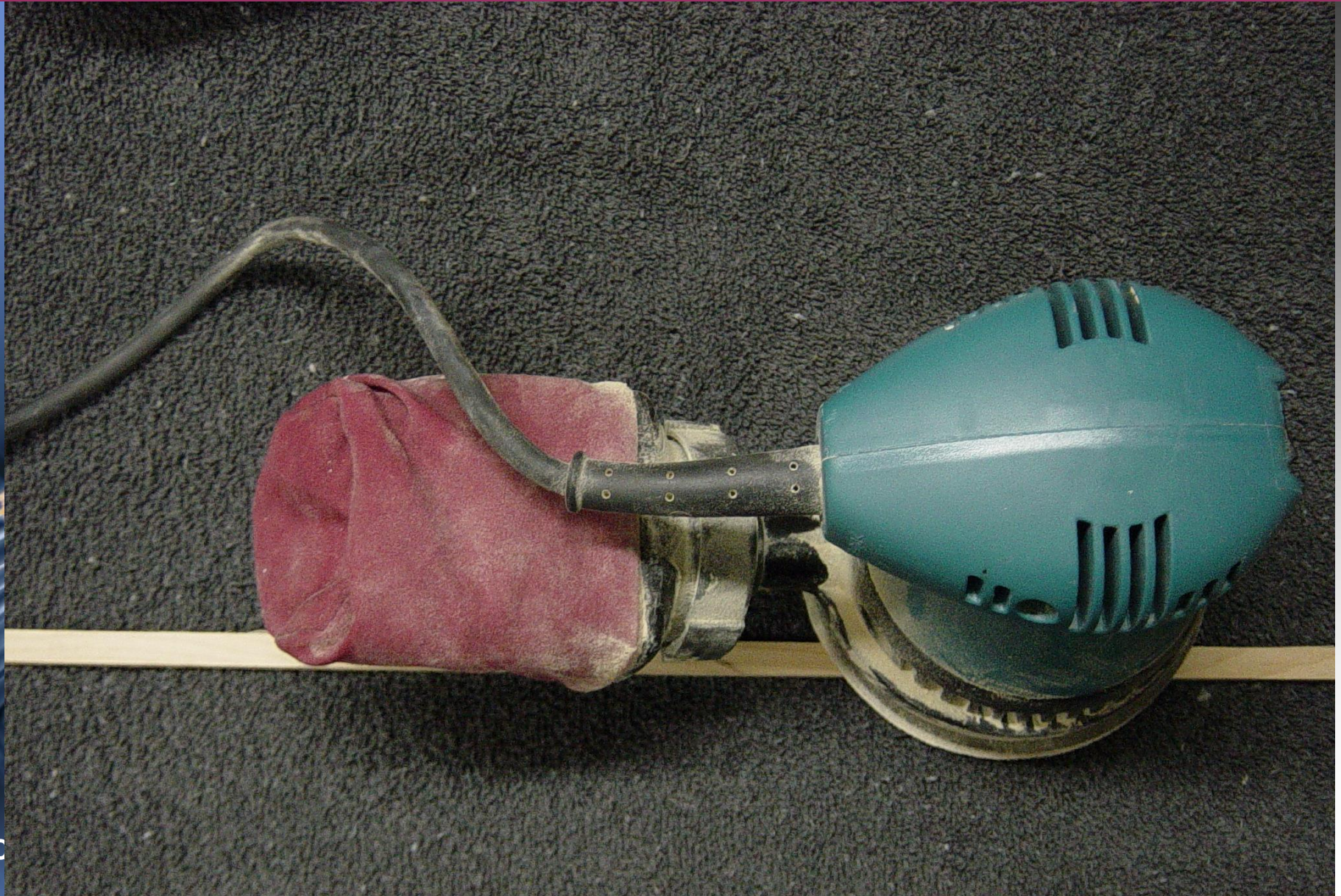
RULE I: You can't close the books too early



Delivering

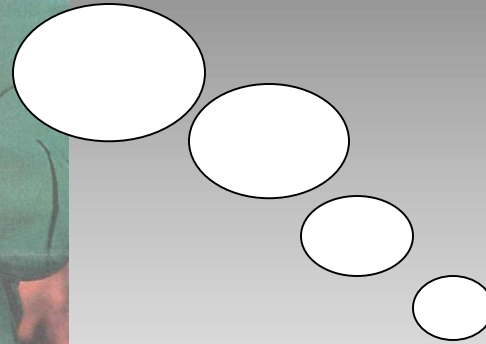
Product Delivery

RULE II: Know where to stop



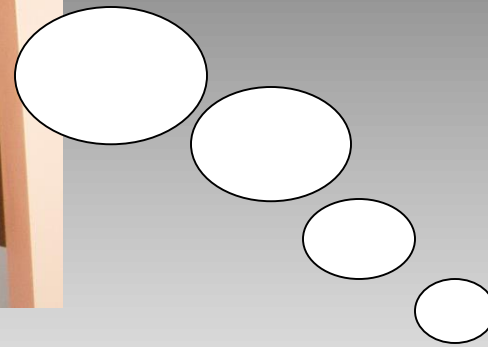
Vision

Have a vision



Vision

But stay grounded



ACI EM-SYS

Conclusion

QUESTIONS

