THE DROUGHT AND DIGITAL METERING DILEMMA

ARE WE MOVING FAST ENOUGH AND WHO PAYS FOR IT?
A PICTURE TELLS A THOUSAND WORDS

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AND NOT JUST IN NSW

<table>
<thead>
<tr>
<th>City</th>
<th>Level</th>
<th>Water Available (ML)</th>
<th>Level Last Year</th>
<th>Water Available Last Year (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>50%</td>
<td>1,290,432</td>
<td>65.7%</td>
<td>1,812,175</td>
</tr>
<tr>
<td>Melbourne</td>
<td>55.5%</td>
<td>1,005,278</td>
<td>60.9%</td>
<td>1,812,175</td>
</tr>
<tr>
<td>Brisbane</td>
<td>65.5%</td>
<td>1,453,391</td>
<td>77.3%</td>
<td>2,220,150</td>
</tr>
<tr>
<td>Perth</td>
<td>43.4%</td>
<td>253,246</td>
<td>51.7%</td>
<td>583,537</td>
</tr>
<tr>
<td>Adelaide</td>
<td>54.6%</td>
<td>107,874</td>
<td>59.8%</td>
<td>197,405</td>
</tr>
<tr>
<td>Hobart</td>
<td>61.1%</td>
<td>2,198</td>
<td>88.9%</td>
<td>3,600</td>
</tr>
<tr>
<td>Canberra</td>
<td>55.5%</td>
<td>154,241</td>
<td>88.1%</td>
<td>277,839</td>
</tr>
<tr>
<td>Darwin</td>
<td>64.9%</td>
<td>194,333</td>
<td>86.9%</td>
<td>299,409</td>
</tr>
</tbody>
</table>
TECHNOLOGY IS HERE TO HELP – OR CONFUSE?

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BENEFITS OF SMART METERING AND COSTS

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### WHAT WE ARE DOING IN NSW?

<table>
<thead>
<tr>
<th>Council</th>
<th>Existing SM</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water</td>
<td>50</td>
<td>500</td>
</tr>
<tr>
<td>Hunter Water</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Port Macquarie</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Parkes</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>Goldenfields</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Mid-Western Regional Council</td>
<td>8,000?</td>
<td></td>
</tr>
<tr>
<td>Narrabri</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Lithgow</td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td>Others</td>
<td>??</td>
<td>??</td>
</tr>
</tbody>
</table>
HOW TECHNOLOGY COST CURVES PLUMMET

The Plummeting Cost of Solar
300x cheaper over 40 years ($/watt)

Sources: Bloomberg New Energy Finance, National Renewable Laboratories, Freeing Energy

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ANYONE FOR A $20,000 FLAT SCREEN TV?
...how increased demand decreased costs (and increased capabilities)

Phillips/Fujitsu Flat Plasma TV: $22,924
PPSI: $30.45

Sony KV-35XBR48 CRT TV: $3,821
PPSI: $5.83

2007 (10 years ago)
Pioneer Elite Kuro PRO-110FD: $7,046
PPSI: $6.60

The legendary Pioneer Kuro. It is to TVs what the Porsche 959 was to cars: cutting-edge technological brilliance that was too far ahead of its time to last long. Though I assume Pioneer hoped to make Kuros far longer than Porsche planned on making the 959.

2012 (5 years ago)
Panasonic TC-P55VT50: $2,680
PPSI: $2.08

Plasma! Ah the good old days. Well, sort of. Plasma TVs were great, but these are still old TVs. Today's OLEDs are brighter, have better color, have higher resolution, and more. 4K was still on the horizon five years ago, but already creating waves.

2019 (Present)

$1495
Toshiba 65-inch U9850A 4K UHD LED LCD Smart TV

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WE ARE NO LONGER LIMITED BY OUR IMAGINATION

Cost of Water
Technology
Cost of Technology

Losses

Old paradigm
10% losses

New paradigm
5% losses

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BUSINESS CASE

Customer Benefits
- Leak Alerts (vs leak rebate)
- Opportunities to Improve Engagement
- Visibility of Use
- and more... Each Utility is unique

Network Benefits
- Pressure & Other Sensors
- Reduce Peak Demand
- Defer Capacity Upgrades
- No Wireless Infrastructure Investment

Operational Benefits
- Improve Meter Data Accuracy
- Reduce NRW
- Reduce Non & Under Registration
- Reduce Manual Read Cost
- Reduce WHS Risk

Opportunities to Improve Engagement

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BUSINESS CASE

Add in the benefits from each aspect. For every $1 spent:

• xx cents avoided meter reading cost
• xx cents from avoided leak rebates
• xx from increased metering accuracy (+4%)
• xx cents savings from reduced water losses/leaks in the network
• xx cents savings from avoiding/delaying capacity upgrades (make your water last longer)
• xx cents benefit from knowing elasticity in demand and how to dial it up
• xx cents benefit from lost production/productivity from water restrictions
• xx cents benefit from better customer service/wiser use of water
• xx cents from using the data for things we don’t even know about yet
• xx cents from funds
• xx cents – do you really need more? ;-

Bottom line: Well over $1 benefit for every $1 spent. “The real value is in the data.”
Business case exists BUT:
Need to get ALL benefits from ALL players
Will be a bit more expensive now – introducing new technology always is – but will be cheaper long-term
WE ARE NOT DOING ENOUGH, FAST ENOUGH

Water restrictions loom for Sydney as drought continues to impact on dam levels
By Kevin Nguyen
Updated 5 May 2019, 4:22pm

State of the drought shows dams empty and NSW drowning in dust
ABC Weather
By Kate Doyle
Updated 12 Mar 2019, 9:36am

Low water allocations reflect worsening NSW drought
Grains Central
July 4, 2019

Country towns close to reaching ‘day zero’, as water supplies dry up in the drought
By National Regional Affairs reporter Lucy Bekeber
Updated 21 Jul 2019, 12:19pm

PHOTO: Farmers have nearly finished weeding, in regional NSW, to be as dry. (ABC News: Lucy Bekeber)

Across New South Wales and Queensland’s southern downs, country towns are approaching their own ‘day zero’, as water supplies dry up in the drought.
WAY FORWARD

• Procurement – update & align
• Replace portion of old mechanical meters with new smart meters
• New way to deploy with NB-IoT
• Simple - scalable
• Use the data!
• Integrate
NEWS

**LGNSW** – Climate Change Grants (**Yes!** Smart metering business cases are being accepted!)

**Dept. of Industry** – Water Reform. In progress of pre-approving retro-fit devices to be deployed as part of mandatory requirement.

**Connect Regional NSW program** – will improve data hubs and internet access, as part of a 4 year, $400M project across Australia)

**Murray Darling Basin** – Water Efficiency and Innovation Fund. **$1.5B**
How can we get there – fast, before we run out of water?

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