

# Developing the Water and Energy Supply and Consumption (WESC) Data Standard



Dr Michael Rigby, AURIN  
[rigby@unimelb.edu.au](mailto:rigby@unimelb.edu.au)

Dr Jonathan Yu, CSIRO  
[jonathan.yu@csiro.au](mailto:jonathan.yu@csiro.au)



- Australia is under increasing pressure from population growth and land use change
- Researchers and policy makers require access to high value WESC data
- The WESC Data Standard and proof of concept Data Hub was developed by AURIN-CSIRO in 2013-2015
- While the Data Hub remains technically sufficient, key issues are hindering its roll-out, adoption and sustainability
- This project reviewed the state of the art and investigated data users and providers to understand value and barriers

# Key Issues

## Data providers

- Interaction with data users is ad hoc and requests are handled case by case, which is inefficient and costly
- Time and resources required to adopt the standard are perceived as having a low return on investment in comparison with business as usual (BAU)
- Teams are coping with challenges, e.g. big data, privacy, ethics

## Data users

- Reported not being able to find data that is high value or relevant to their work

## Disruption

- Emergence of new technologies, inc. solar PV, recycled/waste water with P2P trading in the nexus with potential for new socio-economic models
- Data volumes are increasing along with data formats, particularly from privates
- New research opportunities increasing demand for data, which may add pressure to already constrained data providers



# Lessons Learnt

*Social-technical dimensions are key*

*Strong value proposition needed for data providers, industry and government*

*Greater awareness of the WESC data standard required*

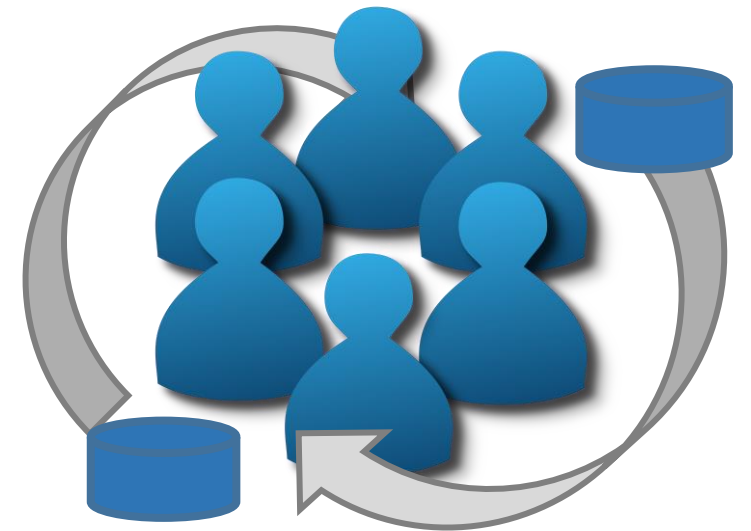
*Leadership in data is vital and this must come from industry and government to assist data provider BAU*

*Project / funding proposals require strong partnership requirements to encourage collaboration with data and standards*

*Engagement with other leading national and international socio-technical initiatives recommended (e.g. Loc-I, CSIRO)*

*WESC Data Standard already open source (GitHub) and can be adapted by a community*

*Data Hub can be made more FAIR through improvements, e.g. adding persistent identifiers (data and vocabularies), provenance information and archiving of meta (data)*



# Sustainability and Impacts

Pathways are needed for the project's sustainability and impact, requiring:

- Data relationships (funded with AURIN support)
- Technical development (funded or community driven)

Expected benefits are broad/cross-cutting, particularly in the next 5-10 years (understanding long term feedback loops):

- Social
  - Improved understanding of consumption and behavior, interoperability for smart homes and communities
- Environmental
  - Improved environmental management including water supply resilience, waterway health and wastewater augmentation
- Economic
  - A tool to enable efficiencies in data teams and WESC more broadly through infrastructure improvements, better precinct planning, reduced supply costs and waste (e.g. early leak detection)

- ✓ Data collection will cease 29 Oct 2019
- ✓ Final report with updated recommendations to be submitted by 29 Nov 2019
- ✓ Conference/journal paper to be submitted Dec 2019
- ✓ More information:  
[https://aurin.org.au/about-aurin/network/developing\\_wesc/](https://aurin.org.au/about-aurin/network/developing_wesc/)

## Acknowledgements



Environmental Informatics

National Energy Analytics  
Research (NEAR) Program

A special thank you to all who participated in the data collection process.