

South East
Water



*healthy
water
for life*

Philip Johnson
CFO
South East Water
MELBOURNE, AUSTRALIA



AGENDA

- About us
- Our journey
- Benefits
- Progress to date

A little about us....

ASSETS
\$3.9 B

AREA
3,640 SQ KM'S

CUSTOMERS
1,700,000

SALES
\$1.1 B

OPEX
\$0.7 B

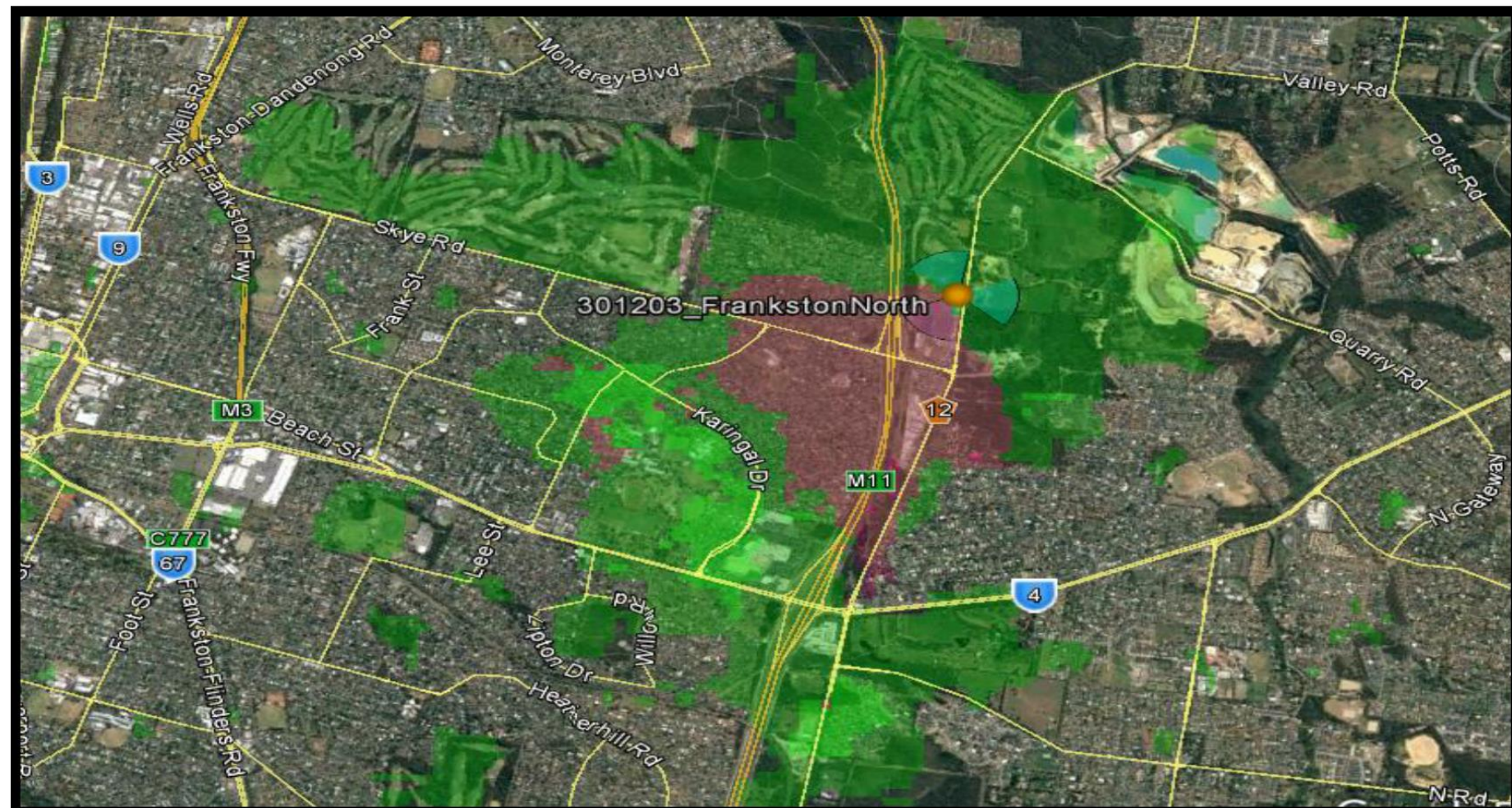
PIPELINES
24,700 KM'S

**Data access key
enabler for SEW**

**Clearly broader
application beyond
SEW**

Other opportunities

Coverage maps of NB-IOT



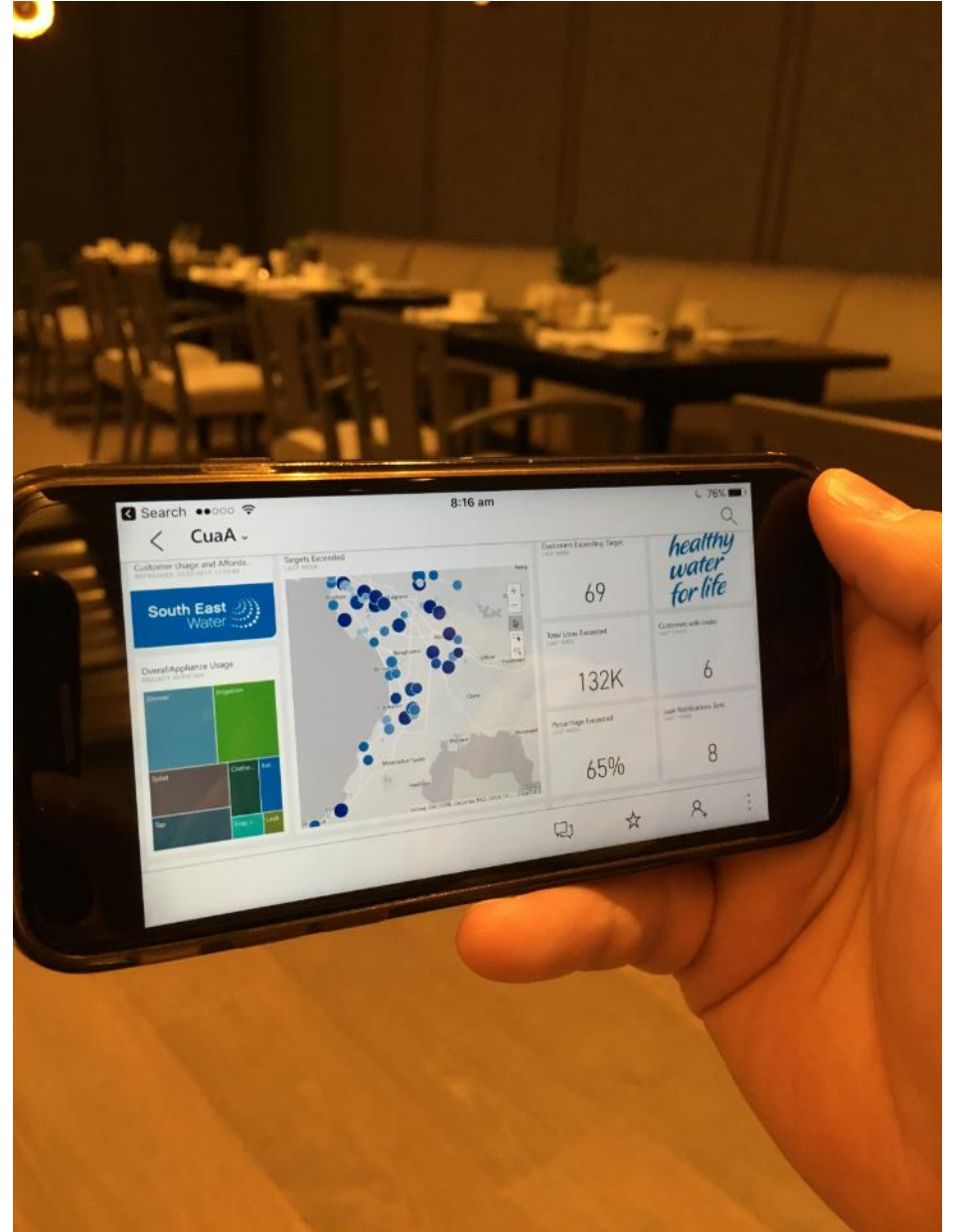
Best Serving Area when all sites have NB-IoT activated



Serving area when only the trial site have NB-IoT activated

The vision....

“...transform the way we **engage with our customers** and **manage our assets** by **acquiring and analysing** data that enables us to then **inform and respond** in a **timely manner...**”



The benefits...

Informed customers

- High usage
- Leak alerts
- Bill prediction / alerts
- Behavioural change

Network Management

- Predict failure
 - Leaks / Bursts
 - Blockages / Spills
- Proactively repair
- Improved service levels

Capital Management

- Optimisation
- Deferral

Financial

- Reduced costs
- Productivity / efficiency
- Profitability

Environment

- Water losses
- Sewage spills

Safety

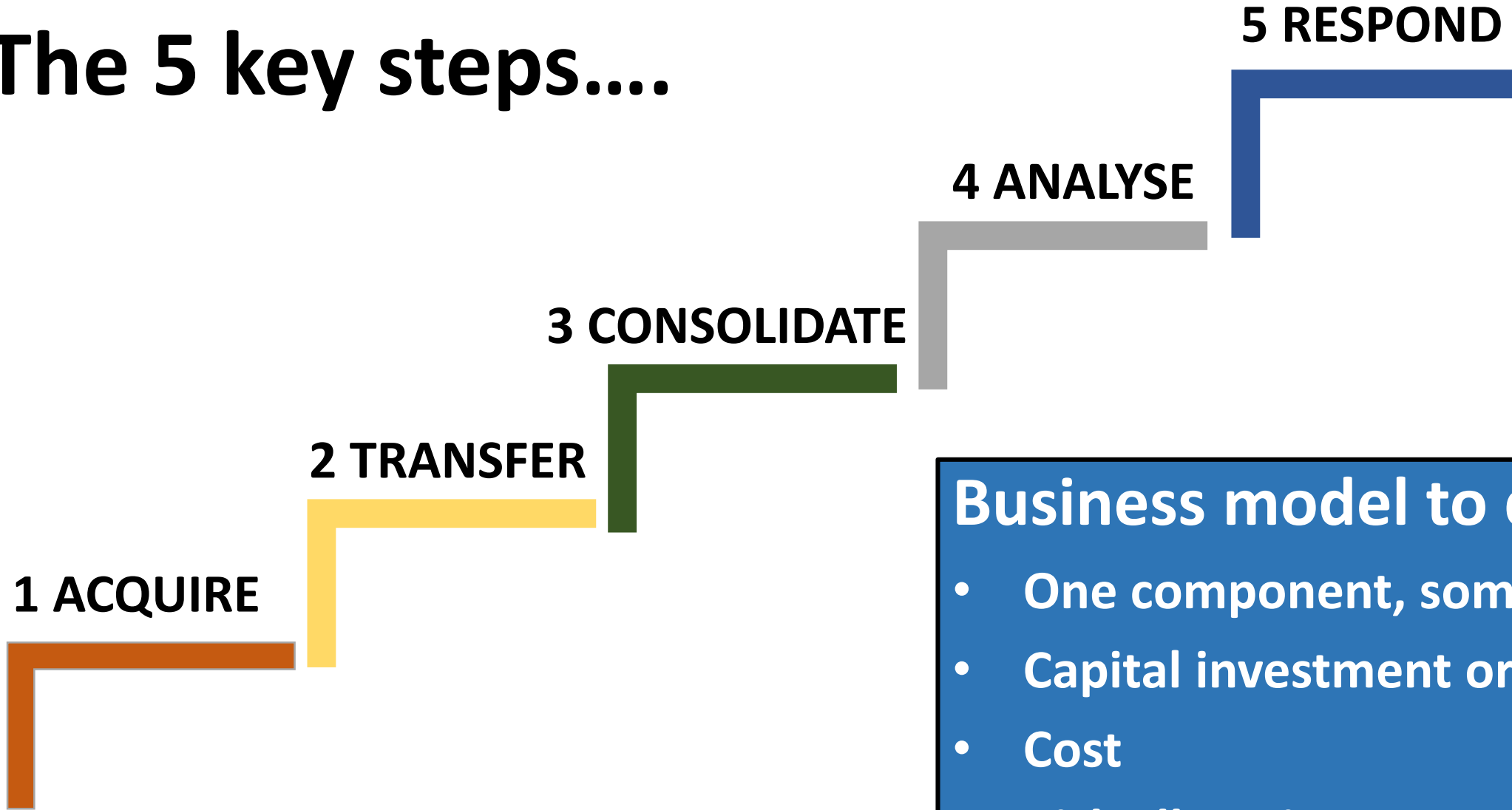
- Dog bites !
- Sewer entry

Community

- Traffic disruption
- Beach closure

plus ?

The 5 key steps....



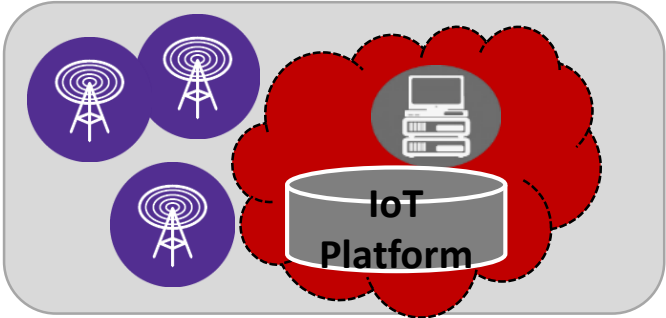
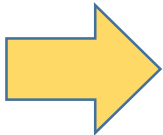
Business model to deliver?

- One component, some or all
- Capital investment or SaS ?
- Cost
- Risk allocation

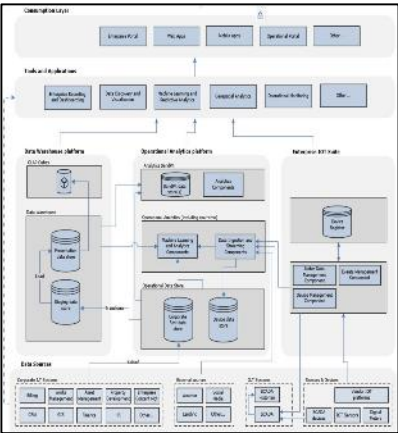
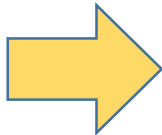
So where are we at....end to end complete



1. AQUIRE



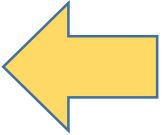
2. TRANSFER



3. CONSOLIDATE



4. ANALYSE



5. RESPOND

1. Data acquisition

Developed devices

- Partnered with industry
- In house development

Fully integrated / Multi purpose

- Flow, Pressure, Temp, Acoustics
- OneBox
- Blockages



2. Data transfer

LPWAN

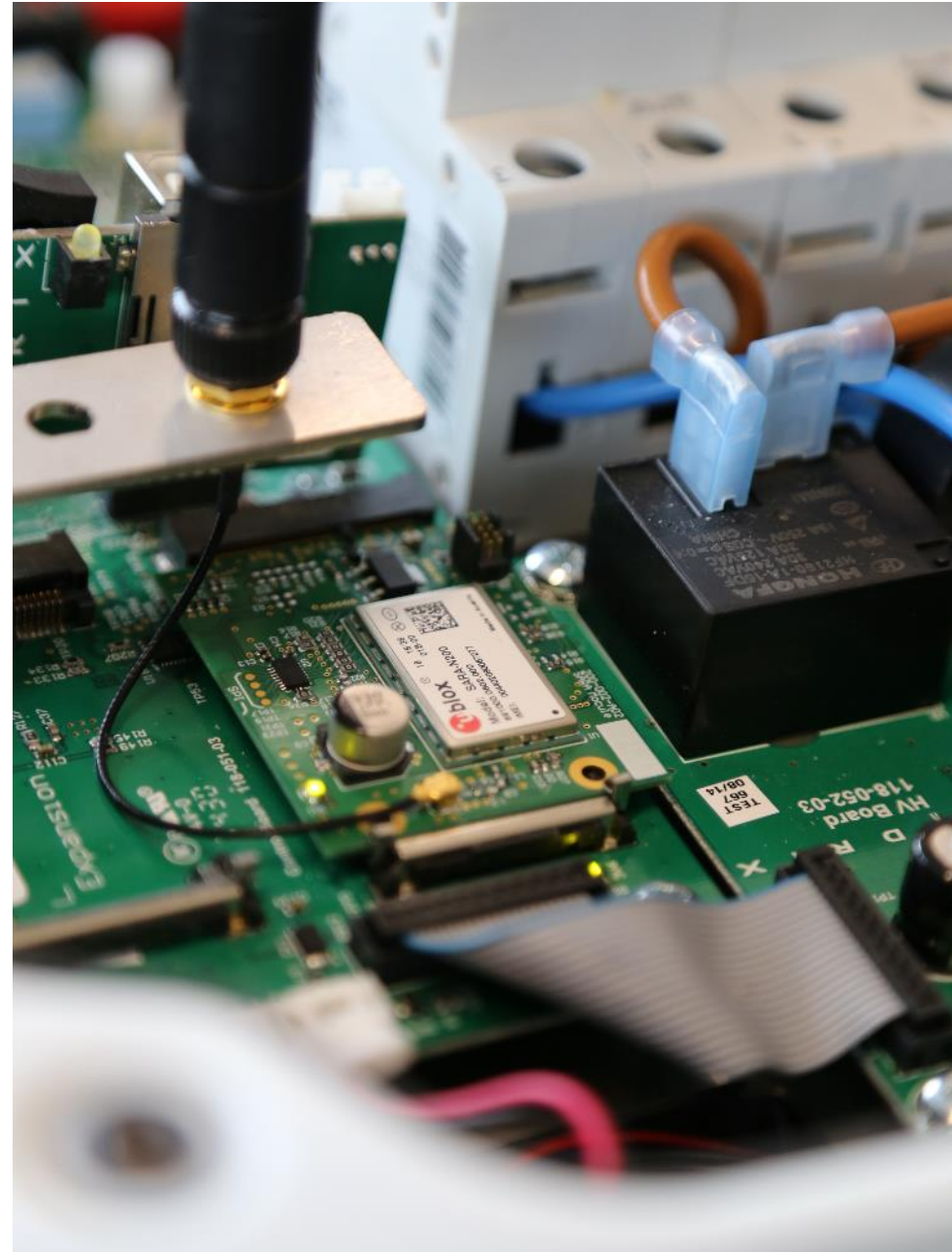
- NB-IoT
- Lora

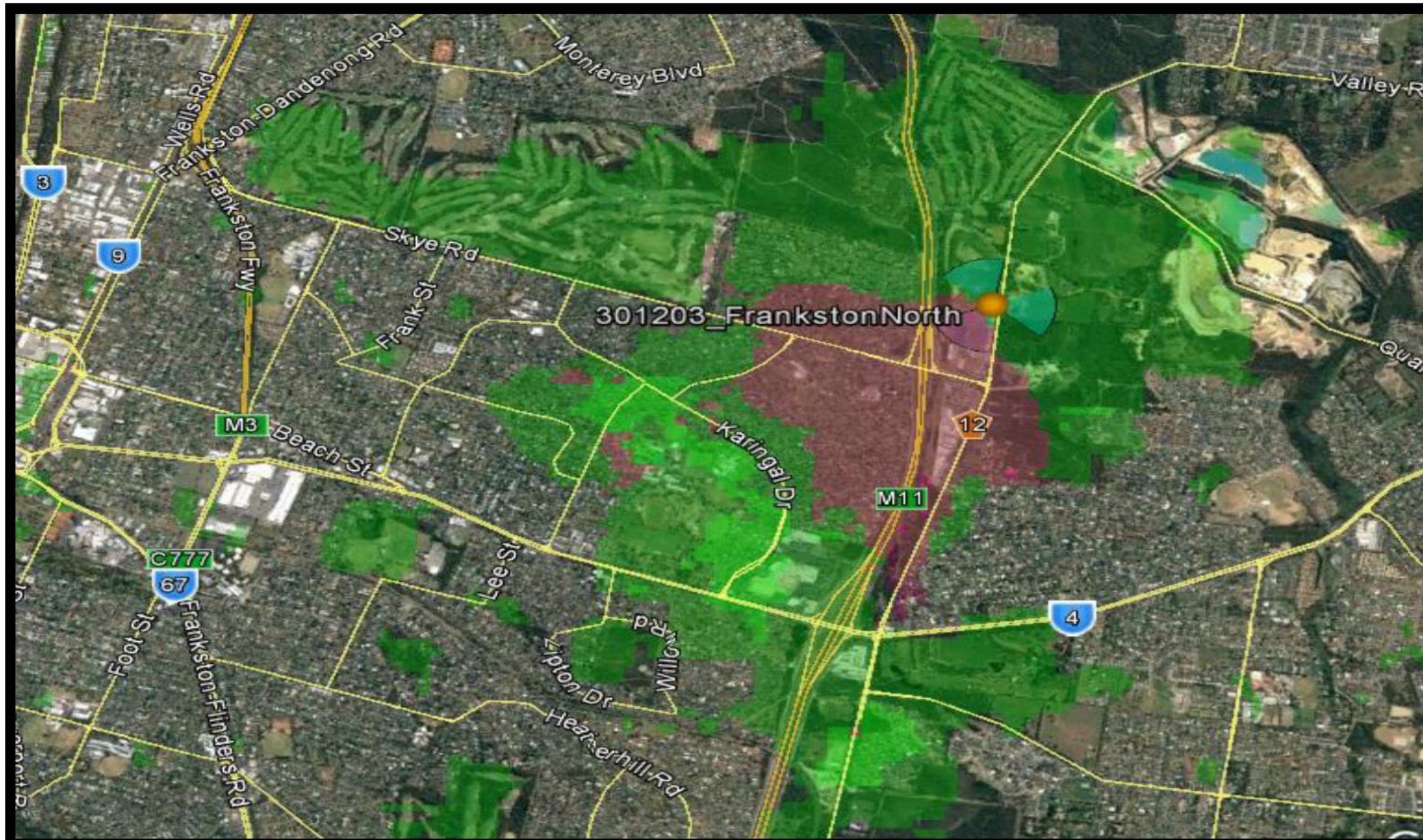
Terrain

- CBD
- Suburban
- Hills

Independent lab testing

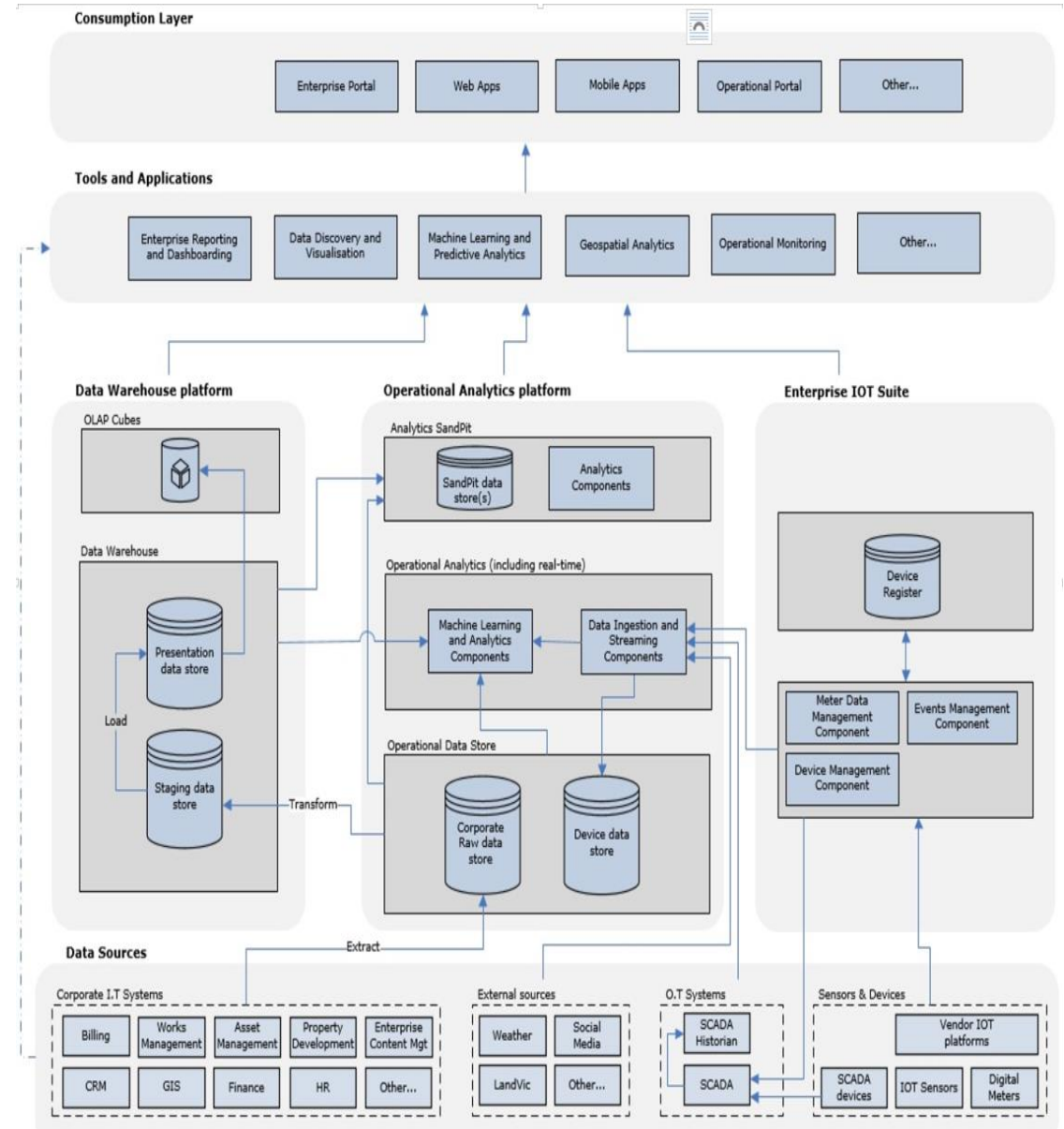
End to end complete – Dec 2016





3. Data Consolidation

- IT Architecture review
- OT / IT integration
- Other data sources (API's)
 - Temperature
 - Rainfall
- Leverage Cloud scalability
 - Data
 - Processing



4. Data Analysis

- Developed tools to identify:

Trends, Patterns & Anomalies

- Holiday usage
- Sole occupant no usage

Issues & Opportunities

- Leaks
- Blockages

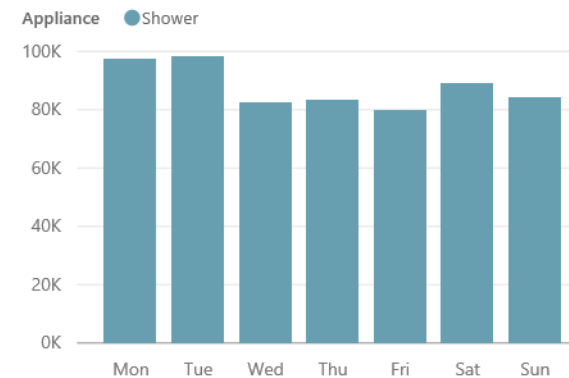
- Workforce skills

- Leverage Cloud scalability

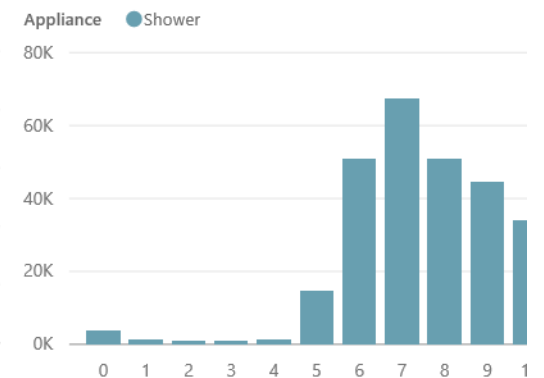
Appliance
Usage
Last 30 Days



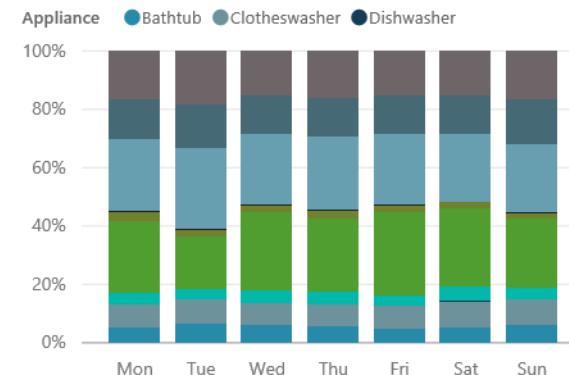
Total Appliance Usage by Day of Week and Appliance



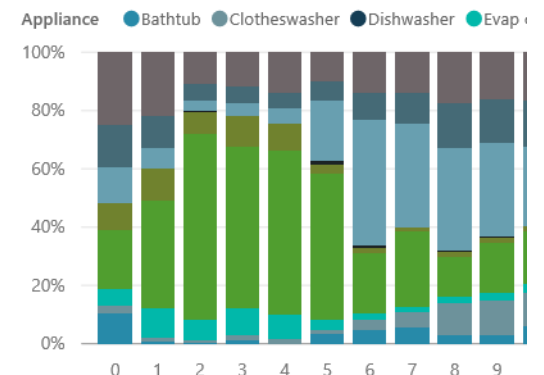
Total Appliance Usage by Hour of Day and Appliance



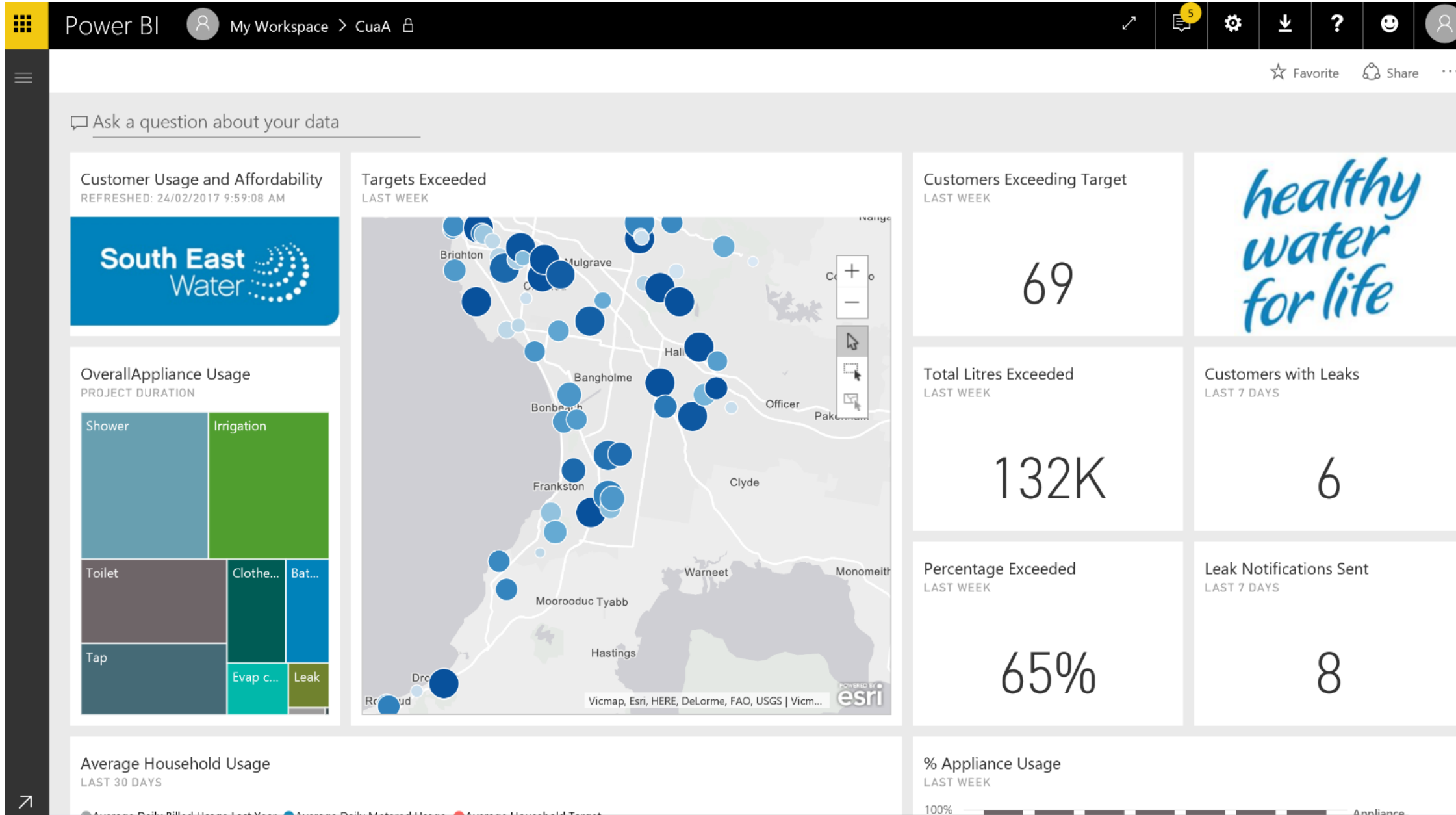
Total Appliance Usage by Day of Week and Appliance



Total Appliance Usage by Hour of Day and Appliance



Cloud-based output



5. Respond

Near real time

Personalised

Informed

Know what is occurring ?

Why is it occurring ?

What needs to be done ?

- Now
- Future

How to do it?

- People
- M2M



End-to-End NB-IOT output

Select Calendar Date Range

15/01/2017

17/02/2017

Device Id

45cfdd2a-d825-417f-abdb-2362d30fc537

Latest Meter Read

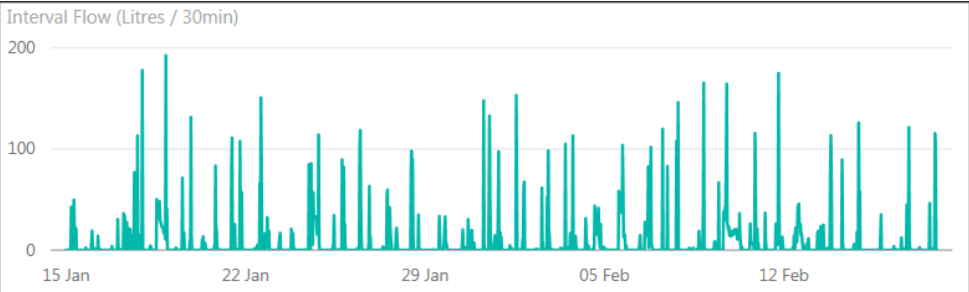
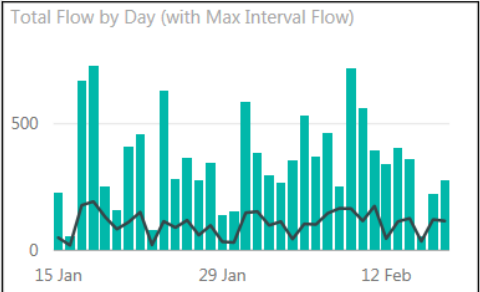
24,934

Latest Temperature

24.3

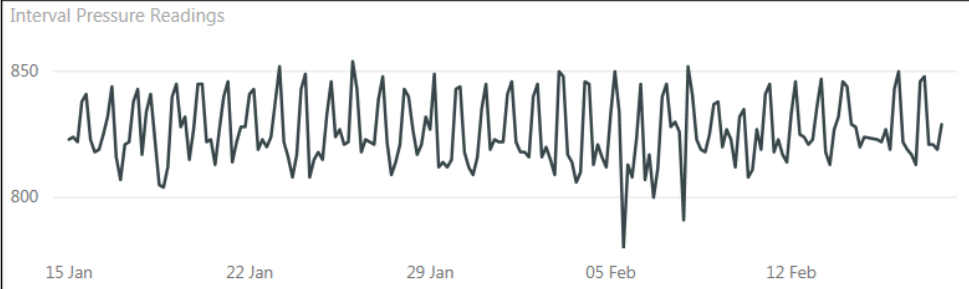
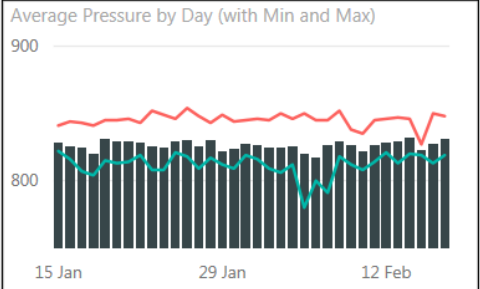
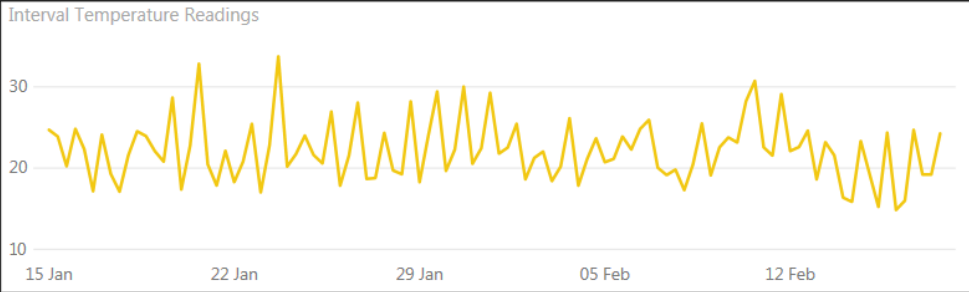
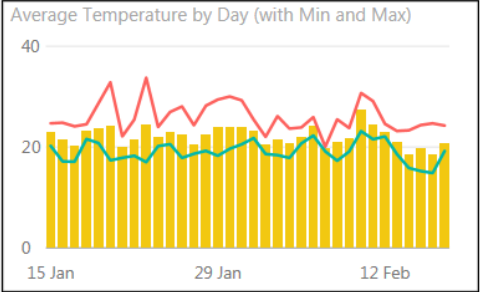
Latest Pressure

829

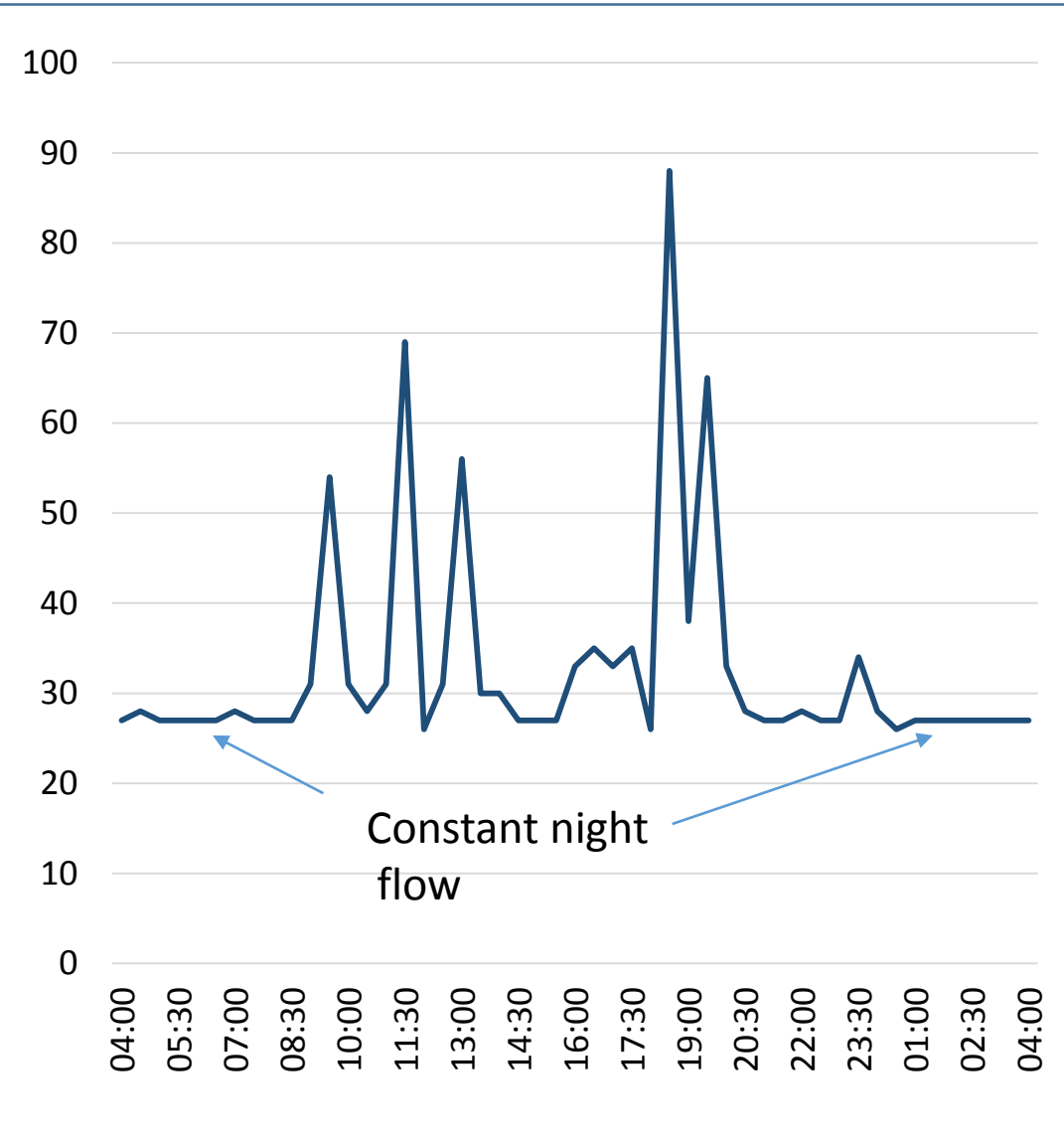


All Readings by Date Time and Reading Type

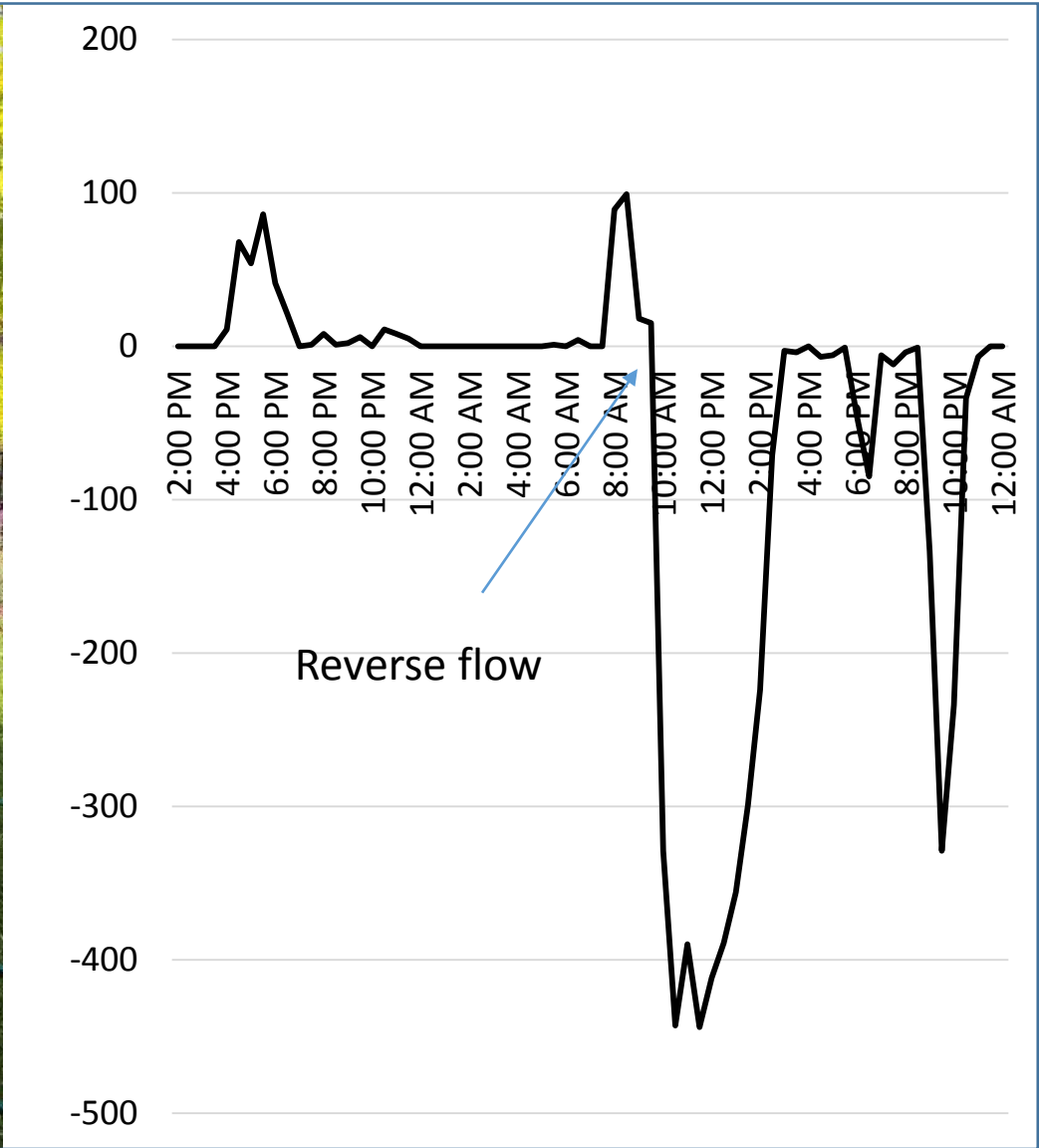
date and time	reading type	reading value
01/15/17 12:00:00 AM	CurrentReading	13,335.40
01/15/17 12:00:00 AM	IntervalFlow	0.00
01/15/17 12:00:00 AM	Pressure	823.00
01/15/17 12:00:00 AM	Temperature	24.7
01/15/17 12:00:00 AM	Vibration	237.00
01/15/17 12:30:00 AM	IntervalFlow	0.00
01/15/17 01:00:00 AM	IntervalFlow	0.02
01/15/17 01:30:00 AM	IntervalFlow	0.00
01/15/17 02:00:00 AM	IntervalFlow	0.00
01/15/17 02:30:00 AM	IntervalFlow	0.00
01/15/17 03:00:00 AM	IntervalFlow	0.00
01/15/17 03:30:00 AM	IntervalFlow	0.00
01/15/17 04:00:00 AM	IntervalFlow	0.01
01/15/17 04:00:00 AM	Pressure	824.00
01/15/17 04:00:00 AM	Vibration	192.00
01/15/17 04:30:00 AM	IntervalFlow	4.78
01/15/17 05:00:00 AM	IntervalFlow	42.82
01/15/17 05:30:00 AM	IntervalFlow	35.12
01/15/17 06:00:00 AM	IntervalFlow	15.37
01/15/17 06:30:00 AM	IntervalFlow	24.76
01/15/17 07:00:00 AM	IntervalFlow	0.96
01/15/17 07:30:00 AM	IntervalFlow	49.74
01/15/17 08:00:00 AM	IntervalFlow	17.45
01/15/17 08:00:00 AM	Pressure	822.00
01/15/17 08:00:00 AM	Temperature	23.9
01/15/17 08:00:00 AM	Vibration	274.00
01/15/17 08:30:00 AM	IntervalFlow	5.75
01/15/17 09:00:00 AM	IntervalFlow	6.95
01/15/17 09:30:00 AM	IntervalFlow	21.45
01/15/17 10:00:00 AM	IntervalFlow	0.53
01/15/17 10:30:00 AM	IntervalFlow	0.00
01/15/17 11:00:00 AM	IntervalFlow	0.01
01/15/17 11:30:00 AM	IntervalFlow	0.07
01/15/17 12:00:00 PM	IntervalFlow	0.00
01/15/17 12:00:00 PM	Pressure	829.00



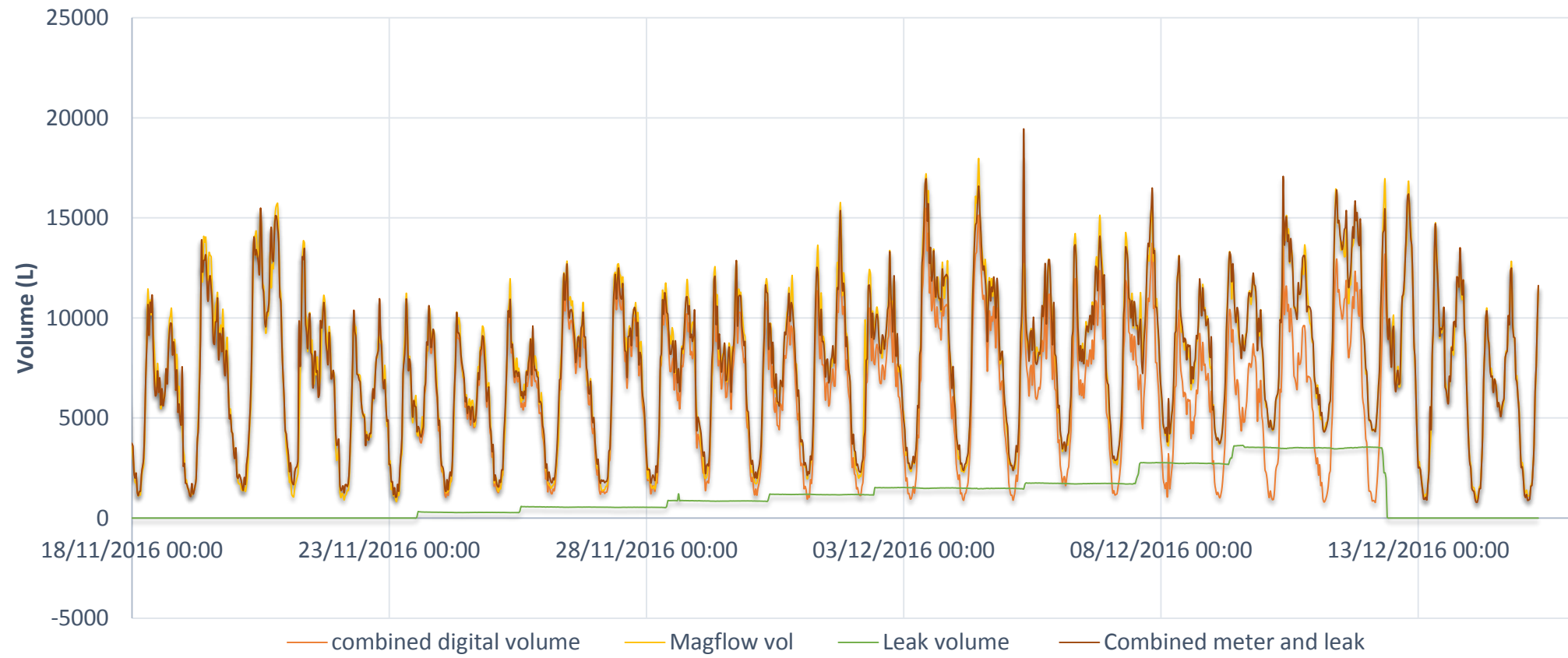
Customer leak



Reverse flow



Network leaks



South East
Water



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water
for life*



iota.
services

