STAKEHOLDER WORKSHOP 1: OUTCOMES STATEMENT

Workshop Details

Title: Stakeholder Workshop

Date: 26/11/2013

Location: Smart Water Fund Offices, East Melbourne

Attendees:

- Christine Cussen (Smart Water Fund)
- Jessica Yeung (Smart Water Fund)
- Francis Pamminger (Yarra Valley Water)
- Phil Farrell (City West Water)
- Javindu Hathurusinghe (City West Water)
- Richard Keech (Beyond Zero Emissions)
- Larissa Nicholls (RMIT, Beyond Behaviour Change Group)
- Matthew Sullivan (Moreland Energy Foundation)
- Gavin Dufty (St Vincent de Paul)
- Nigel Finney (Savewater Alliance)
- Ian McNicol (Sustainability Victoria)
- Brian Head (University of Queensland)
- Steven Kenway (University of Queensland)
- Amanda Binks (University of Queensland)

Introductions and opening comments

It was noted that this was a first Australian studies where water utilities were looking in detail at how water industry actions / policies influence the interconnection of water and energy use in private households (ie beyond the boundary of traditional water utility energy use, which has only considered their infrastructure).

A general discuss on innovation also occurred. While a side issue to this research, it is valuable to note as it does have implications. Innovation theory suggests that the following factors need consideration and be dealt with to enable implementation of solutions:

1. As there are many stakeholders involved in different aspects of the water cycle, a lot of effort is required to realise new solutions that cross organisation boundaries. (Conceptually simple, but more difficult to implement.) Complexity of the water cycle means a lot of effort is needed to understand it.
2. Structural issues within industry mean that mechanisms need to be created to capture "rewards". Particularly if an organisation can not realise rewards for their own efforts.
3. Time-cycles need to be considered (eg the phone industry turns over innovations within 8 months, however the water industry has a time-frame more in the 20-100 year cycle).

Drivers for the work

Participants at the workshop completed an exercise to address the following question: *What do you see as major drivers relating to the combined management/conservation of water and energy in*

Melbourne households? (Local, Utility, State, Federal, International). This was undertaken in the *context of…..'progress towards water and energy utilities working together, to conserve water and energy in the interest of overall efficiency?'*

Local	State	Federal	All
Information sharing between government and private (energy)	Maintenance of water supply and low cost of water	National emissions target	Green star - design, performance
Councils CCAP and Green Programs	Incentives to use rainwater	Device / appliance regulations and standards (e.g. MEPS)	Lack of knowledge on water/energy effects (constraint)
Privatised energy companies lack incentives for wider public good	standards need to combine energy and water components	Water retailer / government structure and financial pressures to sell water (constraint)	Media
Smarter consumer behaviour	Device / appliance rebates and incentive programs	Rising cost of water and energy	NABERs rating
Melbourne has a sprawl ie. Rising costs for water and energy utilities	Perverse incentives (i.e. guaranteed rate of return for poles and wires)	Resilience of cities - decentralised vs centralised	Star rating programs
Utility - dependence on consumption income (blocker)	Privatised electricity vs. government owned water (constraint)	Changes in structure of water and energy sector	Affordability - keeping bills constant
Reduce usage to keep lid on annual household costs	Improved knowledge from smart meters		Lack of understanding of the water-energy links (constraint)
Utility - cost of supply during peak times	Better management of water resources to reduce rate of growth in water price		Global GHG reduction targets.
Households - lower utility costs	Improved overall efficiency increases productivity		Resource efficiency - limited resources, growing population
Revisions to planning code - LPP			Technology – trade-offs between water and energy efficiency - eg. cooling towers, etc
Business model of utility developed in isolation (constraint)			Tariff structures and also networks - role in pricing
Utility - fragmented electricity industry increases the complexity of collaboration			Regulation - certain/uncertain

Local	State	Federal	All
Community - understanding of cost of water and energy use by appliance			Driver utility - insights into trajectory of average demand (impact of technologies)
Lack of appliance classification in terms of energy efficiency (constraint)			Market design and design of retail market issues

The relationship of each driver to the project has not been fully established, however it is worthwhile considering these as the project develops. Some may emerge as strong drivers either supporting or potentially slowing the project.

Key issues raised:

Planning and development of buildings is very important. Multi-unit apartments creates real demand for new solutions (eg heat pump with balcony-mounted condensers and use of latent heat)(Legionella mentioned). This potentially presents design opportunities, for example increasing the temperature of water supply to reduce household energy use.

The large variation in electricity and gas tariffs offered makes it challenging to compare houses. The group suggested assuming they are all on the same tariff for the basic comparative analysis.

The objective of the study should primarily be aimed to understand, and then identify, options to influence, water-related energy. Water, greenhouse gas and cost savings goals are secondary. This is because they are influenced by a wider range of potentially variable factors, such as individual industry tariffs. It was also considered important to keep focus on the perceived business opportunities for water utilities).

Specific factors are relevant to the following perspectives:

- **Energy sector**
  - Different interests in this space (generators vs. distributors vs. retailers)
  - Energy sector shifts in pricing / markets – new demand side participation models, national electricity market – opportunities for water industry to engage here
- **Water sector**
  - Complexity of water cycle means effort needed to understand
  - Opportunity for water sector to use its 'goodwill' to achieve outcomes in demand management area
- **Households perspective**
  - Costs not the only driver - trust also important
  - Reliability important - low tolerance for failure
  - Can be difficult for households to influence water costs (high fixed versus variable component). YVW trialling 100% volumetric

  - Strong correlation between size of HWS and water use; HWS oversized typically. Ability of system to recover quickly important if considering reducing size.
  - Differences in household energy tariffs quite substantial, cross-comparison tricky – for analysis best to assume a standard tariff.
  - Health needs can influence behaviours (e.g. constant temperature requirements for MS sufferers)
- **Considerations for analysis of management options**
  - Need to find Business case and revenue stream to help pay for/find solutions - structural issues mean mechanisms need to be created to capture 'rewards'
  - Concession holders important – can demonstrate a financial return to government
  - Time-cycles need to be considered (water industry slow moving, 20-100 years)
  - Planning and development of buildings important, influences uptake of new solutions – (e.g. multi-unit apartments create real demand for new solutions)
  - Education and up-skilling of tradesmen identified as important, as they can have significant influence over technology choices. Complexity of technologies can be an issue (i.e. plumber + electrician required?)
  - Previously successful initiatives (e.g. water saving showerheads) may lower the impact potential of further measures (e.g. recirculating showers).

A small group exercise was conducted to consider the planned work on scenario analysis within households. Groups came up with the following recommendations to be considered.

1/ Behaviour Group

- End users understanding of hot water
- Better management of hot water systems
- Inter-relationship of appliances and behaviours
- Water timers
- Water use and hygiene
- Where have the water conservation messages gone post the drought breaking?
- *Washing machine induction motors*
- What is normal use needs some thought (normalisation) for example between various social and economic groups.

Information/Data

- "Living Carlton" studies (apartment buildings) includes in-home displays
- Nicholson project – how people interact with in-home displays (positioning is important)
- "Orbs"/"What's on" simple colour gradation on level of energy use (MEFL) have anecdotal evidence (sometimes have perverse outcomes such as for the clothes drier).
- NERA Phase 2 study – back end of cost-benefit to smart meter program.
- Go5 (NAGA) project also has information
- Energy regulators have detailed information at substation level
- Information on challenge scenarios to shift perceptions (cool factor around conservation messages)

Barriers/Constraints

- Technology and data – many people do not respond to data depending on how it is communicated….other mechanisms / levers are necessary including health, common good, social good. For example the highly successful 130 L/p/d target in SEQ.
- Water consumption connected to perceptions of quality of life.

Interest Groups / Stakeholders

- Families with kids and pensioners (greater signals to policy)

2/ Technology Group (Showers)

- Trend towards 7.5 L/min showerhead…but as smaller droplets, more heat loss
- Shower covers
- Market prices of 7.5 L/m showerhead is dropping ($150 now $30) (Rule of thumb = water 1/3, energy 2/3)(perhaps questionable).
- Hot Water System Temperature Set Point versus biological safety (60 degrees pulsing each week is needed for standards)
- Lower Hot Water System Temperature means less setting time
- Shower timers and shut off and cost of units
- Water/Energy displays in house
- VEET Schemes, 70,000 installs per annum
- Low water price impact on innovation
- Interest groups = manufacturers and potentially utilities who want to diversity in product development as an income generator.

3/ Technology Group (All non-shower technologies) (Age of appliances could be an important consideration

- Semi-centralised systems are of interest (eg hot water districts)
- Washer types, cycles (hot/cold) are of interest
- Rainwater tank to hot water system then into the shower could (a) reduce centralised water demand and (b) create greater source of hot water for the clothes washer (eg some households already have the rainwater tank plumbed to the clothes washer).
- Cooling (Split systems versus evaporative coolers are very interesting)
- Retrofits for no cooling needs would be of interest (rating manufacturer development plans)
- Humidity may also be needed for comfort / health (eg for some medical conditions such as MS or respiratory illness or allergy).
- Instantaneous gas has higher losses. HWS type can have perverse outcomes.
- Efficient washing machines and high-density apartments are worth considering.

END