

Power Generation Session Welcome & Agenda

From the OSIsoft Team

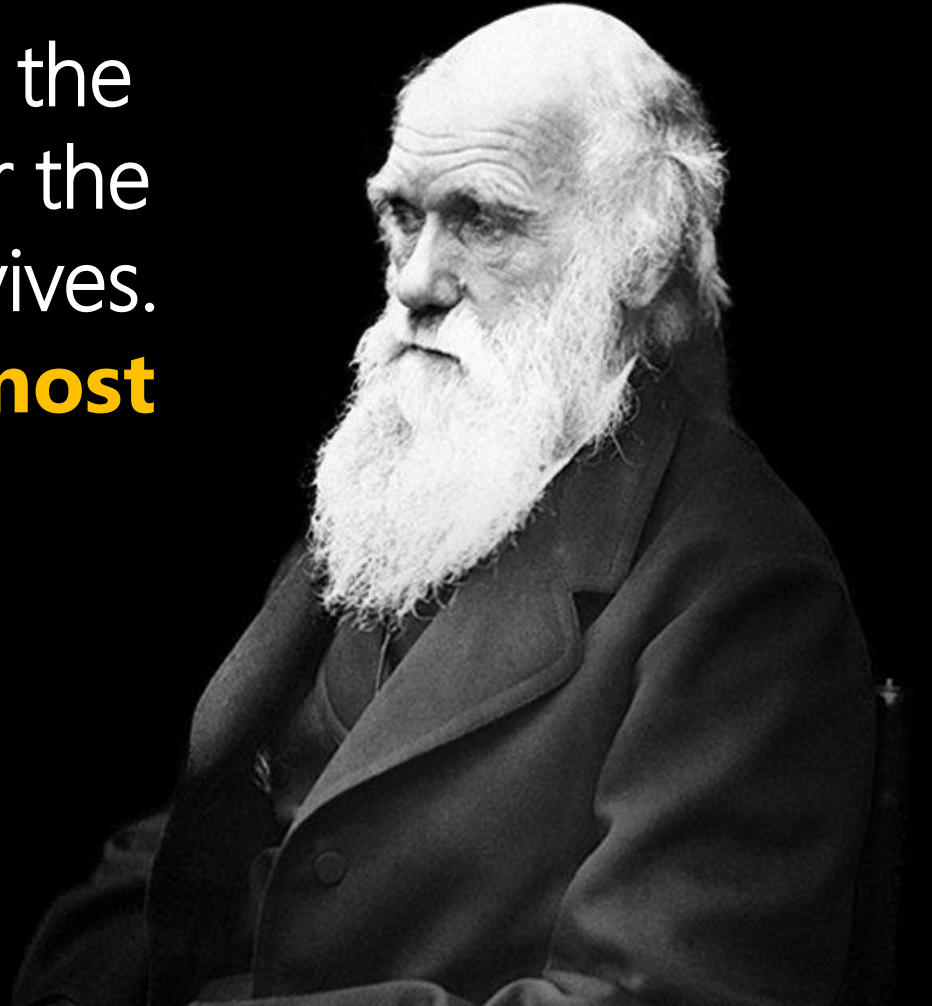
Chris Crosby – Principal, Business Advisory Services

David Thomason – Industry Principal, Power Generation



"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is **the most adaptable to change.**"

- *Charles Darwin*



Digital Disruption is Already Happening



World's largest
taxi company
owns no taxis



UBER



Largest
accommodation provider
owns no real estate



Largest
phone companies
owns no telco infra



World's most
valuable retailer has
no inventory



Alibaba Group
阿里巴巴集团



Most popular
media owner
creates no content



Fastest growing
banks have
no actual money



World's largest
movie theatre
owns no cinemas



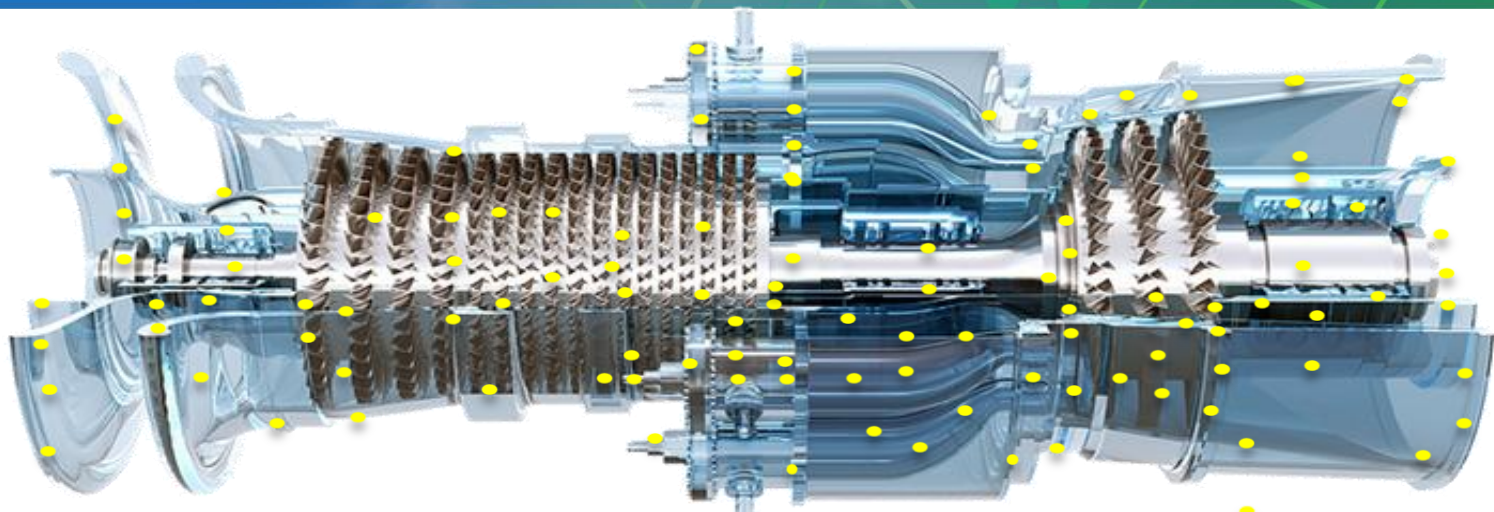
Largest
software vendors
don't write the apps





Data is the currency of the Future...

Data is currency NOW!





Systematically turning data into consumable,
actionable Information



Digital Transformation! Driving Value and Results





Smart Asset Objects – Configuring the Smart OT Infrastructure

It is time to get information Greedy!

A Greatly Enhanced Digital Copy with High Business Value

- Future data for forecasting of Wind and Solar Optimization
- Forward Schedule and Deviations
- Financial & Market Data (\$/MW, Fuel Pricing, P&L calcs)
- PPA Performance
- Streaming Analytics for Efficiencies, Actual vs Design, Predictive ...
- Event Framing for Starts / Stops, Runtime counters, Process Analysis
- Hooks into Python, R, and Matlab
- Conditioned Data for Level 2 Analytics (APR, ML and AI)

Gas Tur

HRSG

Gener

Generators

Smart
Applications

Physical Power
Gen Plant #2

Digital Power Gen
Plant #2

PG Smart
OT Infrastructure

Smart Application Template

TransCanada Anomaly Detection & Predictive Analytics

Unit	Parameter	Value	Unit	Parameter	Value
Unit 1	Pressure	10.5	Unit 2	Temperature	120.0
Unit 1	Flow	1500	Unit 2	Vibration	0.5
Unit 1	Speed	3000	Unit 2	Humidity	50.0
Unit 1	Level	75.0	Unit 2	Power	100.0
Unit 1	Position	10.0	Unit 2	Efficiency	95.0
Unit 1	Angle	45.0	Unit 2	Accuracy	99.0
Unit 1	Distance	100.0	Unit 2	Reliability	99.9
Unit 1	Time	10.0	Unit 2	Availability	99.9
Unit 1	Frequency	10.0	Unit 2	Quality	99.9
Unit 1	Wavelength	10.0	Unit 2	Health Index	100.0



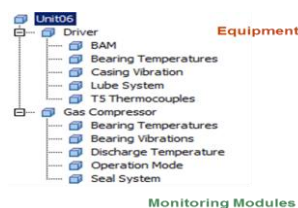
Centrifugal Compressor Templates

Unit	Parameter	Value	Unit	Parameter	Value
Unit 1	Pressure	10.5	Unit 2	Temperature	120.0
Unit 1	Flow	1500	Unit 2	Vibration	0.5
Unit 1	Speed	3000	Unit 2	Humidity	50.0
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Unit 1	Wavelength	10.0	Unit 2	Health Index	100.0

Availability	Performance	Quality
DownTime ✓ Event Frames ✓ Downtime classification ✓ Planned vs. unplanned ✓ Maintenance data	Runtime ✓ Event Frames ✓ RACR ✓ Horse power usage ✓ Efficiency	Anomaly Detection ✓ Sensor data behavior based on historical normal ✓ Oil analysis ✓ Equipment analysis reports
Health Index		

Health Index Templates

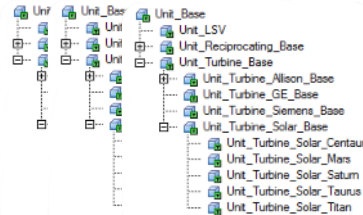
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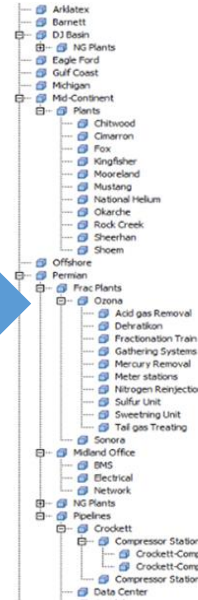
Anomaly Detection Templates



Physical Compressor Stations

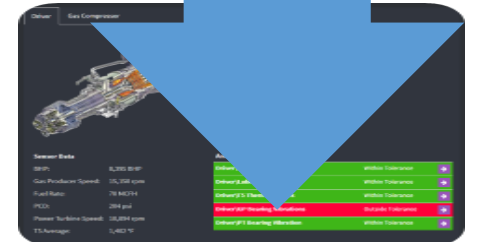
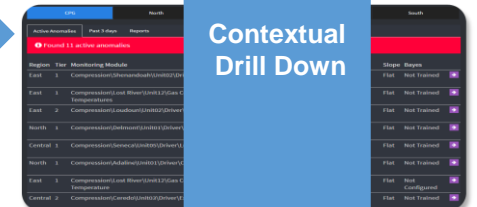
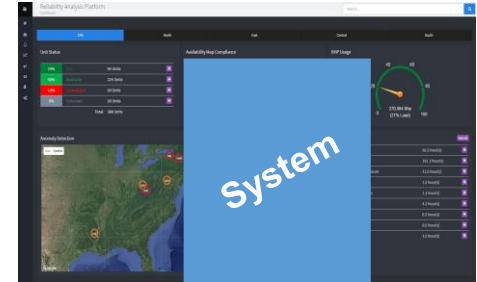


Digital Compressor Stations



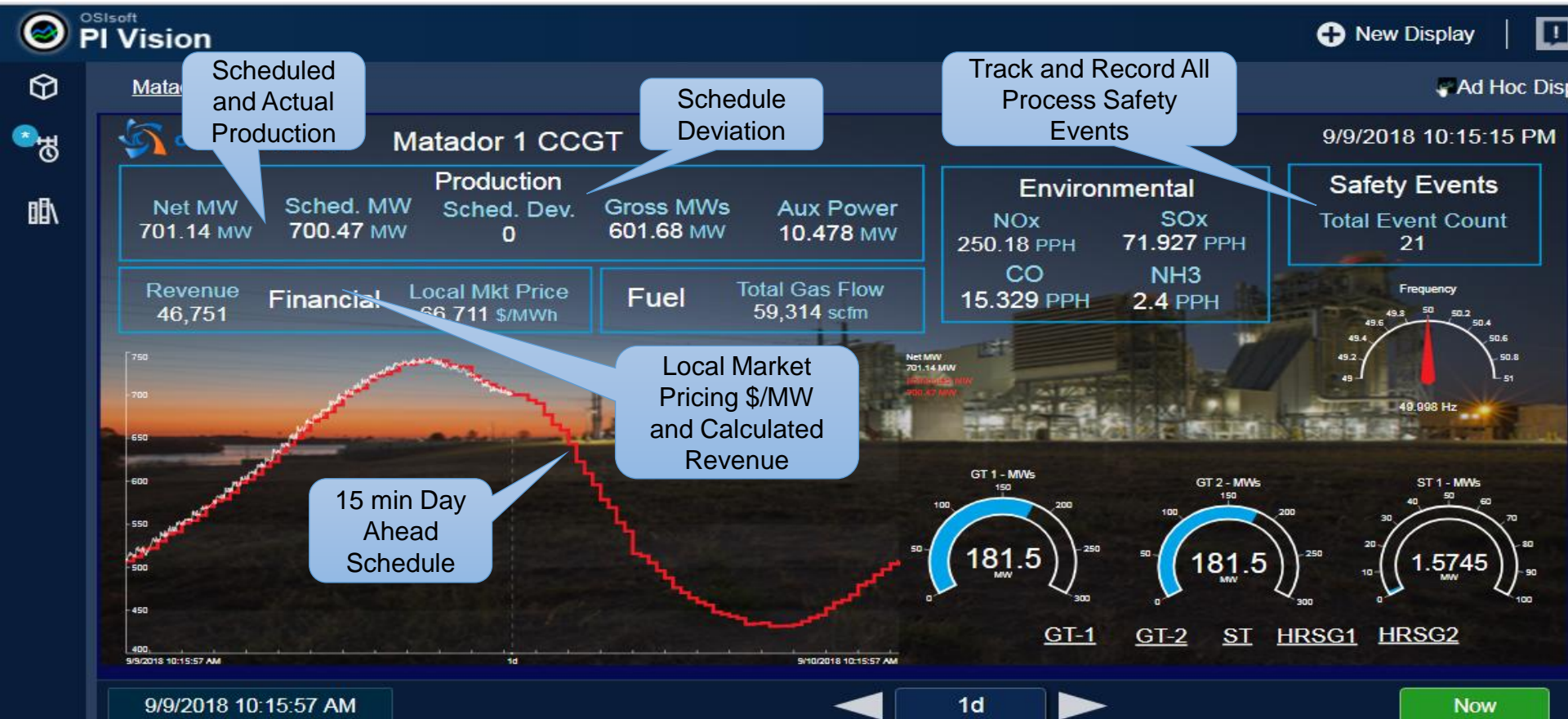
TransCanada Smart OT Infrastructure

Exception based KPI Dashboard system



System
Contextual Drill Down

Market Data and Forecasted Schedule



A True PI “World” Power Session

United Kingdom !
Uniper



Norway !
Eidsiva
Vannkraft



Denmark !
Ørsted



Italy !
Ansaldo Energia and
EP Produzione



Brazil !
ITAIPU
BINATIONAL



Belgium !
ENGIE

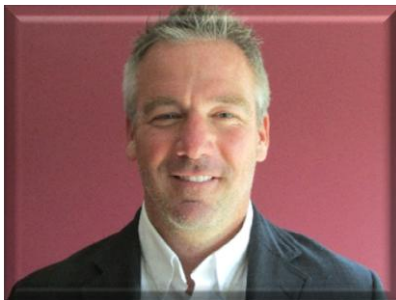
Portugal !
EDPR Energias de Portugal



OSIsoft Power & Utilities Industry Principals and Power Gen Champions



David Thomason
Power Generation



Kevin Walsh
T&D and Smart Grids

William E. McEvoy
T&D and DER



Jerry Weber
**Industry
Champion**



Rafael Maldonado
Industry Champion

**Anderson
Amaral**
**Industry
Champion**



OSIsoft Advisory Services: Supporting Your Customer Journey



Chris Crosby
Principal,
Business
Advisory
Services

Business Discovery

- Align on 'Digital Transformation' – including vision and strategy
- Discover and co-author value opportunities
- Prioritize based on business objectives

Program Development

- Design and develop a technology architecture
- Design and develop a people engagement model
- Align with OpEx or CI processes

Business Case Justification

- On-board key stakeholders and decision makers
- Detail the costs associated with the established strategy
- Complete financial analysis
- Establish the business case justification

OSIsoft Can Help Support You on Your Journey with Business Advisory Services

PI Power Generation User Group (PGUG)

Join to discuss best practices, white papers, share news, and exchange ideas.

Objectives:

- Identify Best Practices
- Share knowledge and ideas across our industry
- Foster communication with OSIsoft regarding our industry needs

500+
Members

Customer-led,
Partner supported,
OSIsoft assisted

This is NOT an avenue for sales presentations or marketing

Want to opt in?

<https://pisquare.osisoft.com/groups/power-gen>

Or contact jsirois@osisoft.com



Have questions?

- jsirois@osisoft.com
- ccrosby@osisoft.com
- dthomason@osisoft.com
- Visit the PI Square Booth





2018 T&D + POWER GENERATION USERS GROUP MEETING

INDIANAPOLIS
October 3-5, 2018



PI Square

The OSIsoft Community



PI Square
Groups



AF Community
Library



Get Support



White Papers



OSIsoft.
PIWorld BARCELONA 2018

All Things PI

PI Developers Club

Online Courses

PUBLISHED EXAMPLE KITS

Reactor OEE

Mineral Processing

Wind Farm Monitoring

Calendar Techniques

Pump Condition Based Maintenance

Distillation Operation

Utilities Cost Management

Transmission & Distribution Substation Transformer Monitoring

Turbine Efficiency

Condition Monitoring

Mill Specific Power Consumption

Oil & Gas Well Downtime Tracking

Mobile Asset Performance Monitoring

Transmission & Distribution Feeder Voltage Monitoring

Oil & Gas Well Drilling & Completion

Power Generation Load Forecasting

Hydro Plant

Today's Agenda – Presenting this Morning



9:15-10:00 Monitoring of the ITAIPU Dam using PI System



10:15-11:00 More free time by Asset Framework



11:15-12:00 Success Story in Performance Evaluation using AF Analytics & PII4BA with High Number of Calculations

LUNCH – 12:00-13:45

Presenting this afternoon



13:45-14:30 PI System Journey in EP Produzione



14:45-15:30 Ørsted Wind Farm Site Operation with PI AF



15:30-16:00 Global Remote Monitoring System for Ansaldo Energia Generation Fleet



16:15-18:00 Power Generation User's Group Meeting

Beverages and Snacks in this Room

Power Generation Users Group Agenda:



16:15-16:30 UG Updates and Status – Chris Crosby



16:30-17:00 Utilizing the Flexibility in PI System to Incorporate ML and AI in CBM



17:00-17:30 Combining PI and Specialist Vibration Data to Manage Asset Risk



17:30-18:00: Asset Based PI Example Kits – Rafael Maldonado





Wednesday Night Casa Llotja de Mar

- Buses depart 18:00 – 18:30
in front of the Hilton Hotel
- 18:30 – 23:00
- Last bus departs at 23:00

Questions?

Please wait for
the **microphone**

State your
name & company



Please rate this session in the mobile app!



謝謝 KEA LEBONA
 TAPADH LEIBH 고맙습니다
 БАЯРЛАЛАА MISAOTRA ANAO
 DZIĘKUJĘ CI NGIYABONGA TEŞEKKÜR EDERIM GRACIES
 OBRIGADO شڪرا SALAMAT
 DANKON TANK TAPADH LEAT
 KÖSZÖNÖM DANKIE TERIMA KASIH GRACIES
 СПАСИБО MULTUMESC
 PAKMET CIZGE FAAFETA
 GO RAIBH MAITH AGAT ESKERRIK ASKO
 БЛАГОДАРЯ GRACIAS HVALA ХВАЛА ВAM
 TI БЛАГОДАРАМ TEŞEKKÜR EDERIM
 TAK DANKE MAHADSANID
 RAHMAT MERCI
 HATUR NUHUN
 DANK JE ΕΥΧΑΡΙΣΤΩ GRATIAS TIBI
 AČIŲ SALAMAT MAHALO IĀ 'OE TAKK SKALDU HA
 GRAZZI PAKKA PĒR
 PAXMAT CAĞA
 FALEMINDERIT
 ありがとうございます
 SIPAS JI WERE TERIMA KASIH
 UA TSAUG RAU KOJ
 TI БЛАГОДАРАМ
 СИПОС
 CẢM ƠN BẠN
 WAZVIITA



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THANK YOU



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