



# T&D Industry Day Overview & Kickoff Session

**Digital Transformation - The Future  
of Utilities**

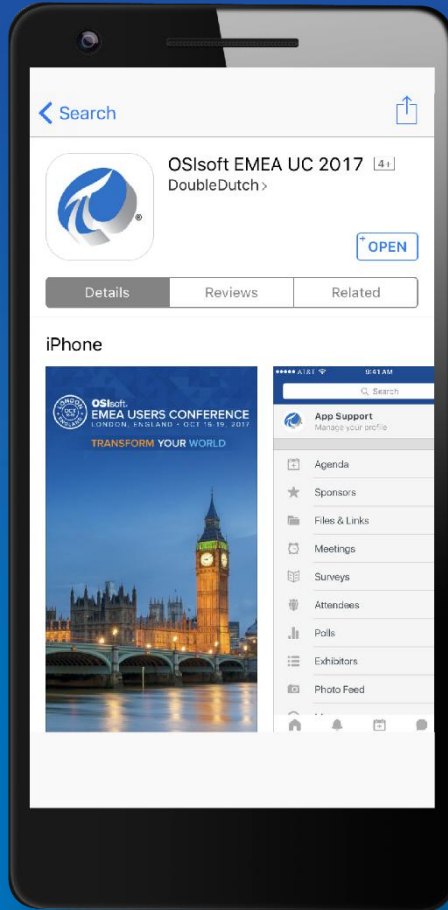
Presented by **William “Bill” McEvoy**  
**Global Industry Principal T & D / DER**



We Believe People  
With Data Can  
**TRANSFORM  
THEIR WORLD**

# Conference Theme and Keywords





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Gold



Silver



ptc

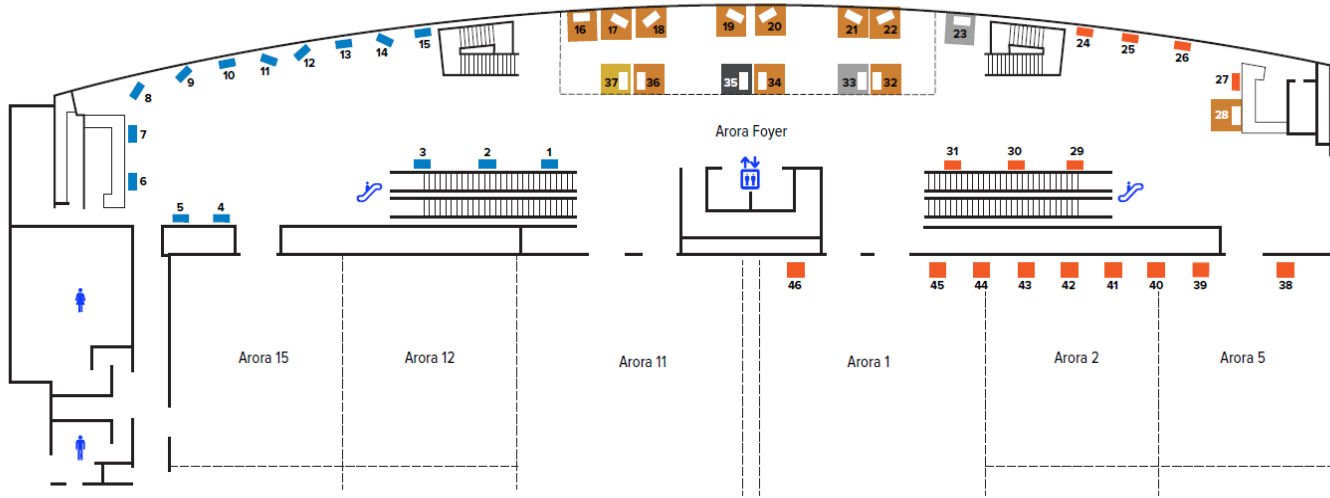


# Bronze



# PARTNER & PRODUCT EXPO

1st Floor



## PRODUCT BOOTHS

- 1 PI Integrator for Business Analytics / SAP HANA / Microsoft Azure
- 2 PI Integrator for Esri ArcGIS
- 3 PI Cloud Services
- 4 Asset Health and Condition-based Maintenance
- 5 PI Asset Framework with Asset Analytics
- 6 Event Frames & Notifications
- 7 PI System Manageability
- 8 PI Data Archive
- 9 PI System Connectivity
- 10 PI DataLink and PI Manual Logger
- 11 Visualizing PI System Data
- 12 Developer Technologies
- 13 Cyber Security
- 14 Localized OSIsoft Products
- 15 PI Square

## PARTNER BOOTHS

- |                             |                         |                            |
|-----------------------------|-------------------------|----------------------------|
| 16 Brüel & Kjær Vibro       | 27 PAREXEL              | 38 Siemens                 |
| 17 Splunk                   | 28 National Instruments | 39 Toumetis                |
| 18 Accenture                | 29 ECG                  | 40 Aperio Systems          |
| 19 Waterfall                | 30 Monico Monitoring    | 41 Advantech B+B SmartWorx |
| 20 Cisco                    | 31 j5 International     | 42 IT Vizion               |
| 21 TrendMiner               | 32 Owl Cyber Defense    | 43 CCC Global              |
| 22 VIZIYA                   | 33 TIBCO                | 44 PXiSE                   |
| 23 PTC                      | 34 Wipro                | 45 Element Analytics       |
| 24 Fox-IT                   | 35 TQS Integration      | 46 Emerson                 |
| 25 Sartorius Stedim Biotech | 36 Seqq                 |                            |
| 26 Infotechnics             | 37 SAP                  |                            |

PLATINUM    GOLD    SILVER    BRONZE

31 partner booths, 15  
OSIsoft product  
booths

Expo runs for 3 days

Overflow hours  
during lunch only  
plus the Tue PM

Passport to EMEA  
DINNER Reception –  
Tuesday

3 demos: NI, PTC  
and Emerson



# OSIsoft Power & Utilities Industry Principals



**David Thomason**  
Global Power  
Generation



**Chris Crosby**  
Global Nuclear &  
Renewable  
Energy



**Kevin Walsh**  
Global T&D  
and Smart  
Grids



**William E. McEvoy**  
Global T&D and  
Distributed Energy  
Resources

# Today's Sessions – TSO & DSO Industry Pain Points



Aging Infrastructure



Asset Management



Regulated Tariff



Capacity Planning



Smart Grid Integration



Renewables Integration



Compliance

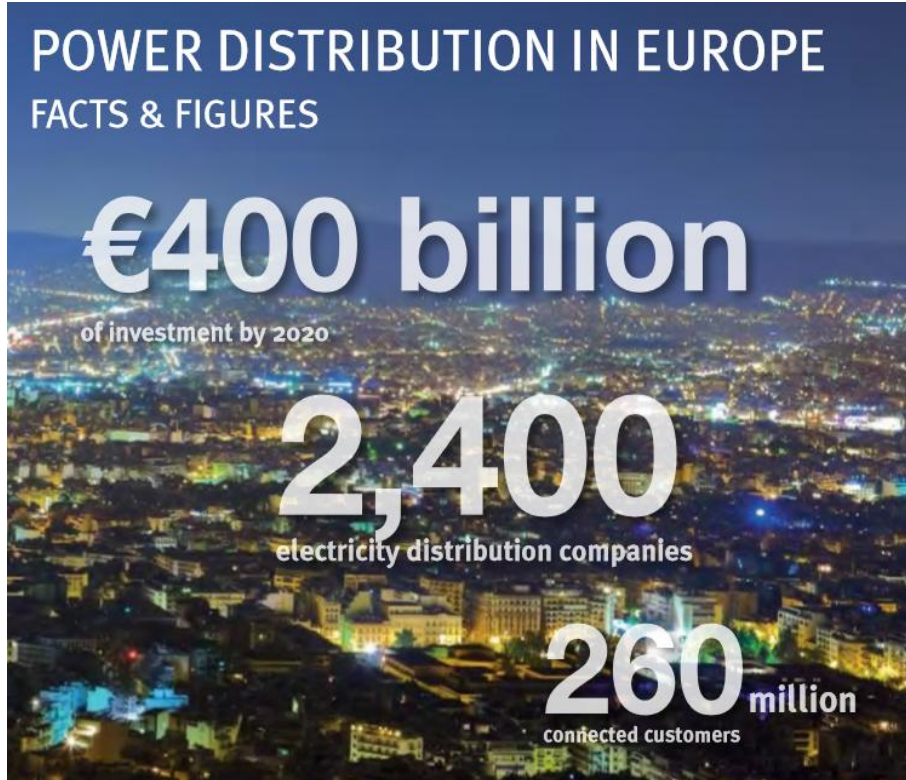


New Industry Trends: GIS Integration, TSO/DSO collaboration

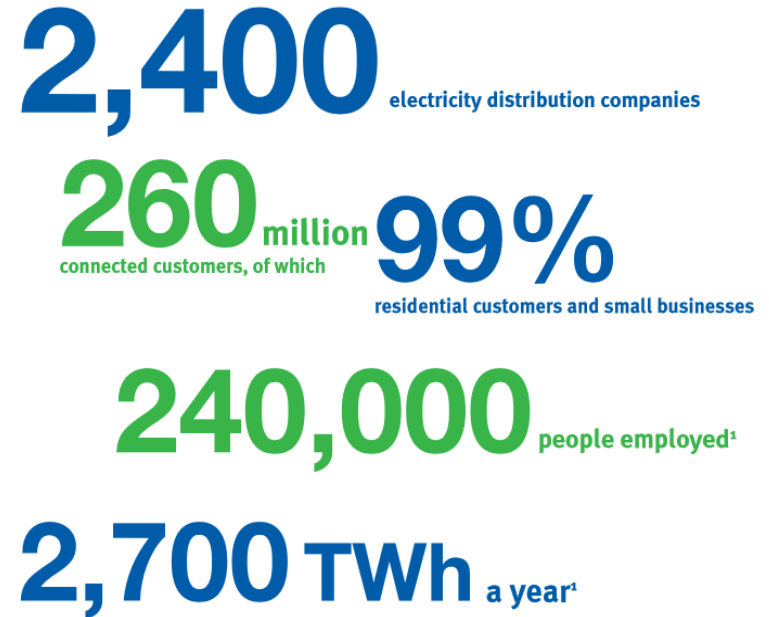
# Today's Sessions & Schedule

Time	Presenter	Title
9:00 – 9:30	OSISOFT – Bill McEvoy	Opening Remarks – Next Generation Utilities
<b>9:30 – 9:45</b>		<b>TRANSFER TIME</b>
9:45 – 10:15	INTEL – Thierry Godart	Technology Trends at the Grid Edge in an Ever Changing Industry
<b>10:15 – 10:30</b>		<b>TRANSFER TIME</b>
10:30 – 11:00	TSCNET Services – Alexander Kuester	Big Data Analyses Facilitating Decision Making Support at Regional Security Centers
<b>11:00 – 11:15</b>		<b>BREAK</b>
11:15 – 11:45	SUBNET Solutions – Alan Lytz	Data Concentration for 6,000 Distribution Devices to Facilitate Asset Optimization with the PI System
<b>11:45 – 12:00</b>		<b>TRANSFER TIME</b>
12:00 – 12:30	Czestochowa University of Technology – Dr. Piotr & Sebastian Dudzik	Data Science and Predictive Analytics in Virtual Power Plant Environment
<b>12:30 – 14:30</b>		<b>LUNCH – ARORA 1-7</b>
14:30 – 15:00	STEDIN – Anne van der Molen & Alex Meeuwisse	PI Connector for IEC 61850: Tapping into the Data Stored in 61850 Based Substations
<b>15:00 – 15:15</b>		<b>TRANSFER TIME</b>
15:15 – 15:45	PXiSE / OSISOFT – Patrick Lee & Chuck Wells	Advanced Grid Control Success Story
<b>15:45 – 16:00</b>		<b>TRANSFER TIME</b>
16:00 – 16:30	Wrap Up Panel Discussion - Today's Speakers – Q&A Period	

# FACTS & FIGURES



Electricity distribution is the 'final mile' in the delivery of electricity: the link between the transmission system and electricity customers.



<sup>1</sup> Estimation based on data available for 25 EU countries and Norway.

# Distribution network characteristics

- Around 98-99% of European network customers are connected to the distribution grid. In contrast to their transmission ‘highway’ counterparts, distribution networks are made up of the smaller roads and paths that deliver electricity to its ultimate point of consumption: Europe's households and businesses. They are linked to transmission systems by around 10,700 interconnection points. overall, there are more than 4 million distribution transformers in Europe.

**10 million km**  
of power lines

**13** times to the moon and back 🌙

**97%** of all power lines in Europe<sup>9</sup>

Credit: Data provided is available on [www.eurelectric.org](http://www.eurelectric.org)

<sup>9</sup> compared to 298,092 km of european transmission lines (source: entso-e)



# Working towards smart distribution systems !

European networks will require **€600 billion of investment by 2020**. Two thirds of this investment will take place in distribution grids. **The DSO share of overall network investments is estimated to grow to almost 75% by 2035, and to 80% by 2050.**<sup>5</sup>

DSO investments include **building** new capacity and **refurbishing and replacing** existing assets as they reach the end of their technical lifetime. Investments are also driven by a changing distribution system, with a greater role for new loads like **electric vehicles**, for distributed generation like rooftop **solar panels**, and for **smart meters**.

As regulated companies, the **DSO investment framework is determined by regulation at the national level**.

**Electricity use in transport** may only make up a small part of total electricity demand for many years to come, but e-mobility could nevertheless have a big impact on load, in particular if motorists all plug in their vehicles during the peak load time.

**Active load management** will be needed to avoid network congestions and make use of e-mobility's **potential for smoother network operation**.

**Smart grids**, including intelligent control systems, will help DSOs become more active and should accompany the expansion of distribution networks.

# €400 billion

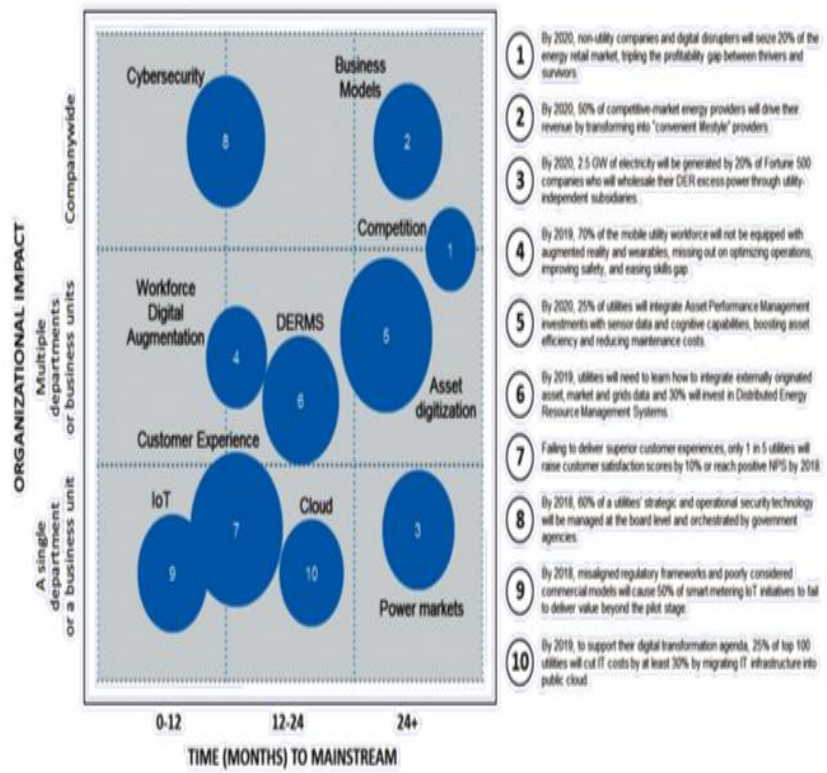
of distribution network investment by 2020

# 80%

of EU citizens to be equipped with smart meters by 2020

<sup>5</sup> European Commission 2011, IEA World Energy Outlook 2012 and European Energy Roadmap 2050.

# Worldwide Utilities 2017 – Top 10 Predictions



- 1. Competition.** "By 2020, non-utility companies and digital disrupters will seize 20 percent of the energy retail market, tripling the profitability gap between thrivers and survivors."
- 2. Business models.** "By 2020, 50 percent of competitive-market energy providers will drive their revenues by transforming into "convenient lifestyle" providers."
- 3. Power markets.** "By 2020, 2.5 GW of electricity will be generated by 20 percent of Fortune G500 (global) companies, which will wholesale their distributed energy resource (DER) excess power through utility-independent subsidiaries."
- 4. Workforce digital augmentation.** "By 2019, 70 percent of the mobile utility workforce will not be equipped with augmented reality and wearables, missing out on optimizing operations, improving safety and easing the skills gap."
- 5. Asset digitization.** "By 2020, 25 percent of utilities will integrate asset performance management investments with sensor data and cognitive capabilities, boosting asset efficiency and reducing maintenance costs."
- 6. Distributed energy resource management systems (DERMS).** "By 2019, utilities will need to learn how to integrate externally originated asset, market and grids data and 30 percent will invest in Distributed energy resource management systems."
- 7. Customer experience (CX).** "Failing to deliver superior customer experiences, only one in five utilities will raise customer satisfaction scores by 10 percent or reach positive net promoter score (NPS) by 2018."
- 8. Cybersecurity.** "By 2018, 60 percent of utilities' strategic and operational security technology will be managed at the board level and orchestrated by government agencies."
- 9. Internet of Things (IoT).** "By 2018, misaligned regulatory frameworks and poorly considered commercial models will cause 50 percent of smart metering IoT initiatives to fail to deliver value beyond the pilot stage."
- 10. Cloud.** "By 2019, to support their digital transformation agenda, 25 percent of the top 100 utilities will cut IT costs by at least 30 percent by migrating IT infrastructure into public cloud."

Credit - IDC Energy Insights' outlook is presented through the lens of its 2017 worldwide top 10 predictions  
 By Roberta Bigliani, IDC Energy Insights – Article published in Electric Light & Power on 1/17/2017

# The Digital Utility – Its coming your way!

The digital revolution is coming to the power industry. **Renewables**, **distributed generation**, and **smart grids** demand new capabilities and are triggering new business models and regulatory frameworks. **Data collection and exchange are growing exponentially**, creating **digital threats** but also valuable opportunities. The competition for customers is shifting to the online channel; the **Internet of Things** promises new product and management options. Entrants from the digital economy are disrupting the industrial landscape, while governments and regulatory bodies seek to encourage **smarter measuring systems** and **greener standards for generation** and consumption.

McKinsey

# What does this mean to TSO & DSO

*Digitalization era is in front of us*

The digital utility of the future captures opportunities all along the value chain.

Distributed energy resources enabled by big data-driven alignment of supply and demand

Data-driven asset strategies including preventative and condition-based maintenance and predictive outage

Smart grid and smart pipes allow automated controls to improve network resiliency, safety, and efficiency

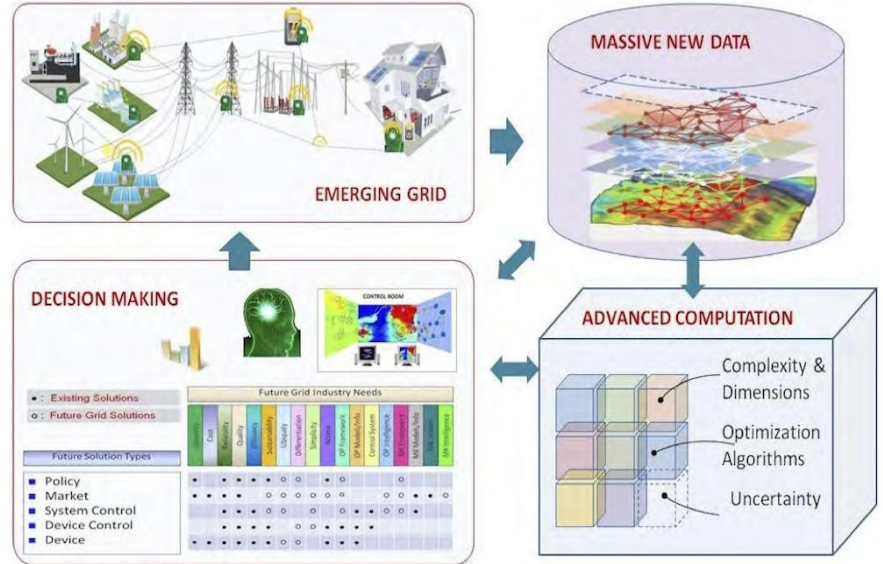
Customer interactions governed by analysis of customer journeys, segmentation, and personalized communication

Platform supports distributed energy resources and marketplaces



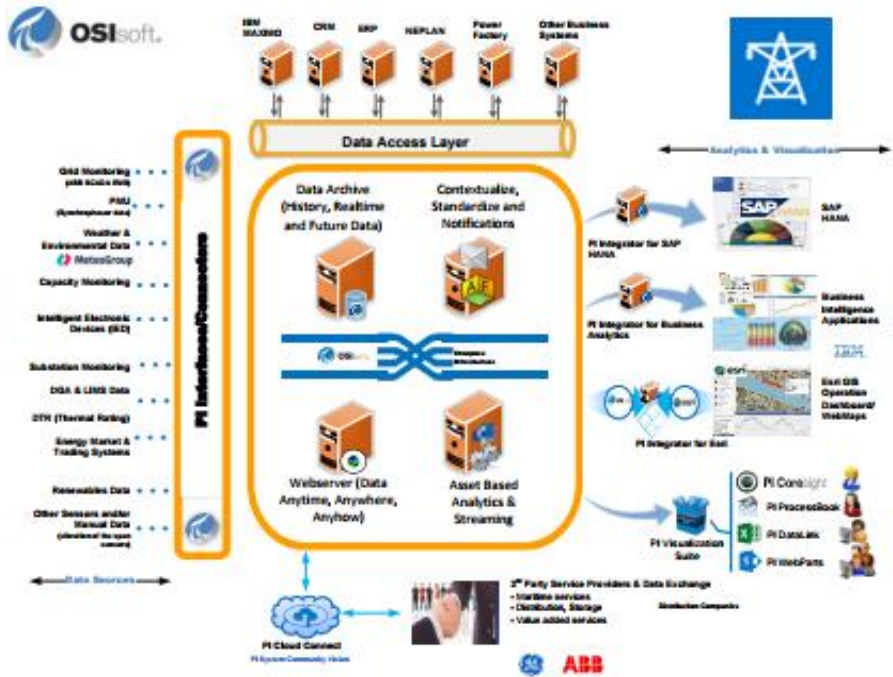
McKinsey&Company

*Integration is a must for success*



# Summary

## A right data infrastructure accelerates the journey





## Questions

Please wait for the **microphone** before asking your questions

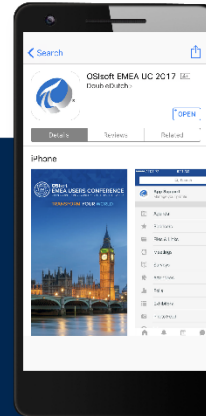


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## William “Bill” McEvoy

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Global Industry Principal

OSISOFT



감사합니다

Danke

谢谢

Merci

Gracias

**Thank You**

ありがとう

Спасибо

Obrigado

# Announcements

*OS/soft Street Feast London -*

**OS/soft**

The word 'OS/soft' is rendered in large, bold, blue-outlined letters with a 3D effect. The bottom portion of the letters is filled with an orange and white checkered pattern. Each letter contains a different London landmark: 'O' shows the Tower of London; the first 'S' shows the Shard; '/' shows Big Ben; 's' shows the National Monument; 'O' shows the Victoria Memorial; 'f' shows the Angel of the Cenotaph; and 'T' shows St. Martin-in-the-Fields. The background is a painterly illustration of the Tower Bridge and the London skyline.

*Eat. Drink. Network. Repeat.*



# Wednesday OFFSITE — Buses vs. Tube

**OSIsoft.**  
**TUBE CHALLENGE**  
LONDON

**ALL ACCESS  
BUS PASS**

Wednesday, October 18th  
OSIsoft Street Feast London  
– Hawker House  
Bus Departures are from the  
Intercontinental Hotel ONLY

Meet in the Registration Foyer at the Intercontinental  
Hotel for one of the following bus departure times:

- 17:45
- 18:00
- 18:10
- 18:20
- 18:30

Return buses begin at 21:00 – 1:00 and will make stops  
at the Canary Wharf Tube Station and the  
North Greenwich Tube Station.



**OSIsoft.**  
**TUBE CHALLENGE**  
LONDON

**CANARY WHARF  
ROUTE INFO**

Wednesday, October 18th  
OSIsoft Street Feast London  
– Hawker House

Meeting times at the Canary Wharf Tube Station –  
Look for our guides with signs!

- 18:00
- 18:15
- 18:30

**GOING ON YOUR OWN FROM CANARY WHARF?**

- Take the Jubilee Line towards Stanmore  
- 1 stop, get off at Canada Water
- Exit station and follow the signs and our guides  
to the Hawker House

Don't forget your Oyster card!

Return buses begin at 21:00 – 1:00 and will make stops  
at the Canary Wharf Tube Station and the North Greenwich  
Tube Station. OR, you can take the tube on your own.



**OSIsoft.**  
**TUBE CHALLENGE**  
LONDON

**NORTH GREENWICH  
ROUTE INFO**

Wednesday, October 18th  
OSIsoft Street Feast London  
– Hawker House

Meeting times for the Registration Desk  
– Intercontinental Hotel O2

- 17:45
- 18:00
- 18:15
- 18:30

**GOING ON YOUR OWN FROM NORTH GREENWICH?**

- Take the Jubilee Line towards Stanmore  
- 2 stops, get off at Canada Water
- Exit station and follow the signs and our guides  
to the Hawker House

Don't forget your Oyster card!

Return buses begin at 21:00 – 1:00 and will make stops  
at the Canary Wharf Tube Station and the North Greenwich  
Tube Station. OR, you can take the tube on your own.



**Pick up your card of choice at the Registration Desk**



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