

# Resource Management Systems

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iHEAT / iWATER 2012

[www.cir-strategy.com/events/heat](http://www.cir-strategy.com/events/heat)



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# L2S2 profile

L2S2 has developed an innovative framework for data collection, management, reporting and device control that can operate over real world networks

Funding received from Technology Strategy Board and EU Joint Technology Initiatives

L2S2

Technology Strategy Board  
Driving Innovation



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# References



Anglian Water Regional Tankering Service



HPA Emergency Department Syndromic Surveillance System – reported to Cabinet Office during Olympics



Diverse Energy – off-grid power generation units in sub-Saharan Africa monitored and controlled from UK via PAYG connections

# The real world of the organisation

- Change is a constant
- Sustainability demands high efficiency
- Rapidly adapted, accurate, current information needed to respond and plan
- Highly detailed, immediate data from and feedback to operations is essential for efficiency

# The real world of the organisation

- Rapidly adapted, low cost IT is critical
- Detail matters: users, existing systems, field use constraints

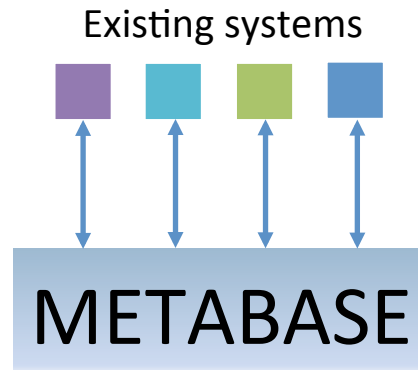
# L2S2 framework

METABASE

L<sub>2</sub>S<sub>2</sub>

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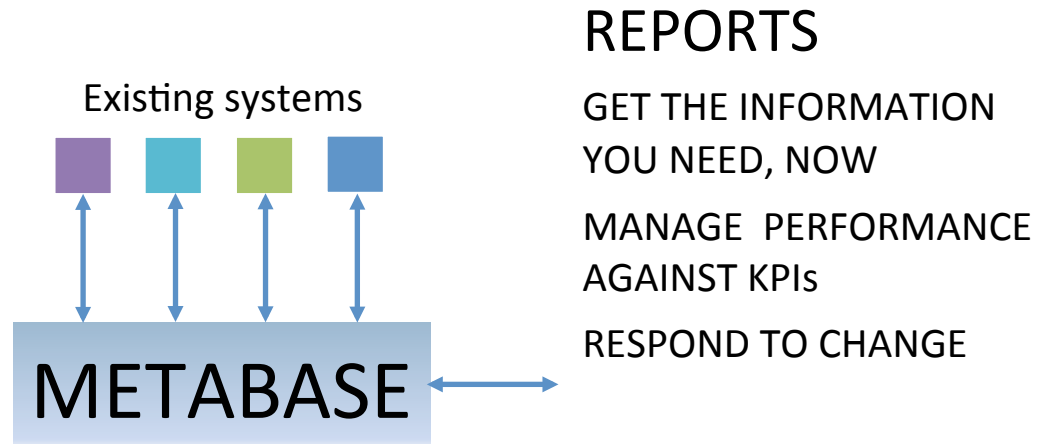
# L2S2 framework



L<sub>2</sub>S<sub>2</sub>

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# L2S2 framework

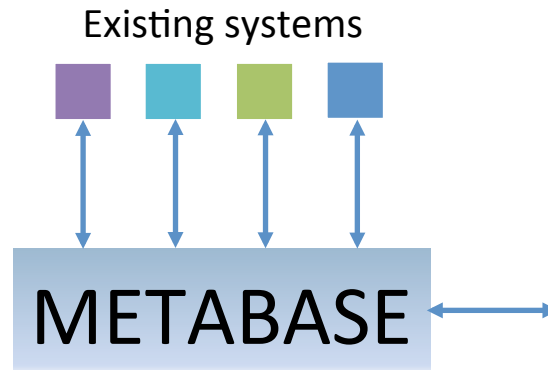


L<sub>2</sub>S<sub>2</sub>

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# L2S2 framework



## REPORTS

GET THE INFORMATION  
YOU NEED, NOW

MANAGE PERFORMANCE  
AGAINST KPIs

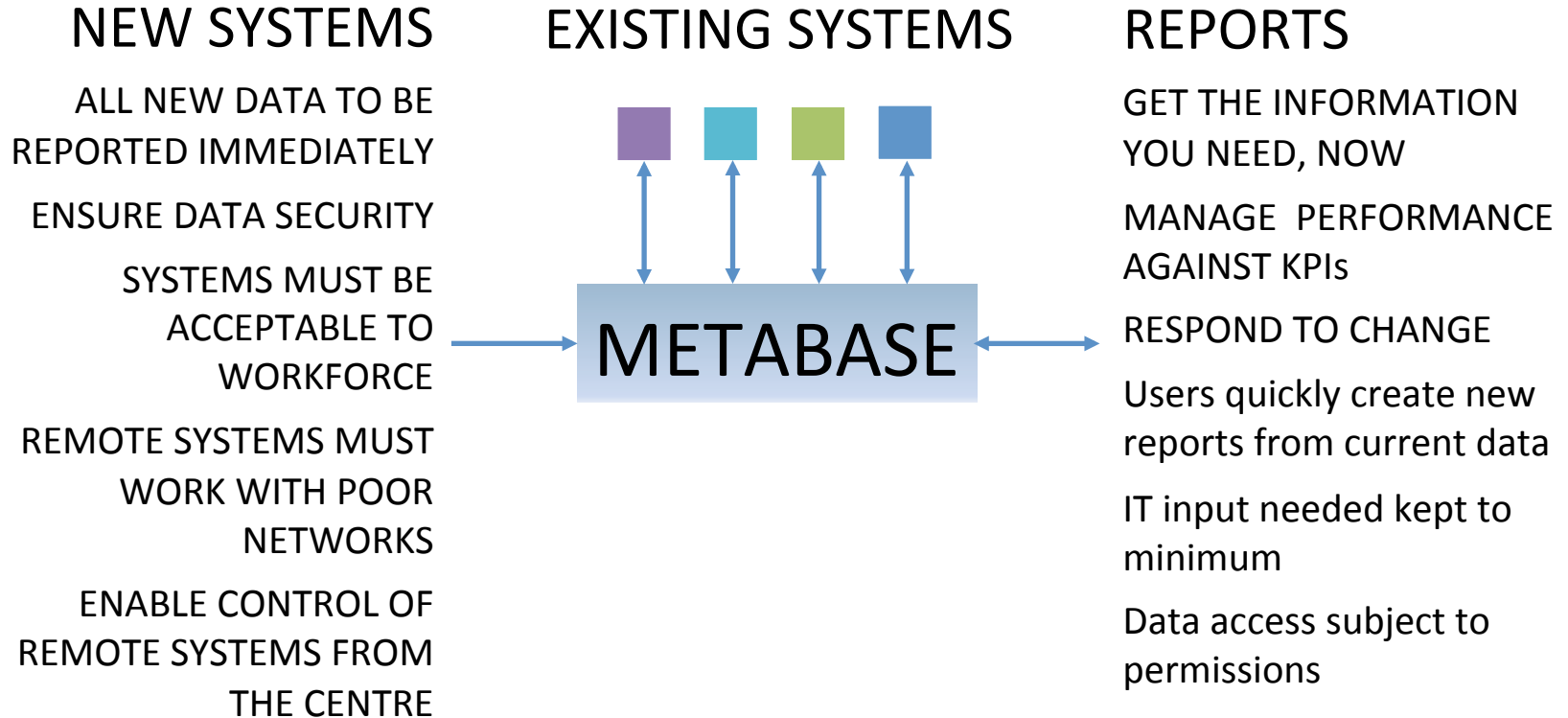
RESPOND TO CHANGE

Users quickly create new  
web reports from current  
data

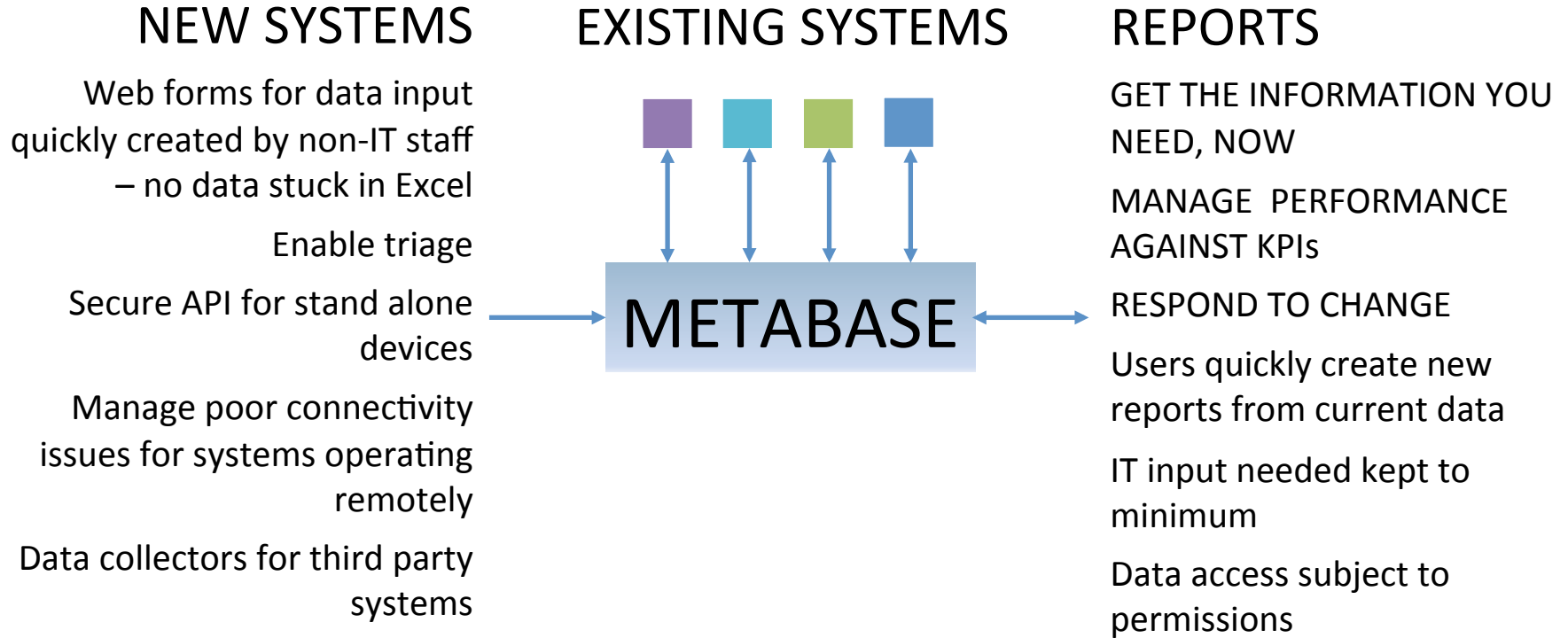
IT input needed kept to  
minimum

Data access subject to  
permissions

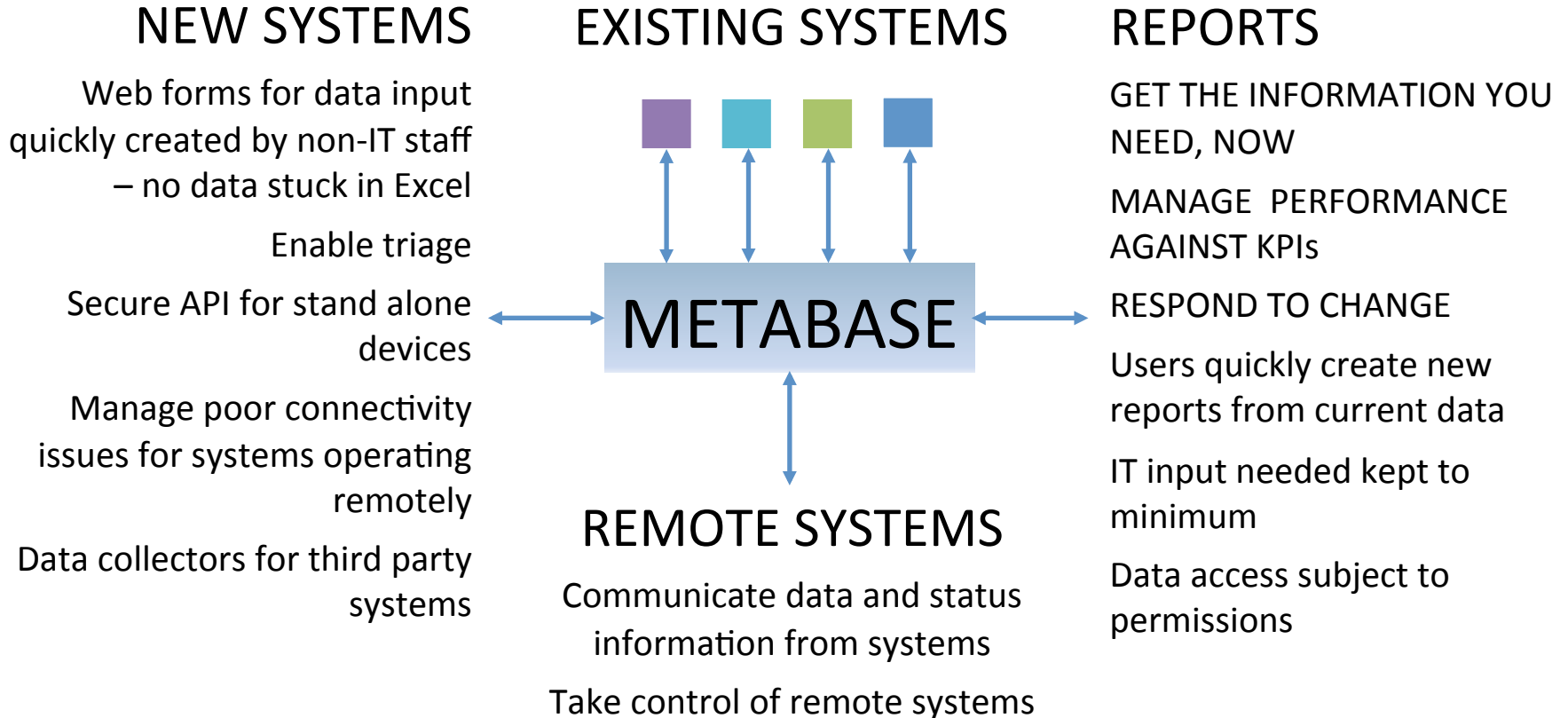
# L2S2 framework



# L2S2 framework



# L2S2 framework



L2S2

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# L2S2 framework

- Over £400,000 spent to date on framework R&D
- Framework requirements and specifications driven by clear real world needs
- Rigorous intellectual approach to engineering
- Expert highly skilled and qualified team
- Implement core and create low cost development environment
- Be pragmatic about custom additions to make systems work for customers



# Anglian Water Wet Well Photography

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# Anglian Water Wet Well Photography

- Secure toughbook application for use in the field
- User completes forms to ensure correct procedures used
- Captures photographs using ruggedised camera interfaced to toughbook
- As soon as connectivity allows, the data and images are available online for review in the central control room.

## RTS Wet Well

### Checklist for High Pressure Water jetting to be used to plan every jetting operation : every site and every time

Required PPE: Workwear; High visibility jacket/vest; Safety footwear; Hard hat; Face / eye protection (to EN 166); Gloves; Ear defenders (where necessary). Where large amounts of aerosols likely to be generated, wear Respiratory Protective Equipment (RPE)-Planning and Operation of jetting on site:

1	Can the task be carried out without the need for jetting?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
2	Am I authorised to carry out this activity?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
3	Park vehicle in safe position, no hazard to third parties?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Corrected
4	Are third parties likely to be at risk from the jetting operation?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
5	Is work area clearly defined with barriers and warning signs?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Corrected
6	Is operator controlling this jetting operation trained & competent?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
7	Is operator familiar with this type of equipment?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
8	Does all those involved have the necessary PPE (see above)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Corrected
9	Do all those involved have a copy of the HPWJ emergency card?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
10	Are all those involved aware of their role and responsibilities?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Corrected
11	Is jetting equipment suitable for the task, and maintained?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
12	Is emergency stop (or remote stop) within arms length at all times?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
13	Clear line of sight or use of communication systems.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
14	Can cover(s) be lifted safely and void(s) protected?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
15	Have pre-use checks been carried out (see over)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Corrected
16	Correct accessories used? (leader hose, anti-turn device and tiger tail)	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
17	Is ice formation in hose/tank likely? (weather conditions)	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
18	Adequate control of the jetting head? (good access to pipe)	<input checked="" type="radio"/> Yes	<input type="radio"/> No	

Details of corrections made/other site/task specific controls required-complete site specific task risk assessment if necessary:

Cancel

Back

Next



love every drop  
anglian water

http://www.awsrtreports.co.uk/RTS/wet%20Well%20templates/wetwellmap.aspx

RTS data2inform |

Daily Availability Weekly Report Yearly Report Reports Tools

Edit Add Browse Admin Logout Welcome back wetwell Group: basic

Map

Search

Data CC-BY-SA by OpenStreetMap

Work OrderNumber	Maintenance	Arrival	Id	Latitude	Longitude	Address	
J0699	0000	02/10/2012 12:44	<a href="#">locate on map</a>	52.304664	0.442125		<a href="#">CHIPST</a>
37743886	513051	13/10/2012 07:00	<a href="#">locate on map</a>				<a href="#">Q</a>
99999999	999999	09/10/2012 19:38	<a href="#">locate on map</a>				<a href="#">Q</a>
Test1	Test1	27/09/2012 18:47	<a href="#">locate on map</a>	51.589352	0.506936	BASILDON STW,BASILDON	<a href="#">BASIST</a>
wn01	maint	06/07/2012 15:41	<a href="#">locate on map</a>				<a href="#">Q</a>

2 Re... 3 Mi... 5 Wi... 3 Fir... Micro... 2 No... Micro... W 2 Mi... data2i... Main... Wetw... 13:24

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Wet well photography dashboard – map view

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http://www.awsreports.co.uk/RTS/wet%20Well%20templates/wetwellmap.aspx

RTS data2inform |

Daily Availability Weekly Report Yearly Report Reports Tools

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Data CC-BY-SA by OpenStreetMap

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2 Re... 3 Mi... 5 Wi... 3 Fir... Micro... 2 No... Micro... W 2 Mi... data2i... Main... Wetw... 13:24

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Wet well photography dashboard – hi res map view  
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Job Details

[Work Order J0699](#)

Arrival	02/10/2012 12:44
Departure	02/10/2012 12:55
Operator1	James
Operator2	Barry
Main Item No	0000
Vehicle Registration	KP58 NDO
Site Rating	No
Time Spent On Job	00:35
WorkActivity	Emergency Job
Vehicle Base	Fornham
Jetting PErson	RTS
Latitude	52.304664
Longitude	0.442125
Functional Location	CHIPST
Work ORDER	J0699
JobReportId	Uniqueld

More Details

Without Jetting	Yes
Risk	No
Trained	Yes
Equipment	Yes
PPE	Yes
HPW	Yes
Roles	Yes
Suitable	Yes
EmergencyStop	Yes
CoverSafety	Yes
Accessories	Yes
PreUse	Yes
Ice	No
JettingHead	Yes
EquipmentShutDown	Yes
Stored	Yes
SiteSafe	Yes

Job Photos

RTS data2inform |

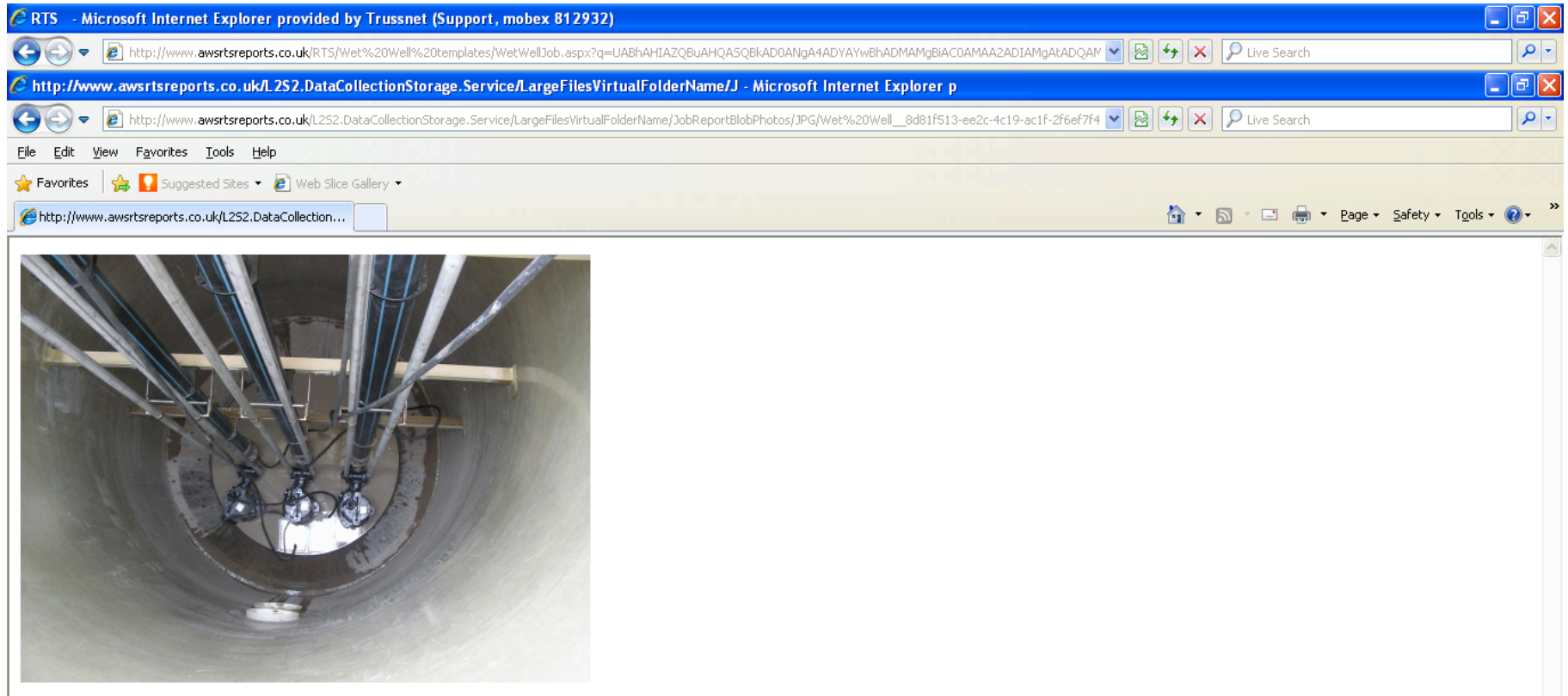
Edit Add Browse Admin Logout Welcome back wetwell Group: basic

2 Re... 3 Mi... 5 Wi... 3 Fir... Micro... 2 No... Micro... 2 Mi... data2i... Main... Wetw...

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Wet well photography dashboard – drill-down data view  
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# Wet well photography – drill down to images



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# Emergency department syndromic surveillance



The College of  
Emergency Medicine



## What is it?

- A sentinel emergency department system that monitors the daily numbers of attendances in a network of emergency departments across England.

## Why?

- Olympics – enhanced national surveillance requirements (Health Protection Agency)
- Monitor severe disease presentation in community e.g. SARS
- Changes in UK health care usage

# EDSSS collaborative system



The College of  
Emergency Medicine



- Health Protection Agency
- College of Emergency Medicine (CEM)
- ED clinicians
- NHS Trust Information governance
- NHS Trust IT teams
- ED software providers
- Third party IT providers

# EDSSS outputs



The College of  
Emergency Medicine



- Routine surveillance bulletin
- Provides summary of key syndromic indicators and public health interpretation of data
- Sent to a international public health audience
- Part of HPA national syndromic surveillance service

## EDSSS

Emergency Department  
Syndromic Surveillance System

06 November 2012


Year: 2012 Week: 44

**In This Issue**

- Key messages
- Diagnostic indicators at a glance
- Weekly report statistics
- Introduction to charts
- Total attendances
- Attendances by age
- Triage
- 1st level indicators
- 2nd level indicators
- Respiratory indicators
- Notes and caveats
- EDSSS team
- Acknowledgements

**EDSSS weekly report statistics**

Including new EDs which have recently started reporting.



**Key messages**

Data to: 04 November 2012

- There have been further increases in acute respiratory infection attendances, predominantly in the 0-4 years age group (figures 10 & 11).
- There has been a small increase in the triage ratio, which has been caused by a fall in the number of less severe attendances (figures 4 & 5).

A Cold Watch System operates in England from 1 November to 31 March each year. As part of the Department of Health Cold Weather Plan for England the HPA Real-time Syndromic Surveillance team will be monitoring the impact of cold weather on syndromic surveillance data during this period. Current cold weather alert level: **Level 1 - Winter Preparedness**  
<http://www.metoffice.gov.uk/weather/uk/coldweatheralert/>

**Diagnostic indicators at a glance:**

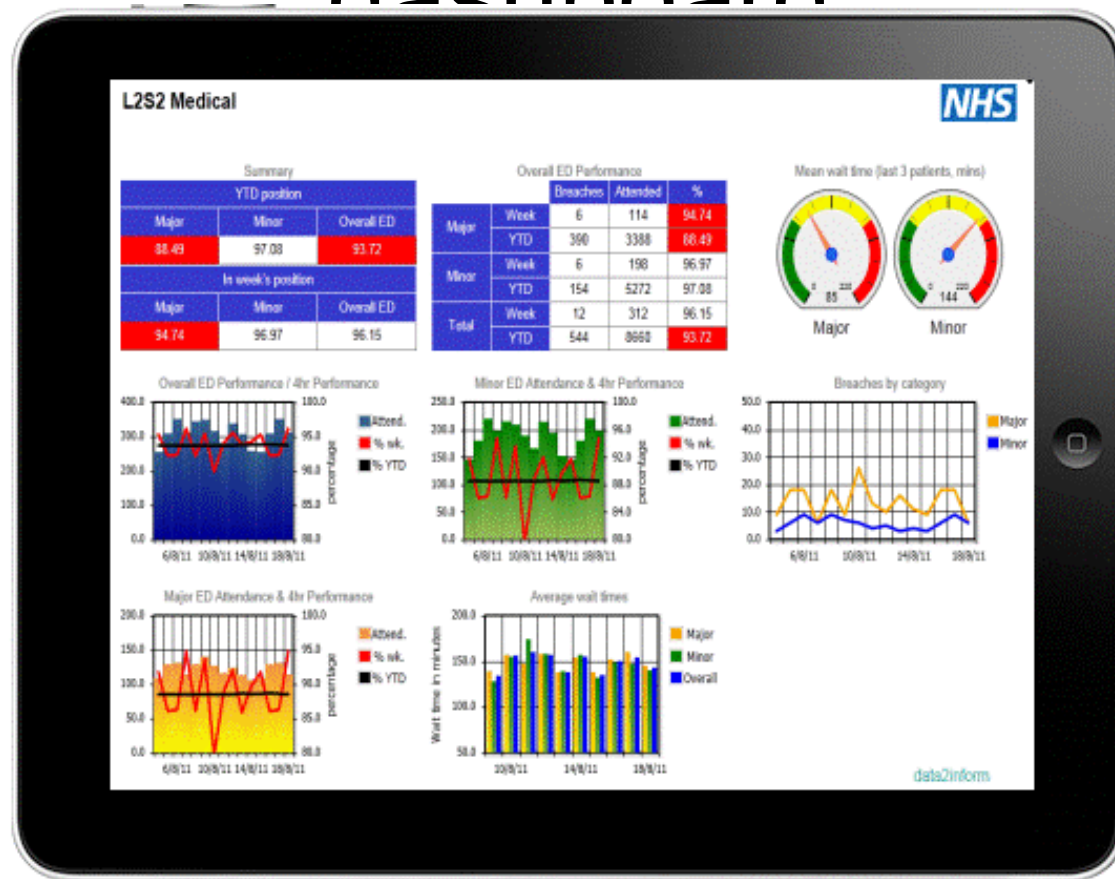
- **Triage Severity Ratio:** small increase
- **Respiratory:** rising
  - ▶ Acute Respiratory Infection: rising
  - ▶ Asthma/ Wheeze/ Difficulty Breathing: stable
  - ▶ Bronchitis/ Bronchiolitis: stable
  - ▶ Influenza-like illness: stable
  - ▶ Pneumonia: stable
- **Gastrointestinal:** stable
  - ▶ Gastroenteritis: stable
- **Cardiac:** stable
  - ▶ Myocardial Ischaemia: stable
- **Other:** Cardiac: stable
  - ▶ Meningitis: stable

Further details on the syndromic indicators reported can be found on page 6.

Date	Total Attendances	Triage Category Coded		Diagnoses Coded		EDs Reporting
		Number	%	Number	%	
29/10/2012	6,238	4,563	73	4,674	78	29
30/10/2012	5,500	4,155	76	4,434	81	29
31/10/2012	5,340	3,987	75	4,215	79	29
01/11/2012	5,257	4,354	76	4,516	78	29
02/11/2012	5,525	4,175	76	4,382	79	29
03/11/2012	5,664	4,400	78	4,444	79	29
04/11/2012	5,813	4,551	78	4,623	80	29
Total	39,837	30,188	76	31,488	79	29

3 diagnosis coding systems in use:  
Snomed-CT ( 6 EDs), ICD-10 [inc UDDA] x ( 9 EDs),  
NHS Accident and Emergency Diagnosis Tables (14EDs).

# Emergency Medicine KPI dashboard

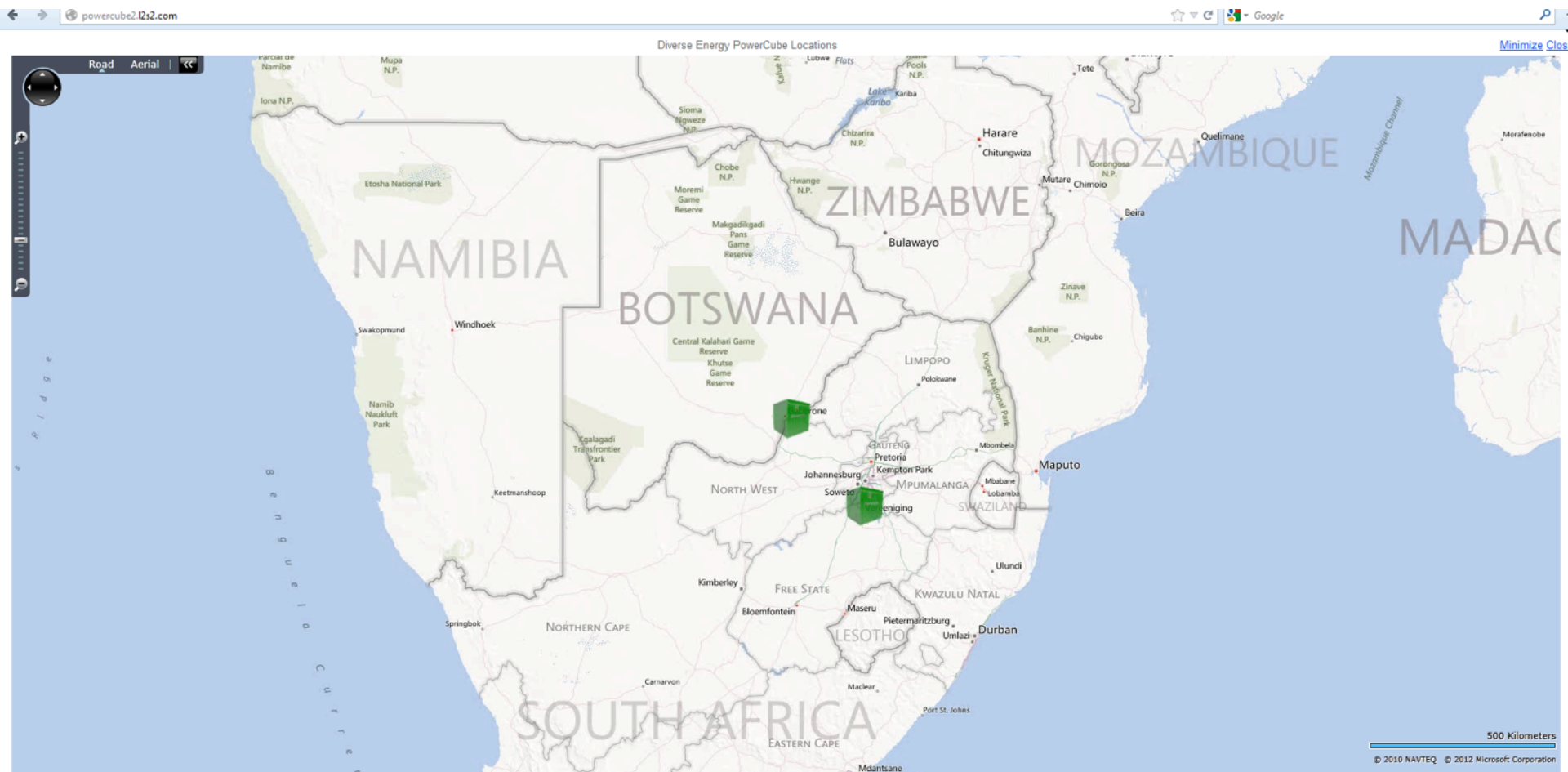




# PowerCube NH3 4 PWR

- Delivering clean power for off-grid locations
- Fuelled by ammonia
- Control PowerCube remotely from UK headquarters
- VPN via low cost non-fixed IP data SIMs (PAYG SIMs used in Africa)

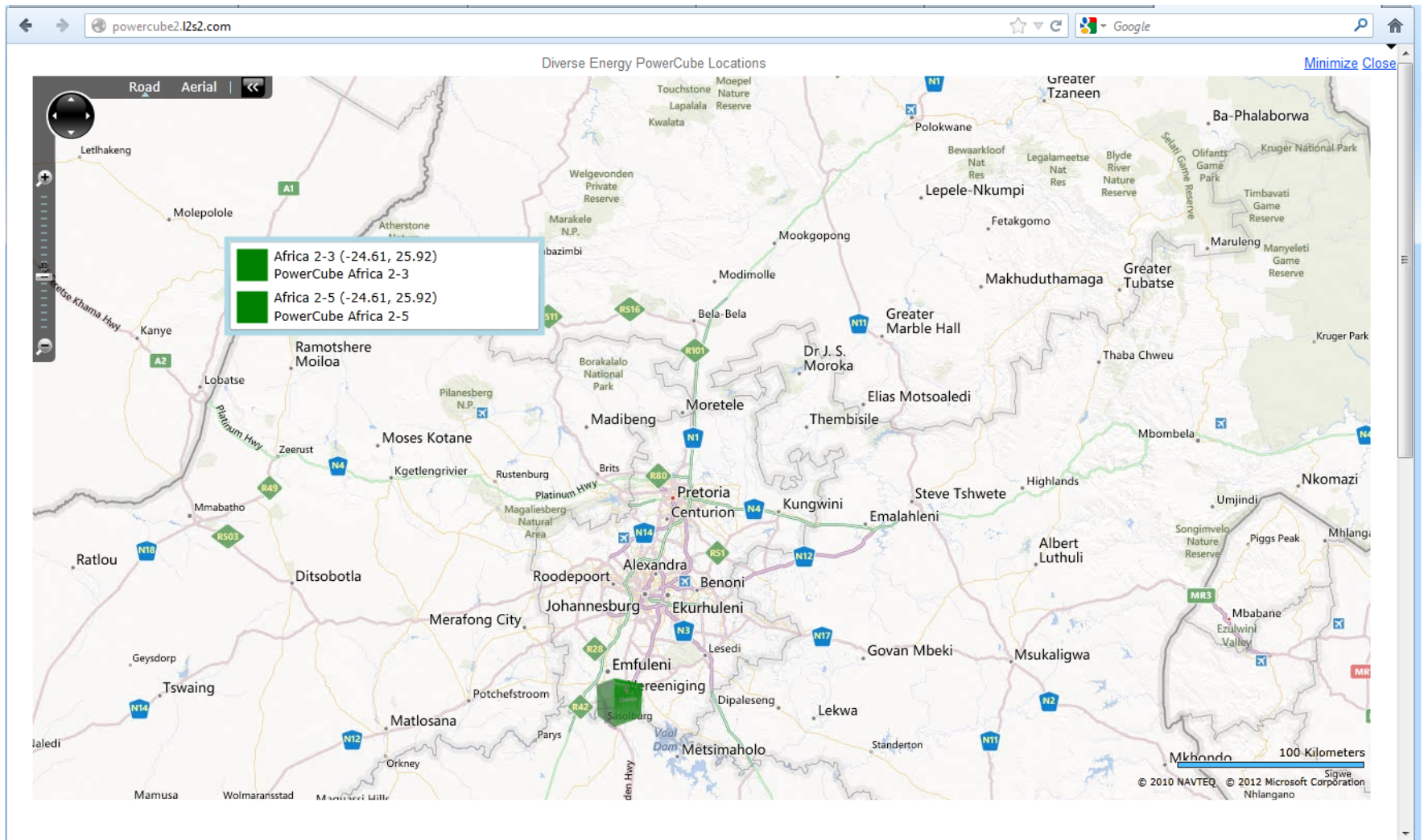
# Map view showing PowerCube location



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# Map view drill down



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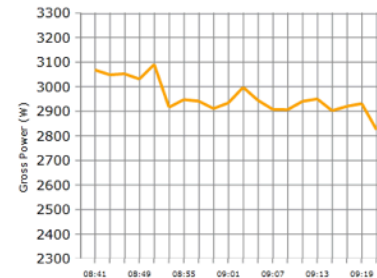
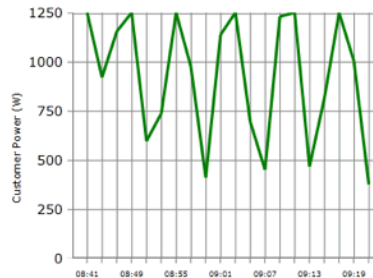
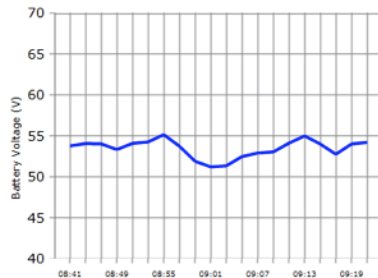
LCD Text Battery:54.2V  
Cracker:825C Pd334C

478355  
Gross kWh Generated

172859  
Net kWh Generated

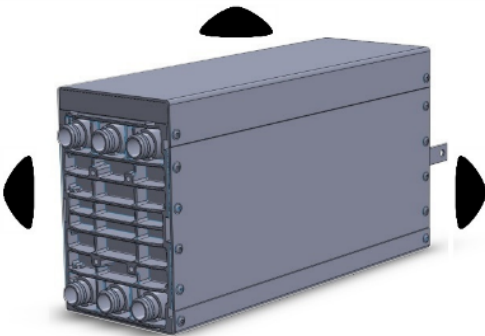
2025  
Total Run Time (hrs)

2025  
Time Since Svc (hrs)



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Top level PowerCube status screen  
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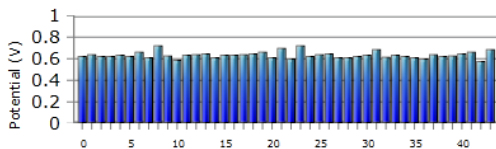


Master Fuel Cell

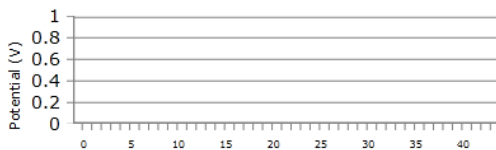
Stack Current	103.25 A
Blower Voltage	7.5 V
Recirc. Pump	7 V
Load Control SP	105 (units?)
Inlet Air Temp.	56.18 C
Stack Air Pressure	72.36 mbarg

Slave Fuel Cell

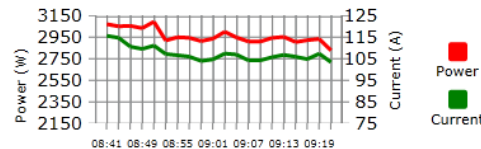
Stack Current	101.71 A
Blower Voltage	0 V
Recirc. Pump	0 V
Load Control SP	0 (units?)
Inlet Air Temp.	1372 C
Stack Air Pressure	74.1 mbarg



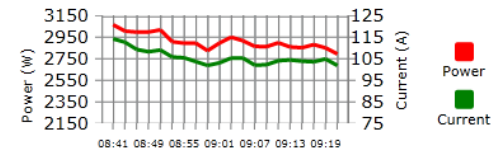
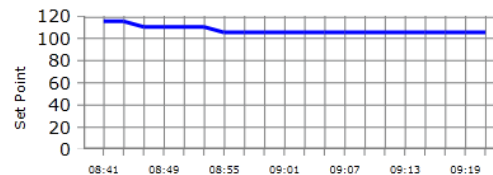
Master Fuel Cell



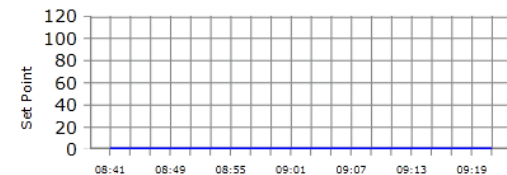
Slave Fuel Cell



Master Fuel Cell



Slave Fuel Cell



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