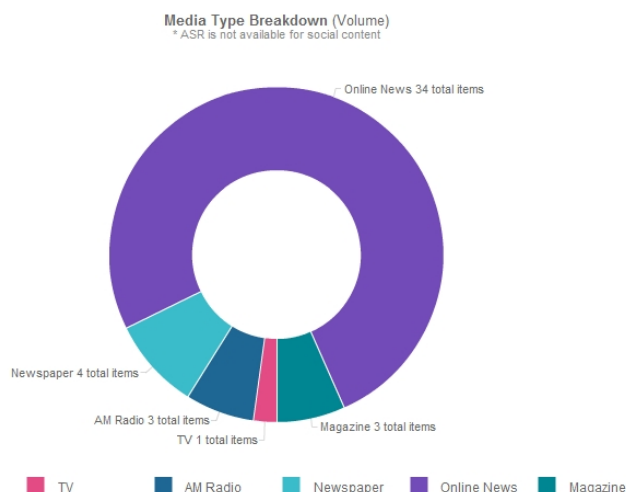


RENeW Nexus coverage

Total media types 5 total items 45 Total audience 1,391,606 Total ASR (in AUD) \$877,915



“ An analysis of coverage from 1 folders (RENeW Nexus media coverage Jul 2018-Jul 2019) found 45 items. This Coverage reached a cumulative audience of 1,391,606 and had an advertising space rate of AUD 877,915.

* Online News has the highest volume of coverage (34 items or 75% of the total volume of coverage)

* Newspapers reached the highest cumulative audience (571,588 or 41% of the cumulative audience)

* Online News had the highest advertising space rate (AUD 743,164 or 84% of the total advertising space rate)

Media Type	Volume	Audience	ASR (in AUD)
AM Radio	3	76,000	\$13,205
Magazine	3	563,685	\$42,171
Newspaper	4	571,588	\$45,975
Online News	34	4,333	\$743,164
TV	1	176,000	\$33,400



Electric dreams?

heraldonlinejournal.com by Molly Schmidt

05 Oct 2018 4:45 PM

387 words • ASR N/A • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1018228775

• Curtin univeristy project manager Karla Fox-Reynolds. IMAGINE an app where you can buy or sell electricity to your neighbours.

It might sound like a futuristic dream, but Curtin and Murdoch universities are researching how cities could use data and...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



A world-first solar power energy sharing scheme is being trialled in Perth. Curtin ...

[Channel 7, Perth, Today Tonight \(WA\), Monica Kos](#)

04 Dec 2018 6:35 PM

Duration: 3 mins 45 secs • ASR AUD 33,400 • WA • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: X00077055169



A world-first solar power energy sharing scheme is being trialled in Perth. Curtin University's RENeW Nexus project allows people with solar panels to sell off their energy to those who don't at a price they can personally negotiate for. Karla Fox-Reynolds, Project Manager, says they believe this is a world-first trial for this kind of initiative. Melina Mellino, Homeowner, says it was important for them to put solar panels on their house because they live in a state with a lot of sunlight. Mellino says they generate so much energy that they are forced to feed it back to the energy grid. Phil Morellini, Homeowner, says this allows him access to cheap green power. The RENeW Nexus project piggybacks on Western Power's pre-existing grid and doesn't need additional infrastructure. Morellini admits 50% of his energy comes from Synergy with the rest coming from peer-to-peer trading. Ben Wyatt, WA Energy Minister, says RENeW Nexus pulls double duty as a way for people to save on electricity as well as stabilising the grid due to it

being flooded by excess solar energy. A successful trial in Fremantle could see the project expanded across the state.

Audience

176,000 All, 71,000 MALE 16+, 102,000 FEMALE 16+

Interviewees

Ben Wyatt, WA Energy Minister|Karla Fox-Reynolds, Project Manager|Melina Mellino, Homeowner|Phil Morellini, Homeowner

Also broadcast from the following 1 station

GWN7 (Perth)



New trial enables customers to buy and sell solar energy

miragenews.com

05 Dec 2018 4:33 PM

211 words • ASR AUD 879 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1046887089

Australian-first trial commences to allow households to trade solar power Households will be able to purchase power using a blockchain-enabled platform

Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable energy trading trial...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



New trial enables customers to buy and sell solar energy

Media Statements

05 Dec 2018 4:37 PM

320 words • ASR AUD 1,310 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1046887124

Australian-first trial commences to allow households to trade solar power Households will be able to purchase power using a blockchain-enabled platform

Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable energy trading trial...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



New trial enables customers to buy and sell solar energy

getindustry.com.au

06 Dec 2018 10:44 AM

196 words • ASR AUD 836 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047364304

WA Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable energy trading trial which will enable households with rooftop solar panels to trade their excess solar energy with their neighbours.

About 40 residential properties...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



World-leading rooftop solar trading trial kicks off in Fremantle

onestepoffthegrid.com.au by Sophie Vorrath

06 Dec 2018 11:46 AM

493 words • ASR AUD 1,802 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047386481

Western Australia has launched a major – and, it claims, world- and Australia-first – residential solar trading trial that will see around 40 Fremantle households buy and sell their excess rooftop solar power with their neighbours, via the existing...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Trial will let neighbours trade solar energy

esdnews.com.au

06 Dec 2018 2:19 PM

242 words • ASR AUD 980 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047433869

Western Australian Energy Minister Ben Wyatt has announced a new peer-to-peer solar energy trading trial that will enable households with rooftop solar panels to trade their excess solar energy with their neighbours.

About 40 residential properties...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Fremantle residents to trade solar energy using blockchain – pv magazine Australia

Renewable Snaps

06 Dec 2018 9:32 PM

100 words • ASR AUD 355,774 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: DA0027234661

pv magazine Australia Fremantle residents to trade solar energy using blockchainpv magazine AustraliaA trial in solar energy trading enabled by blockchain has officially kicked off in the port city of Fremantle, looking to demonstrate the interconnected in...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Fremantle residents to trade solar energy using blockchain

pv-magazine-australia.com by Marija Maisch

06 Dec 2018 9:43 PM

584 words • ASR AUD 2,215 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047582621

Around 40 residential properties across the port city of Fremantle, Western Australia, will be able to trade solar power using a blockchain-enabled platform. The trial is even open for residents who do not have solar PV on their rooftops. Blockchain...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Renewable energy trading trial kicks off in WA

energymagazine.com.au by Elisa Iannunzio

07 Dec 2018 10:57 AM

231 words • ASR AUD 961 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047957280

LinkedInTwitterFacebook

Western Australia has unveiled a new peer-to-peer, renewable energy trading trial which will enable households with rooftop solar panels to trade their excess solar energy with their neighbours.

About 40 residential properties...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



A solar trading trial for customers

utilitymagazine.com.au by Lauren Butler

07 Dec 2018 11:30 AM

231 words • ASR AUD 907 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047969810

A new peer-to-peer renewable energy trading trial in Western Australia will soon allow a limited number of households with rooftop solar to trade excess energy with their neighbours.

About 40 residential properties across the City of Fremantle will...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



New trial enables customers to buy and sell solar energy

qmeb.com.au by Tara Tyrrell

07 Dec 2018 12:02 PM

193 words • ASR AUD 789 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1047980752

Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable energy trading trial which will enable households with rooftop solar panels to trade their excess solar energy with their neighbours. About 40 residential properties across...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Australia: New trial enables customers to buy and sell solar energy

marketwatch.com

07 Dec 2018 11:02 PM

293 words • ASR AUD 968 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: DA0027313478

Dec 06, 2018 (Euclid Infotech Ltd via COMTEX) -- Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable energy trading trial which will enable households with rooftop solar panels to trade their excess solar energy with their neighbours.

[Read on source site](#)

Audience

832,755 UNIQUE DAILY VISITORS, 2,008 AVERAGE STORY AUDIENCE



WA starts renewable energy trading trial

utilitymagazine.com.au

10 Dec 2018 2:24 PM

230 words • ASR AUD 912 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1049143170

Western Australia has unveiled a new peer-to-peer, renewable energy trading trial that will enable households with rooftop solar panels to trade their excess solar energy with their neighbours. About 40 residential properties across the City of...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



New WA trial enables customers to buy and sell solar energy to neighbours

qmeb.com.au by Tara Tyrrell

10 Dec 2018 3:32 PM

299 words • ASR AUD 1,176 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1049159573

WA's Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable energy trading trial which will enable households with rooftop solar panels to trade their excess solar energy with their neighbours. About 40 residential properties...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



“Australia first” rooftop solar trading trial kicks off in WA

Renew Economy by Sophie Vorrath

11 Dec 2018 8:27 PM

233 words • ASR N/A • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1049808998

Western Australia has launched a major – and, it claims, world- and Australia-first – residential solar trading trial that will see around 40 Fremantle households buy and sell their excess rooftop solar power with their neighbours, via the existing...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Feature

Weekend West, Perth, West Weekend Magazine

15 Dec 2018

Page 13 • 1383 words • ASR AUD 22,582 • Photo: Yes • Type: Recipes • Size: 801.00 cm² • WA • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1051807947



■ Aaron Cook, the Perth former clinician feeding New Yorkers coffee and smashed avocado. Sure, Captain James Cook might have sailed a ship to Australia a couple of hundred years ago but it was Perth adventurer Aaron Cook who discovered the promised land.

[View original](#) - Full text: 1383 word(s), ~5 mins

Audience

216,071 CIRCULATION



New trial enables customers to buy and sell solar energy

Australian Engineering OnLine

19 Dec 2018 8:59 AM

348 words • ASR AUD 1,600 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1053429670

Australian-first trial commences to allow households to trade solar power
Households will be able to purchase power using a blockchain-enabled platform

WA Government : Energy Minister Ben Wyatt has announced an exciting new peer-to-peer, renewable...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



A SOLAR TRADING TRIAL FOR CUSTOMERS

Utility, Collingwood, General News

01 Feb 2019

Page 14 • 228 words • ASR N/A • Photo: No • Type: News Item • Size: 136.00 cm² • National • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1077363004



A peer-to-peer renewable energy trading trial in Western lia is allowing a limited number of households with rooftop solar to trade excess energy with their neighbours. About 40 residential properties across the City of Fremantle are taking part in the trial, which runs until June 2019.

[View original](#) - Full text: 228 word(s), <1 min

Audience

5,766 CIRCULATION



Trial will let neighbours trade solar energy

Energy Source & Distribution, National, General News

01 Feb 2019

Page 15 • 262 words • ASR AUD 3,188 • Photo: Yes • Type: News Item • Size: 754.00 cm² • National • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1070321035



Western Australians will be the first to participate in a new renewable energy trading trial that will enable households with rooftop solar panels to trade their excess solar energy with their neighbours. About 40 residential properties across the City of Fremantle will take part in the trial, which will run until June 2019.

[View original](#) - Full text: 262 word(s), ~1 min

Audience

4,792 CIRCULATION



Trading electricity across the grid using blockchain comes to Fremantle with water to follow

[The Fifth Estate](#) by Poppy Johnston, Damian Clarke

07 Mar 2019 7:20 PM

514 words • ASR AUD 1,235 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1089385125

In what could be a world first, the CRC for Low Carbon Living has brought together energy and infrastructure providers, a land developer and other smaller players to provide true peer-to-peer energy trading across the grid.

Trading will be between...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Revolutionary East Village at Knutsford enhances Freo's sustainability credentials

miragenews.com

30 Apr 2019 3:10 PM

400 words • ASR AUD 1,198 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1115117389

Fremantle's reputation as a showcase for sustainable living has been boosted with today's launch of LandCorp's trail-blazing East Village at Knutsford development.

The sustainable housing demonstration project launched by Lands Minister Ben Wyatt this...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



100% renewable energy to power cutting-edge infill estate

miragenews.com

30 Apr 2019 5:21 PM

521 words • ASR AUD 1,633 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1114881284

East Village Knutsford will become an innovation hub for sustainable living Residents will use their own micro grid and battery storage to generate power Energy bills will be slashed by about 50%, saving residents around \$1,200 a year Each home will be...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



100% renewable energy to power cutting-edge infill estate

Media Statements

30 Apr 2019 5:38 PM

536 words • ASR AUD 1,750 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1114890363

East Village Knutsford will become an innovation hub for sustainable living Residents will use their own micro grid and battery storage to generate power Energy bills will be slashed by about 50%, saving residents around \$1,200 a year Each home will be...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



LandCorp, Power Ledger in 100% renewable development

[BN Western Australia](#) by Adrian Rauso

30 Apr 2019 5:47 PM

391 words • ASR AUD 792 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1114895065

LandCorp and energy trading platform Power Ledger have unveiled a 100 per cent renewable energy residential development at East Village at Knutsford near Fremantle. The development is part of the Australian Government's Smart Cities and Suburbs...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



100% renewable energy to power cutting-edge infill estate

publicnow.com/news

30 Apr 2019 6:16 PM

494 words • ASR AUD 151,980 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: DA0039487894

East Village Knutsford will become an innovation hub for sustainable livingResidents will use their own micro grid and battery storage to generate powerEnergy bills will be slashed by about 50%, saving residents around \$1,200 a yearEach home will be wired...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Regular Segment: Panel Discussion with Dr Joshua Byrne from the Curtin University ...

[ABC Radio Perth](#), [Perth](#), [Focus](#), [Jessica Strutt](#)

30 Apr 2019 10:05 AM

Duration: 21 mins 52 secs • ASR AUD 12,388 • WA • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: X00078693933



Regular Segment: Panel Discussion with Dr Joshua Byrne from the Curtin University Sustainability Policy Institute and Power Ledger Chairman Dr Jemma Green.

Strutt mentions she is currently in Fremantle, saying she is specifically at the site of LandCorp's East Village at Knutsford. She notes that it is set to become an example of what sustainable living is like. She adds that they are powered by WA's largest residential battery that will eventually store power generated from the residents' solar systems. Byrne says this would be one of the most exciting projects in residential development in WA. He notes that this demonstrates true system-thinking behind the way it has been together. He also discusses the water management systems of the community. Strutt mentions that the East Village has been provided in partnership between LandCorp and the Australian Government's Smart Cities and

Suburbs Initiative. Green discusses the plans for the power system in the community. She also explains what Blockchain electricity is.

Audience

24,000 All, 11,000 MALE 16+, 13,000 FEMALE 16+

Interviewees

Dr Jemma Green, Chairman, Power Ledger|Dr Joshua Byrne, Curtin University Sustainability Policy Institute



A sustainable housing development has been launched near Fremantle, consisting of 36 ...

[6PR](#), [Perth](#), [16:00 News](#), [Newsreader](#)

30 Apr 2019 4:02 PM

Duration: 0 min 48 secs • ASR AUD 505 • WA • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: X00078698684



A sustainable housing development has been launched near Fremantle, consisting of 36 energy-efficient residences. At East Village, the homes collect their own rainwater and connect individual solar panels to a renewable energy microgrid. Curtin University Sustainability Institute Research Fellow Josh Byrne states people can see in real-time energy and water usage in the housing development.

Audience

31,000 All, 20,000 MALE 16+, 11,000 FEMALE 16+

Also broadcast from the following 1 station

6iX (Perth)



East Village has been established in the southern suburbs which will act as a real-time ...

6PR, Perth, 18:00 News, Newsreader

30 Apr 2019 6:03 PM

Duration: 0 min 43 secs • ASR AUD 312 • WA • Australia • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: X00078700303



East Village has been established in the southern suburbs which will act as a real-time research project for innovative technologies. Josh Byrne, Curtin University, says the real-time information will be invaluable.

Audience

21,000 All, 15,000 MALE 16+, 6,000 FEMALE 16+

Interviewees

Josh Byrne, Curtin University

Also broadcast from the following 1 station

6iX (Perth)



Fremantle's East Village goes off grid with own power, water

West Australian by Sean Smith

01 May 2019 9:27 AM

486 words • ASR AUD 65 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1115221701

WA energy trading platform Power Ledger is collaborating with government in a sustainable community development in Fremantle, which has its own power and water microgrid and a shared on-site battery. State-owned developer LandCorp says its 1.5ha East...

[Read on source site](#)

Audience

10,484 UNIQUE DAILY VISITORS, 112 AVERAGE STORY AUDIENCE



East Village to lead way

West Australian, Perth, General News, Sean Smith

01 May 2019

Page 58 • 511 words • ASR AUD 10,642 • Photo: Yes • Type: News Item • Size: 607.00 cm² • WA • Australia • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1114972621



WA energy trading platform Power Ledger is collaborating with government in a sustainable community development in Fremantle, which has its own power and water microgrid and a shared on-site battery. State-owned developer LandCorp says its 1.5ha East Village at Knutsford project will lead the way in sustainable WA housing, helping meet the growing challenges of dwindling natural resources and climate change.

[View original](#) - Full text: 511 word(s), ~2 mins

Audience

135,996 CIRCULATION



POWER SWITCH

Horizons, Perth, General News, Cristy Burne

01 May 2019

Page 26 • 1211 words • ASR AUD 38,983 • Photo: Yes • Type: News Item • Size: 1,485.00 cm² • WA • Australia • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1095427702



The Perth households trading energy with each other What if you could sell the extra energy produced by your rooftop solar panels to someone down the road? Or buy your neighbour's excess solar energy instead of relying solely on the grid?

[View original](#) - Full text: 1211 word(s), ~4 mins

Audience

553,127 CIRCULATION



100% renewable energy to power cutting-edge estate

energymagazine.com.au by India Murphy

01 May 2019 12:11 PM

426 words • ASR AUD 1,291 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1115256345

LinkedInTwitterFacebook A former industrial site in Fremantle, East Village Knutsford, will become an innovation hub for sustainable living with block chain-ready homes, a microgrid supply network for water and power, and a shared on-site battery. The...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Shared solar and communal battery to power 100% renewable W.A. housing estate

onestepoffthegrid.com.au by Sophie Vorrath

01 May 2019 12:26 PM

515 words • ASR AUD 1,448 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1115254793

A 100 per cent renewable residential development has been unveiled in Western Australia, featuring blockchain-ready solar homes, a microgrid supply network for water and power and – in what is being claimed as an Australian first – a shared on-site...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



100% renewable energy to power cutting-edge infill estate

pvmagazine-australia.com

01 May 2019 4:26 PM

343 words • ASR AUD 1,102 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1115344458

East Village Knutsford will become an innovation hub for sustainable living; residents will use their own micro grid and battery storage to generate power; energy bills will be slashed by about 50%, saving residents around \$1,200 a year; each home will...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Cutting cities' emissions does have economic benefits – and these ultimately outweigh the costs

The Conversation by Peter Newman

14 May 2019 6:14 AM

847 words • ASR AUD 14,304 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1120549973

Professor of Sustainability, Curtin University

The politics of climate change in Australia has always been about the costs of change. It's often debated in terms of we can't afford or can afford to pay for the changes needed to our power, transport an...

[Read on source site](#)

Audience

66,435 UNIQUE DAILY VISITORS, 2,213 AVERAGE STORY AUDIENCE



Cutting cities' emissions does have economic benefits – and these ultimately outweigh the costs

theconversation.com/us by Peter Newman

14 May 2019 6:14 AM

819 words • ASR AUD 188,778 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: DA0040332436

Professor of Sustainability, Curtin UniversityThe politics of climate change in Australia has always been about the costs of change. It's often debated in terms of we can't afford or can afford to pay for the changes needed to our power, transport and bui...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Cutting cities' emissions does have economic benefits – and these ultimately outweigh the costs

viw.com.au by Josh Byrne

14 May 2019 6:38 AM

862 words • ASR AUD 2,759 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1120558737

The politics of climate change in Australia has always been about the costs of change.

It's often debated in terms of we can't afford or can afford to pay for the changes needed to our power, transport and building systems. However, the benefits can...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Cutting cities' emissions does have economic benefits – and these ultimately outweigh the costs

Architecture & Design by Peter Newman

17 May 2019 10:58 AM

869 words • ASR AUD 2,754 • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1122212035

The politics of climate change in Australia has always been about the costs of change.

It's often debated in terms of we can't afford or can afford to pay for the changes needed to our power, transport and building systems. However, the benefits can...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



EAST VILLAGE AT KNUTSFORD SETS THE BAR FOR FLEXIBLE, SUSTAINABLE LIVING

Weekend West, Perth, Advertising feature

18 May 2019

Page 18 • 519 words • ASR AUD 12,207 • Photo: Yes • Type: Advertorial • Size: 433.00 cm² • WA • Australia • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1118655946



An innovative residential development taking shape in Fremantle will showcase the future of sustainable living, with leading edge energy and water initiatives setting new benchmarks for the Australian market. Located 1.5km from the heart of the port city, LandCorp's East Village at Knutsford will include 36 architecturally designed and landscaped town homes and up to 60 apartments set to deliver a never-before-seen level of sustainability.

[View original](#) - Full text: 519 word(s), ~2 mins

Audience

205,782 CIRCULATION



Research to Reality Expo Perth

Green Magazine

03 Jun 2019 5:23 AM

457 words • ASR N/A • RENeW Nexus media coverage Jul 2018-Jul 2019 • ID: 1128824096

Addressing climate change through reducing carbon emissions is arguably the highest environmental, economic and social priority of our time, but do we know the facts and solutions for the future?

Over the past seven years the Cooperative Research Centr...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Research to Reality Expo Perth

greenmagazine.com.au

03 Jun 2019 5:23 AM

433 words • ASR N/A • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: DA0041511421

Addressing climate change through reducing carbon emissions is arguably the highest environmental, economic and social priority of our time, but do we know the facts and solutions for the future?Over the past seven years the Cooperative Research Centre fo...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Fremantle residents trial smart water metering

Sustainability Matters

03 Jun 2019 5:03 PM

424 words • ASR AUD 966 • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: 1128960277

Curtin and Murdoch University are conducting a smart water metering trial in Fremantle to support Western Australia's plans for an improved water network. Up to 40 households are participating in the trial, with up to four smart water meters installed...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



Fremantle residents trial smart water metering

sustainabilitymatters.net.au

03 Jun 2019 5:03 PM

405 words • ASR N/A • RENEW Nexus media coverage Jul 2018-Jul 2019 • ID: DA0041539890

Curtin and Murdoch University are conducting a smart water metering trial in Fremantle to support Western Australia's plans for an improved water network. Up to 40 households are participating in the trial, with up to four smart water meters installed in ...

[Read on source site](#)

Audience

N/A UNIQUE DAILY VISITORS, N/A AVERAGE STORY AUDIENCE



NOTICEBOARD

Cockburn Gazette Community, Perth, General News

04 Jun 2019

Page 15 • 384 words • ASR AUD 544 • Photo: No • Type: Highlights • Size: 162.00 cm² • WA • Australia • RENeW Nexus
media coverage Jul 2018-Jul 2019 • ID: 1129155838



GRIGG PARK PLANTING DAY Join City of Fremantle staff to put the finishing touches on Grigg Park with a community planting day. It is recommended to bring closed-in shoes, hat, water bottle, raincoat (in case of rain) and favourite gloves if preferred. Participants who have a trowel should bring it as there is a limited supply.

[View original](#) - Full text: 384 word(s), ~1 min

Audience

13,739 CIRCULATION



15 Dec 2018

Weekend West, Perth

Section: West Weekend Magazine • Article type : Recipes

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feature

Aaron Cook, the Perth former clinician feeding New Yorkers coffee and smashed avocado.

Sure, Captain James Cook might have sailed a ship to Australia a couple of hundred years ago but it was Perth adventurer Aaron Cook who discovered the promised land.

The former Osborne Park Hospital clinician and occupational therapist will go down in history as part of the team that took smashed avo to the Big Apple; the guys who gave New Yorkers the coffee they didn't know they needed.

Aaron and a couple of mates began a coffee empire in March 2013 when they opened the first Bluestone Lane in Midtown East, a shoebox of a shop in a "nondescript, non-sexy" space in the basement of a high-rise office building.

"It was bootstraps, with friends and family money," Aaron recalls over a flat white. "It was almost, and I don't want it to sound more important than perhaps what it was, but if you could mark a point in time of the avocado toast push, I reckon it coincides with that store opening."

The takeaway coffee shop served proper espresso coffee, and gave Americans a now insatiable appetite for avocado toast. "It was just one of those things that was so simple for us but different and engaging for Americans who are used to guac and that kind of thing, so all of a sudden you've got this nice thick-cut piece of toast with smashed avo, it's voluminous, it's textured and then you dress it up with prosciutto and tomatoes or cheese of some sort and it started changing things."

The son of two school teachers moved around plenty when he was a kid, and kept moving. So it was while travelling with a mate in New York the previous year he noticed an unexploited niche.

"The observation was that there's nothing here like a small hole-in-the-wall espresso shop like you'd find in Melbourne or the small streets in Perth, and why not? You could get street carts and little bodegas and delis with drip coffee but at that time there wasn't a lot of small-footprint spaces that were slinging great espresso drinks."

That friend hooked Aaron up with some contacts and in preparation for their coffee plunge he did a heap of research. "I spent three months going to different cafes. I kept notes and observations about different shops and I would rate them out of 10 so I kind of put together a dossier. I met with different coffee roaster and pastry providers. Then I went back

to Perth and started getting my visa sorted."

The first Bluestone Lane opened in July, and the second in October. "And away we went. It was very »

« much We don't know what the hell's going to happen, let's just see."

Such was the popularity of the concept that they opened a big flagship store in the West Village, losing some investors along the way who were freaked out by the high-risk move. "But that's when Bluestone really got on the map, and that's when the likes of Taylor Swift and Hugh Jackman were coming in."

The former Hale student laughs as he recalls Swift's security detail calling to announce her impending arrival. "And I remember having a conversation with Hugh. He said: 'We woke up this morning and my son said 'Let's go to that place because no one bothers you there Daddy'. So the family loved coming in there. And the way that I would instruct the staff is don't ever fangirl out, just treat them normally, and they'll enjoy the space. And it created that kind of ambience where the likes of him felt comfortable. And with the likes of those people coming it really made an impact. Even if it wasn't initially financially good, people thought it was a sexy place to be."

Being general manager and the only one of the founders who worked on the ground in the stores took its toll on Aaron. After opening nine cafes in just 2½ years, he was burnt out. The partners bought him out and he took a break. "But I didn't want to leave New York – a bit of unfinished business, I guess. I worked so hard to get where I was so I wanted to see it out a little longer."

In 2016 Aaron opened Three Seat Espresso & Barber on Avenue A in the grungy East Village opposite the pretty Tompkins Square Park. He says he wanted to "elevate the barber experience" and incorporate the joy of good coffee. While mostly guys come in for a haircut there is a solid female customer base, too.

The coffee shop, which serves avocado toast and boasts Aussie hospitality, has become a popular community hangout. "We have an unfair advantage as Australians ... the goodwill towards Australians, the intrigue, the curiosity, is still strong. And it's good social currency. You hear a lot of people say 'All the good cafes are Australian'."

But just when Aaron was hitting his stride, a



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dreaded Starbucks opened down the road, stalling his expansion plans.

“The business conditions have fundamentally changed, so now it’s more survival than duplicate,” he says. “It’s a massive problem. Had I known they were opening I wouldn’t have opened here.”

As we chat some people charge past Aaron’s window clutching oversized bucket-cups of Starbucks. He says the fact their coffee is ordinary makes it extra galling. “If someone came in and they were awesome at what they did ... I’d go ‘You win’.”

And the former healthcare professional worries about the children who are getting hooked on those giant sugar-laden drinks. “Kids in Australia will grow up on babycinos and then they might have juices and maybe a milkshake. These guys are walking past with 20oz cream-whipped rubbish and they look like they’re eight years old. What do you think is going to happen

as they get older?”

But the guy who got a love for hospitality when he worked at Karrinyup Dome while studying at Curtin University, is persevering. He’s just opened another place a few blocks away called Charley St, which serves healthy bowl-style food in the vein of cult eatery Sweetgreen, and coffee from Melbourne’s Proud Mary, which also has a roastery in Portland, Oregon. At trendy Charley St he’s ramping up delivery because it’s so vital in a city that never sleeps and, during winter, gets snowed in.

It’s only family that Aaron really misses about Perth. “I think to see this through properly, I need to be here. It’s hard to be involved when I’m physically not here.” Like most expats, he talks in visa cycles. And he stays in touch with Perth – his dad visited recently, helping to paint Charley St, and on the day we catch up at Three Seat he’s planning a night out with a group of New York-based Hale old boys. It’s become his job to organise regular catch-ups among the eclectic group that includes an actor and a former Etihad employee who has also just opened a cafe in New Jersey.

While the Starbucks down the road might be a sure sign of gentrification, Aaron still loves this area for its grungy feel. “Living here has been the best. It’s still a little bit rough: you’ve got the dive bars, people rocking out music in the park over here, you’ve got crazies everywhere. A touch of grunge. That used to be needle park over there because everyone used to shoot up in it. There’s been a big change but it’s still

got that element of grunge, which is good. You don’t want it too shiny.”

He pauses our chat to make a coffee for a customer. Nearby a young woman eats crumpets and sips on a flat white while her little dog, wearing an “adopt me” bandana, yaps away and kids squeal in the playground across the road. There’s avo action everywhere, and the familiar banging of the coffee knockbox. The yellow taxis honking incessantly outside are the only thing that make you realise you’re not in Karrinyup any more. [www](#)

*‘Taylor Swift
and Hugh
Jackman were
coming in.’*





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Cafe cool
Aaron Cook (far left) on the tools and (clockwise from left) Charley St; the barber at work at Three Seat; Aaron at Three Seat and its popular savoury crumpets with avocado.



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A SOLAR TRADING TRIAL FOR CUSTOMERS

A new peer-to-peer renewable energy trading trial in Western Australia is allowing a limited number of households with rooftop solar to trade excess energy with their neighbours.

About 40 residential properties across the City of Fremantle are taking part in the trial, which runs until June 2019.

The trial gives households the flexibility to determine how much they are willing to buy and sell solar energy for, and then make the purchase via a blockchain-enabled platform.

A fixed-use residential tariff and a new billing system has also been developed for the trial, allowing households to engage in discrete, time-based energy transactions.

The RENeW Nexus project is managed through Curtin University and is supported by the Australian Government through the Smart Cities and Suburbs Program.

The RENeW Nexus project includes the following partners: Curtin University, Murdoch University, City of Fremantle, Landcorp, Synergy, Western Power, Water Corporation, Power Ledger,

energyOS, CSIRO/Data 61 and CISCO.

WA State Energy Minister, Ben Wyatt, said, "The trial represents an innovative solution to virtual energy trading that may have implications for energy utilities working to balance energy supply and demand all over the world.

"These households are believed to be the first in the world to be taking part in an active, billed, peer-to-peer trading trial that allows them to effectively buy and sell solar energy generated by their rooftop system across the grid." **U**



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INDUSTRY UPDATE



Trial will let neighbours trade solar energy

Western Australians will be the first to participate in a new renewable energy trading trial that will enable households with rooftop solar panels to trade their excess solar energy with their neighbours.

About 40 residential properties across the City of Fremantle will take part in the trial, which will run until June 2019.

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trading that may have implications for energy utilities working to balance energy supply and demand all over the world.

"These households are believed to be the first in the world to be taking

part in an active, billed, peer-to-peer trading trial that allows them to effectively buy and sell solar energy generated by their rooftop system across the grid," he said. 

The trial gives households the flexibility to determine how much they are willing to buy and sell solar energy for, and then make the purchase via a blockchain-enabled platform.



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East Village to lead way

SEAN SMITH

WA energy trading platform Power Ledger is collaborating with government in a sustainable community development in Fremantle, which has its own power and water microgrid and a shared on-site battery.

State-owned developer Land-Corp says its 1.5ha East Village at Knutsford project will lead the way in sustainable WA housing, helping meet the growing challenges of dwindling natural resources and climate change.

Treasurer and Lands Minister Ben Wyatt, who helped launch the project yesterday, said the East Village “demonstrates to the wider construction industry

just what is possible in creating connected and affordable communities”.

Focused on a former industrial estate near the Royal Fremantle Golf Club, 2.5km east of Fremantle, the development of 36 townhouses will be powered by renewable energy,

using individual 5kW PV solar systems and a shared 670kW battery provided by Power Ledger to store surplus energy.

“Power Ledger’s platform allows residents to sell excess solar power from the panels on their roofs directly to their neighbours at a better price,

rather than selling back to the traditional grid,” the company’s managing director and co-founder David Martin said.

Mr Martin said East Village, part of the Federal Government’s Smart Cities and Suburbs initiative, again showed how the property industry “is in a unique position to drive energy change from the ground up”.

“This project highlights how developers can choose to make smarter, more efficient choices when it comes to homes,” he said.

Taking its lead from Land-Corp’s already developed One Planet Community in White

CONTINUED PAGE 63



The planned East Village.



Battery unit. Pictures: Steve Ferrier



01 May 2019
West Australian, Perth



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Fremantle mayor Brad Pettitt, Power Ledger's Jemma Green and Josh Byrne from Curtin University watch Ben Wyatt load a solar-powered mixer.

Champion of sustainability

FROM PAGE 58

Gum Valley — WA's first recognised sustainable community — East Village will include non-potable water systems with seven-kilolitre rain-water tanks plumbed to each household's hot water system, toilets and washing machines.

There will also be a strata-owned bore to provide irrigation for the precinct's gardens and community green spaces, chargers for electric vehicles in each home and a prototype house by Perth company Mirreco demonstrating the capabilities of alternative materials such as compressed hemp and polymers in building panels.

In addition, an on-site living laboratory will be established in partnership with Curtin University to track and assess the sustainability initiatives over the development's first three years.

The laboratory will operate as part of the national iHUB project, a network of national research collaboration for smarter urban planning, design and management.

Energy Minister Bill Johnston said "the mix of innovations at East Village provides a great insight into the future of greener and cleaner powered homes".

"Every aspect of this innovative project is set to challenge our thinking when it comes to powering the next wave of residential development in our city," Mr Johnston said.

"The 670kW battery is the first in Australia to power a residential construction site and it will ultimately be the very heart of this community."

The battery has been installed and commissioned by Power Ledger for use during the construction of East Village.



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OUR STATE

POWER SWITCH

The Perth households trading energy with each other

By Cristy Burne

What if you could sell the extra energy produced by your rooftop solar panels to someone down the road? Or buy your neighbour's excess solar energy instead of relying solely on the grid?

For 40 residents in Fremantle, that's exactly what they've been doing as part of a peer-to-peer energy trading trial that is being lauded as a world first.

The \$8.2 million RENeW Nexus project aims to test the feasibility of allowing consumers to become active players in the energy market, letting the householder control their own power supply, including who they buy it from and sell it to.

The RENeW Nexus project, which is also looking at water treatment options and community battery storage, has an impressive list of partners including Curtin University, the City of Fremantle, Synergy, Western Power, energyOS, and WA software company Power Ledger – who provide the technology to exchange the power and manage the transactions.



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Melina Mellino and her partner Vince Radford, who have a 6.5 kW solar array on their rooftop, are taking part.

Describing themselves as passionate about sustainability, Mellino says that as well as selling around 20kWh of solar power to the grid each day, using a smart meter to track and graph their power use means they now understand how they use power.

"People warned us our induction cooktop was going to consume a lot of power," she says, "but after having monitored it, we were able to see it doesn't actually draw that much power."

The couple also noticed an unpleasant peak in power use from showering. They tracked the problem to a malfunctioning water pump, fixed the pump, and cut their power bill in the process.

"I really believe [peer-to-peer trading] is the way forward," says Mellino. "It's empowering to be able to pass our excess power to people who don't produce their own."

How it works

The 40 trial participants use Western Power's existing grid, with Synergy as the retailer, to buy and sell solar energy directly with each other via Power Ledger's blockchain energy trading software.

Participants set their own energy prices by simply logging on to a portal. If you're producing excess solar energy, you can sell it to your neighbour for a higher rate than Synergy would pay you.

Any power that isn't sold direct to others in the trial is imported by Synergy for the feed-in tariff rate.

If you need more than you make, you buy it direct from Synergy.

If you don't have solar, you can buy your neighbour's excess energy for a price below what you would otherwise pay Synergy.

It's a future energy model that Power Ledger managing director David Martin has been working towards for some time now, with this trial one of several peer-to-peer trading projects they are currently involved in.

"It's empowering to be able to pass our excess power to people who don't produce their own."

"We're creating a real-time transaction between people with excess solar energy, and people who are consuming energy at the same time and don't have any solar," says Martin.

"If we can encourage people to stay connected to the grid, we can give them an opportunity to monetise their investment in PV [solar panels], and that value is retained in their community because their neighbours are getting access to low cost and zero carbon energy," says Martin.

"We start from an economic perspective, but when you talk to consumers, they're really excited that their solar energy is being used in their community."

No solar panels? No worries

Phil Morellini doesn't have solar on his rooftop.

He joined the trial for the chance to access solar power and to save money. Using the trial's online portal, Morellini enters the price he's willing to pay to import a unit of solar energy. The software does the rest.

"I could change what I'm willing to pay at any time, but I'm more of a set-and-forget person," he says. "As long as I'm making savings and it's a fair price, then I'm happy. At the moment I'm buying peak power at 6.5 cents »"

BELOW: Melina Mellino.





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OUR STATE



TOP: Fremantle resident Phil Morellini is part of a peer-to-peer energy trading trial;
BOTTOM: David Martin from Power Ledger.

per unit, and from Synergy it's about 9.9 cents per unit."

Morellini hopes these savings will offset the costs of being part of the trial. "We had to pay \$3.30 per day to be on the project. That does bump the costs up, but providing I'm making a good enough saving on what I pay for my electricity, my bills will be less than before."

Smart-meter thinking

Morellini also found the smart meter useful in cost cutting.

"You can consider when you're going to wash your clothes, when you're going to put your dishwasher on. It gives you a sense of empowerment over how you use your electricity."

He also likes being able to have

a say in how much he pays for electricity.

"It gives you better control over what kind of bill you're going to get at the end of the day.

"Ultimately, if a project like this gets off the ground, it's a viable option for everyone to use green energy and not solely rely on the big electricity companies to have their energy needs met."

So when will a peer-to-peer trading trial come to your home? When you let people know you want it, says Martin.

"The more people talk about peer-to-peer trading, the more our policymakers will realise that there is another lens through which to look at this energy issue." ■

How does the power trading system work?

Managing the many thousands of micro-transactions involved in peer-to-peer energy trading is no mean feat. Power Ledger's software can analyse how much excess power is available at any instant, account for the price each participant is willing to buy or sell for at that time, then determine the most efficient way to trade the power available. It also tracks the trades as they happen using blockchain technology.

Unlike a centralised record-keeping system, blockchain-enabled ledgers are decentralised. This means market transactions are recorded across multiple locations at the same time, creating multiple copies and offering protection from targeted cyber-attacks.

To streamline the non-stop back-and-forth trading of fractional energy units and the cash value they represent, Power Ledger also invented an artificial unit called Sparkz.

"In Australia, a Spark is worth one cent," explains Martin. "If you and I agree that I'm going to buy 15 cents of your excess energy, then when that energy is traded, 15 Sparkz go from my wallet to yours."

"Sometimes your solar panels will be pumping out a lot of energy and Sparkz are coming into your wallet," says Martin. "Then all your kids will come home and all of a sudden you're buying someone else's energy, and Sparkz are coming out of your wallet."

In a larger peer-to-peer trading environment, you could choose to cash in your Sparkz at any time, or to pre-purchase Sparkz in bulk, all in a single financial transaction.

For the purposes of the RENeW Nexus trial, all billing has been integrated into the households' regular Synergy bills.



BetterLabs Ventures, RAC's seed capital fund, has an equity investment in Power Ledger.



18 May 2019
Weekend West, Perth



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EAST VILLAGE AT KNUTSFORD SETS THE BAR FOR FLEXIBLE, SUSTAINABLE LIVING

An innovative residential development taking shape in Fremantle will showcase the future of sustainable living, with leading edge energy and water initiatives setting new benchmarks for the Australian market.

Located 1.5km from the heart of the port city, LandCorp's East Village at Knutsford will include 36 architecturally designed and landscaped town homes and up to 60 apartments set to deliver a never-before-seen level of sustainability.

Using energy-efficient design and technology, town homes at East Village aim to use 100 per cent renewable energy.

Each home will include an individual five-kilowatt PV solar system, together with an electric vehicle charger, while a 670kW shared battery will store surplus energy generated by homes and be used to reduce grid energy consumption across the estate.

In an Australian first, East Village will offer blockchain-ready homes, with trials of energy-sharing technology allowing residents to trade renewable energy with their neighbours through a private embedded network.

Water-wise design and a range of management initiatives mean residents at East Village will also use significantly less water, with households harvesting and reusing rainwater through tanks plumbed to hot-water systems, toilets and washing machines.

Together, the energy and water-saving initiatives planned for East Village

will deliver significant savings for residents and underpin industry-leading sustainability outcomes, with the estate to be part of a living research project into precinct-scale initiatives and best-practice design run by LandCorp in partnership with Curtin University.

"East Village at Knutsford will not only be Fremantle's most sustainable development, but will set new benchmarks for the way residential

projects approach sustainability right across Australia," LandCorp Chief Executive Frank Marra said.

"In addition to enjoying lower power and water bills, the innovative approaches we have applied at East Village will mean residents are part of a vibrant, diverse community that demonstrates a new way of living for future generations."

The estate's name reflects the unique village feel of Fremantle, and the development has been planned by LandCorp to build a strong sense of community.

Outdoor areas will be designed to invite people into shared green spaces and bring the community together, with plantings including orchard street trees and native species.

A network of laneways, pedestrian and cycle paths and public open spaces will encourage connections and provide community meeting places, while the estate's proximity to the heart of Fremantle provides easy access to public transport, nearby galleries, cafes and shopping.

In addition to individual electric car chargers in each home, East Village residents will have access to a shared onsite electric vehicle and a strata-owned EV fast-charge station, reducing the need for households to own their own cars and further adding to community connections.

"East Village is an outstanding example of LandCorp's commitment to developing smarter, more sustainable ways to live," Mr Marra said.

"The response to our WGV at White Gum Valley estate has clearly demonstrated the appetite Western Australians have for this innovative approach to residential development, and we look forward to building on that success with East Village at Knutsford."

For more information, visit www.landcorp.com.au.



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East Village at Knutford will aim to set the benchmark for how residential projects approach sustainability.

East Village at Knutford will aim to set the benchmark for how residential projects approach sustainability.



04 Jun 2019

Cockburn Gazette Community, Perth



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NOTICEBOARD

GRIGG PARK PLANTING DAY

Join City of Fremantle staff to put the finishing touches on Grigg Park with a community planting day. It is recommended to bring closed-in shoes, hat, water bottle, rain-coat (in case of rain) and favourite gloves if preferred. Participants who have a trowel should bring it as there is a limited supply.

DETAILS: Saturday, June 8, from 9am to noon at Grigg Park, Hilton.

PARENT AND CHILD PILATES

Introduce a child to pilates movement and mobility and have fun exploring animal poses and moves with your child. This class is all about fun and an opportunity for parents to exercise with little ones. The class is suitable for children aged three to five years. Bookings essential.

DETAILS: Saturday, June 8, from 10.40am to 11.40am at Cockburn ARC. **COST:** \$18 for parent and child.

RESEARCH TO REALITY EXPO PERTH

Addressing climate change through reducing carbon emissions is arguably the highest environmental, economic and social priority of our time, but do we know the facts and solutions for the future? Over the past seven years the Co-operative Research Centre for Low Carbon Living (CRCLCL) has worked closely with Curtin University and four other universities to

develop next-generation, low carbon materials, technologies and tools to support the transition towards sustainable cities and communities.

The expo will include a site tour of LandCorp's White Gum Valley and East Village low carbon developments.

DETAILS: Wednesday, June 5, from 11am to 5.15pm at Fremantle Town Hall.

LUCY ROSE

UK folk artist Lucy Rose returns to showcase songs from her forthcoming album, *No Words Left*. Joining her is Australian singer-songwriter Ainslie Wills. She has supported Leon Bridges, Grouplove, Vance Joy and more. Participants need to be 18 years and older.

DETAILS: Saturday, June 8, from 6pm to 11pm at Freo.Social. **COST:** General admission \$45.

REHABILITATING ROE 8 COMMUNITY PLANTING DAY

Spend a morning planting in the Roe 8 corridor. Meet at the entry gate, corner of Hope Rd and Progress Drive, near the roundabout. All tools, equipment and plants supplied, as well as a BBQ lunch. Wear long pants, enclosed shoes and a hat. BYO water bottle. Parking is at Bibra Lake Adventure Playground – follow signs for a short walk down to the site.

DETAILS: June 8 from 9am to 1pm at Roe 8 Corridor.

RENeW Nexus: A Smart Cities Funded Project in the City of Fremantle **Water Research**

Roberta Fornarelli



Curtin University

Consortium Meeting, Bentley, 5th April 2019



RENeW Nexus Water

Background

Roberta Fornarelli



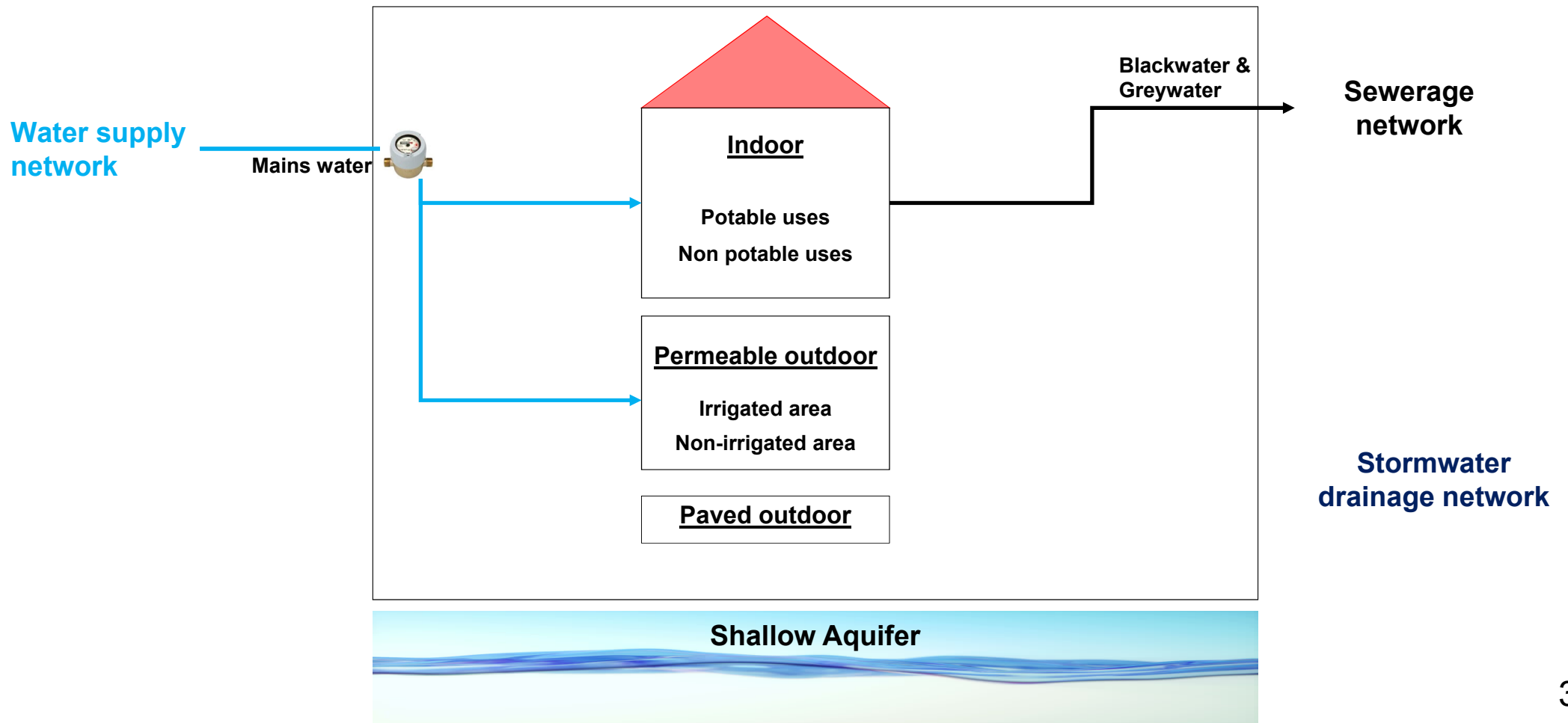
Curtin University

Consortium Meeting, Bentley, 5th April 2019



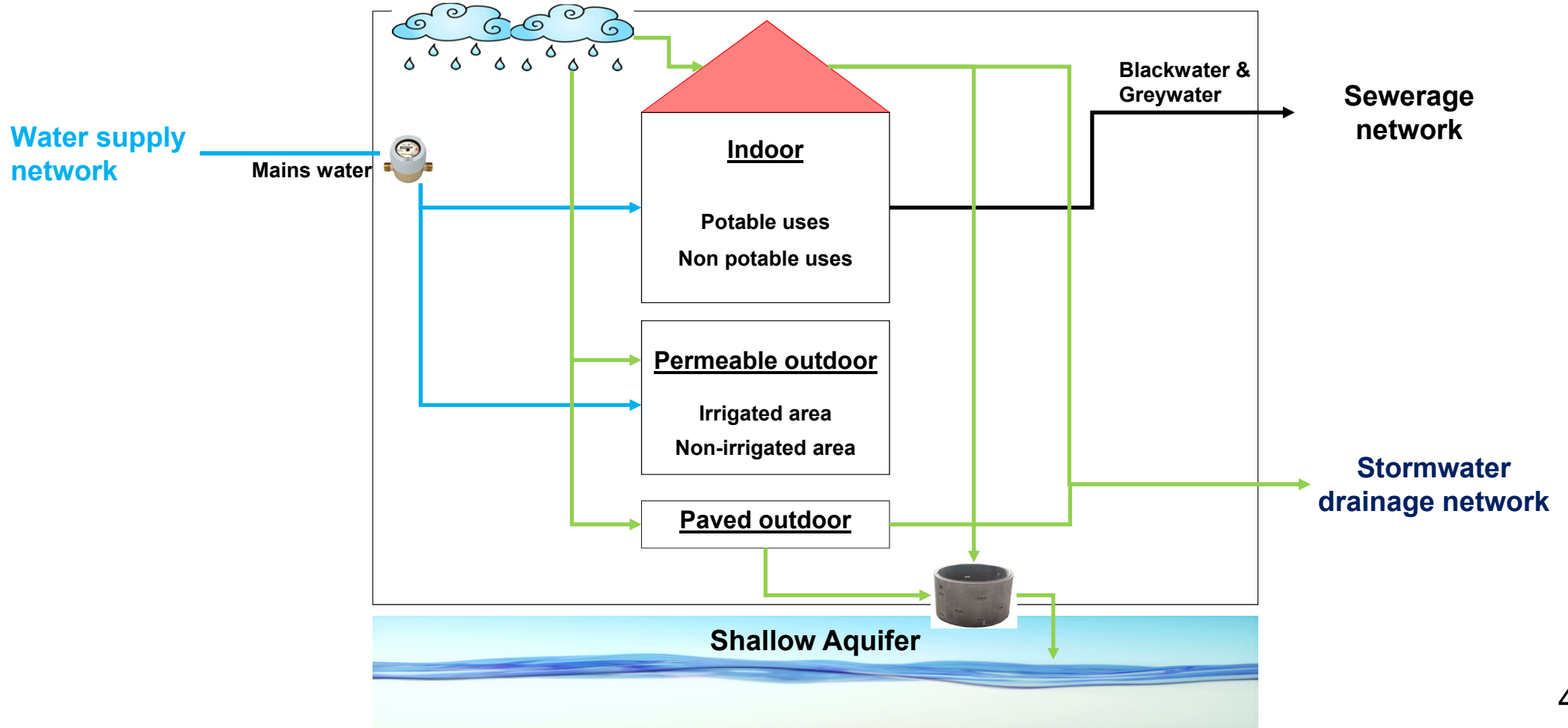
Perth centralised water system

Two-pipe system



Perth centralised water system

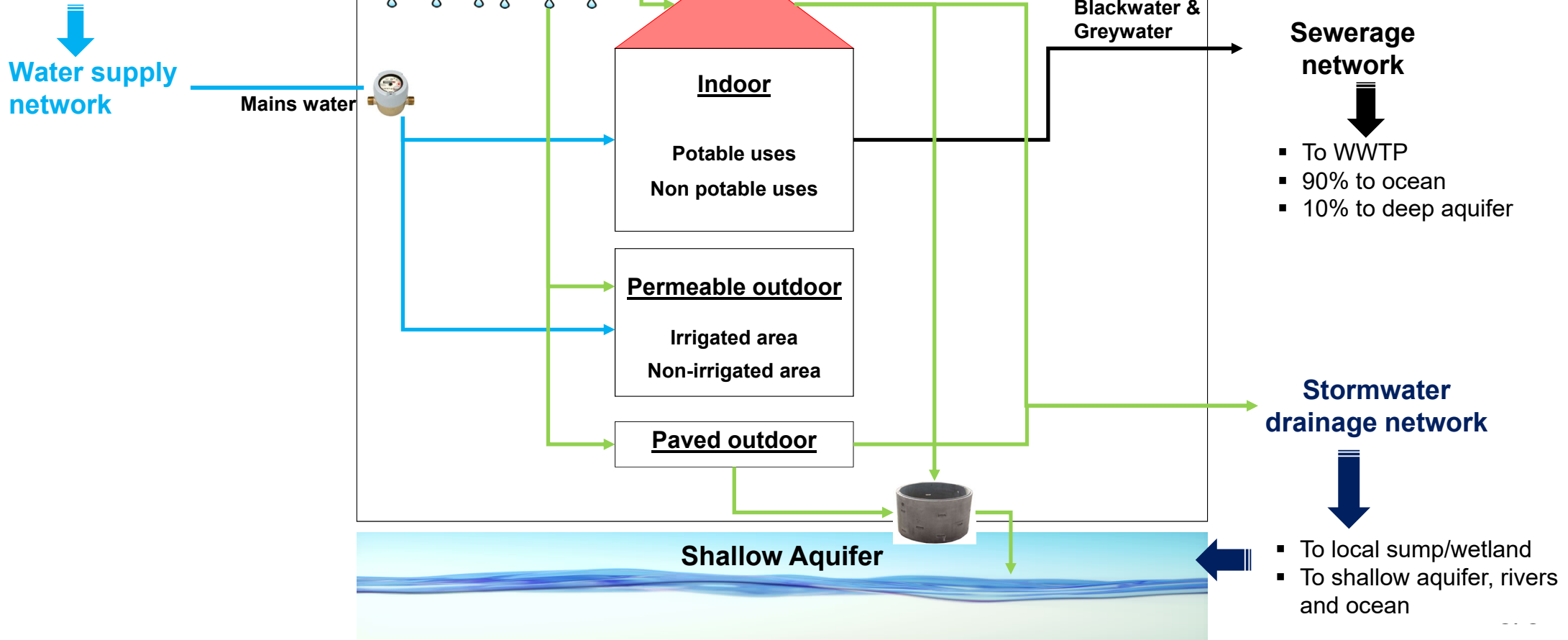
Two-pipe system



Perth centralised water system

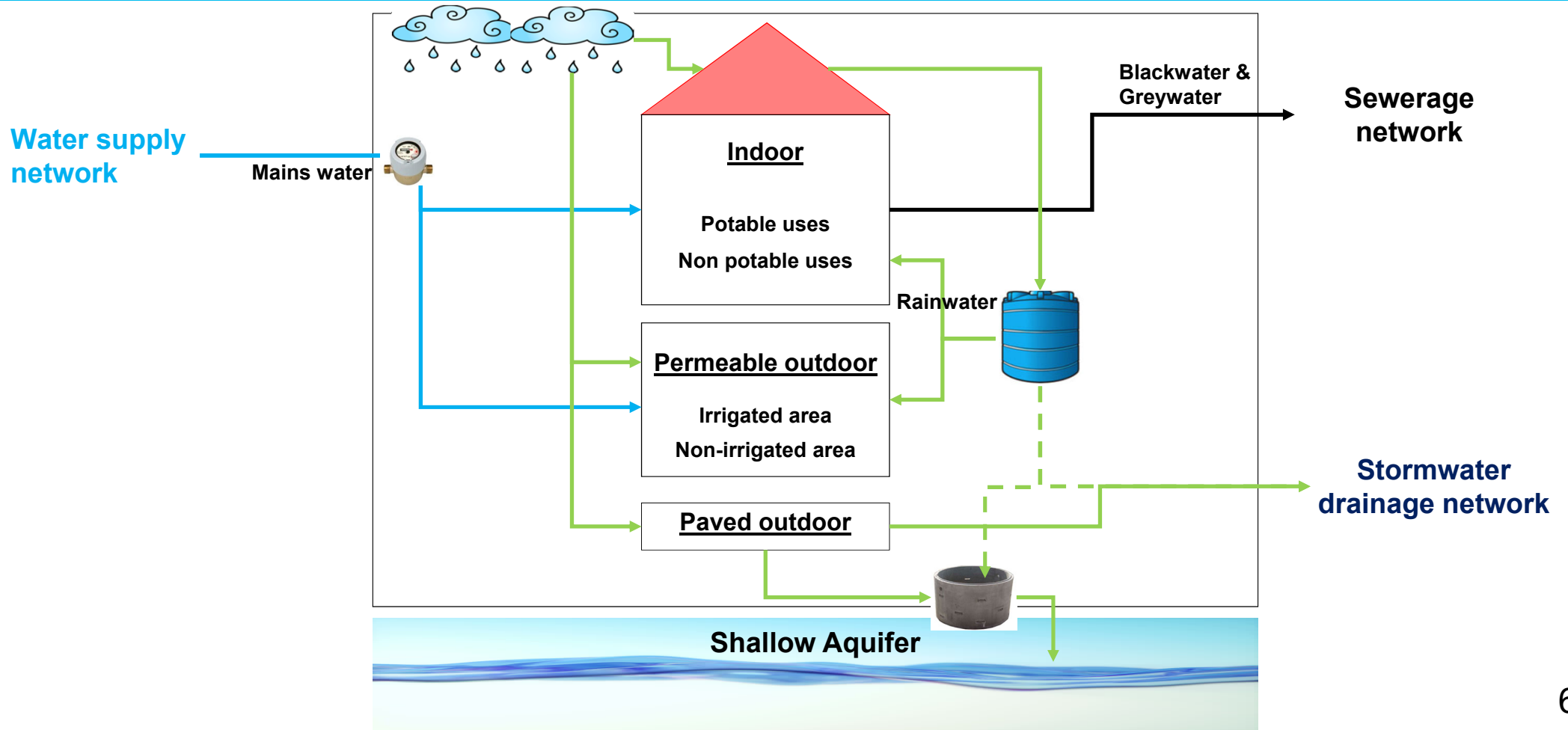
Two-pipe system

- 10% from dams
- 40% from deep aquifer
- 50% from desalination



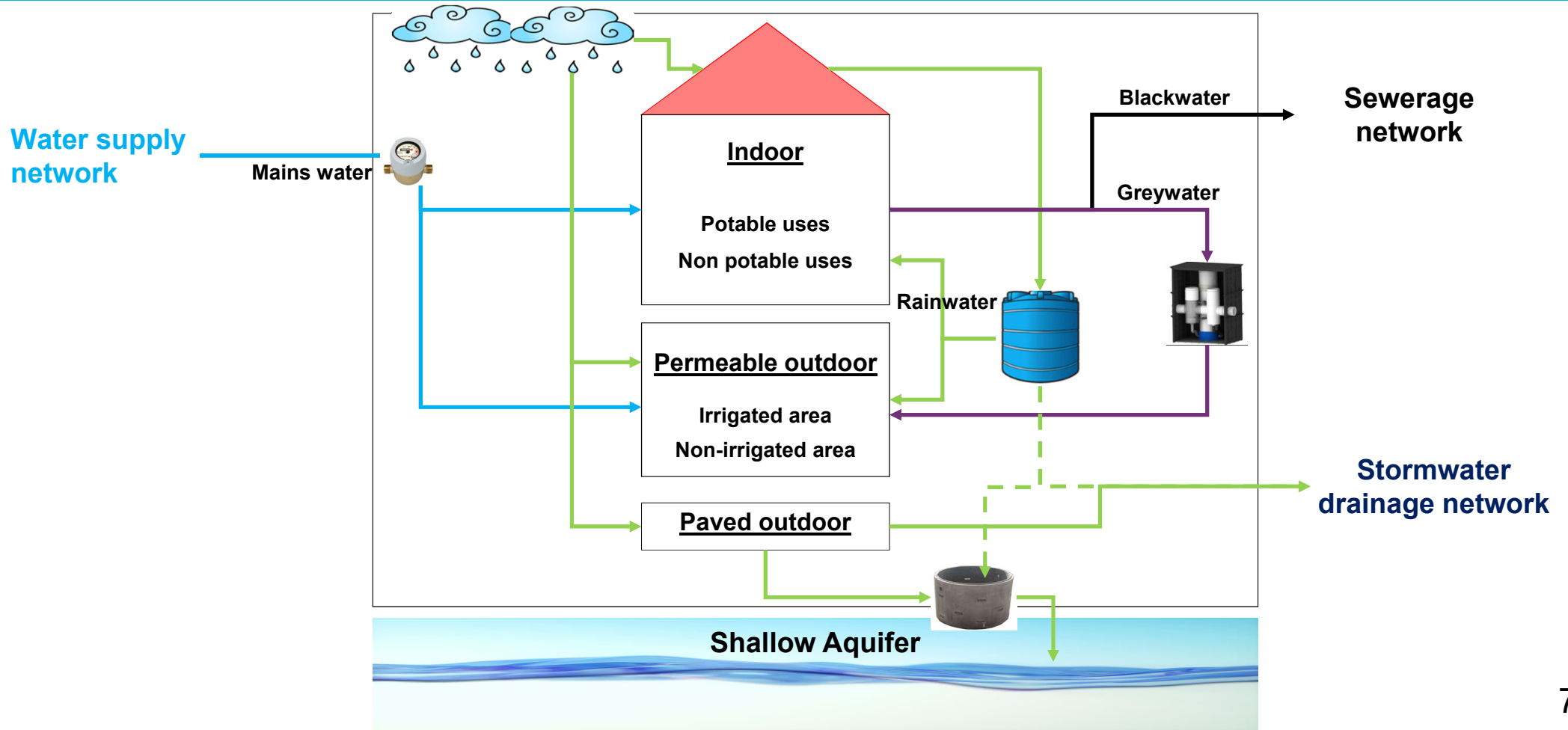
Hybrid water system

Multi-pipe water system



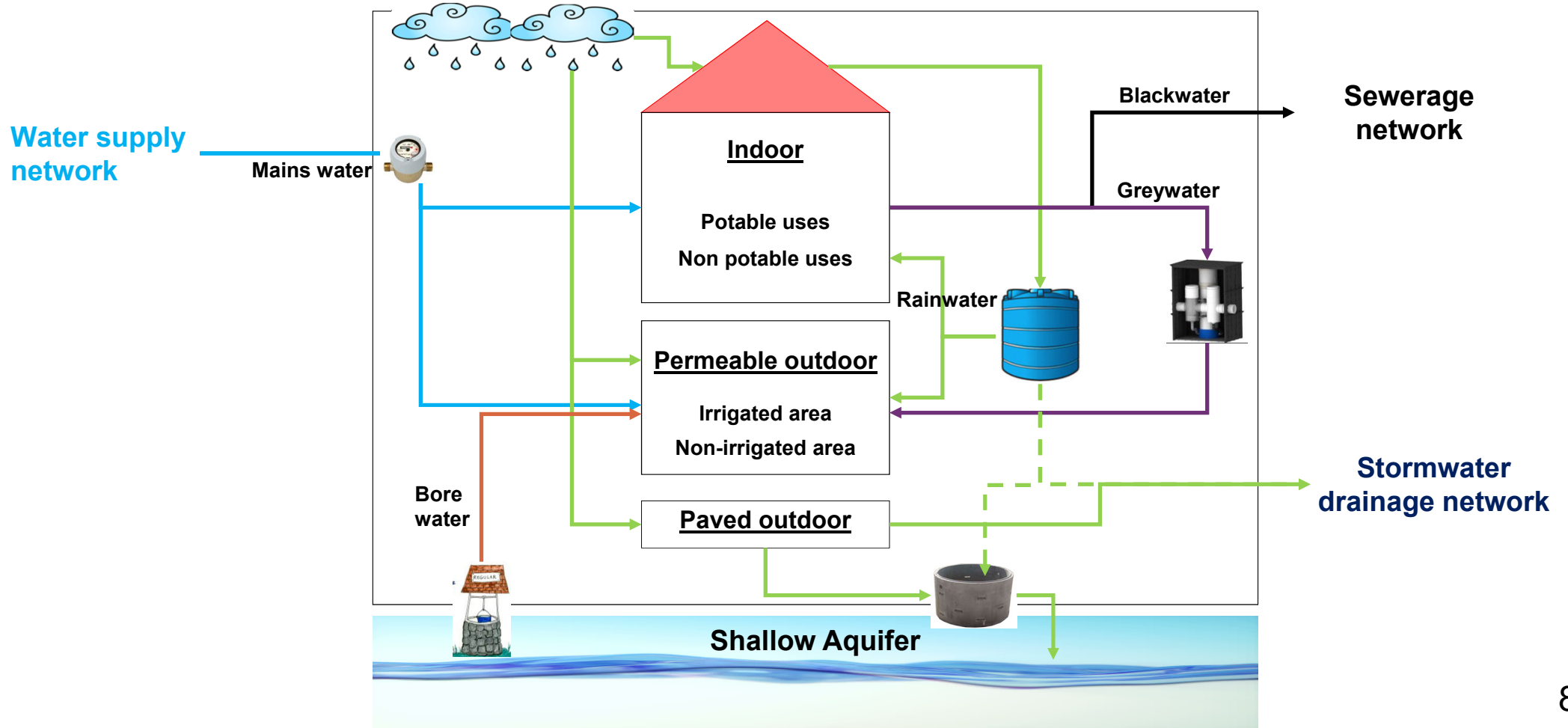
Hybrid water system

Multi-pipe water system



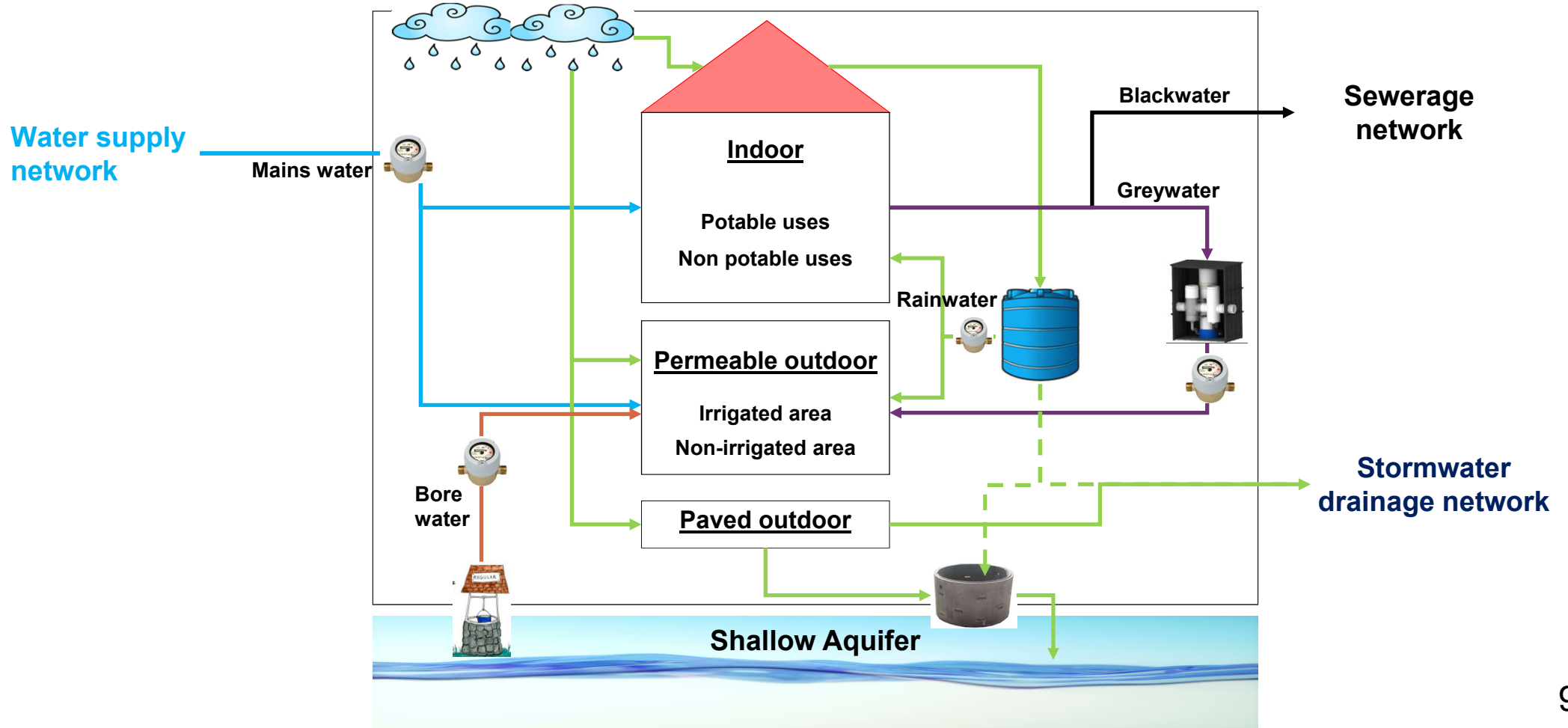
Hybrid water system

Multi-pipe water system

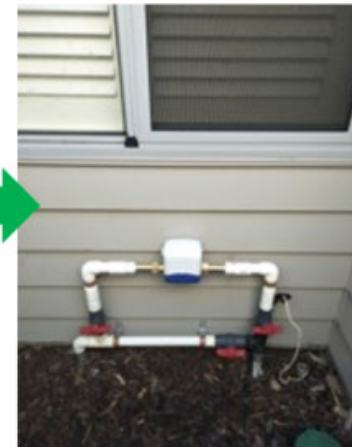


Hybrid water system

Multi-pipe water system



RENeW Nexus Meters Installations



RENeW Nexus Water

Data Analytics

Roberta Fornarelli



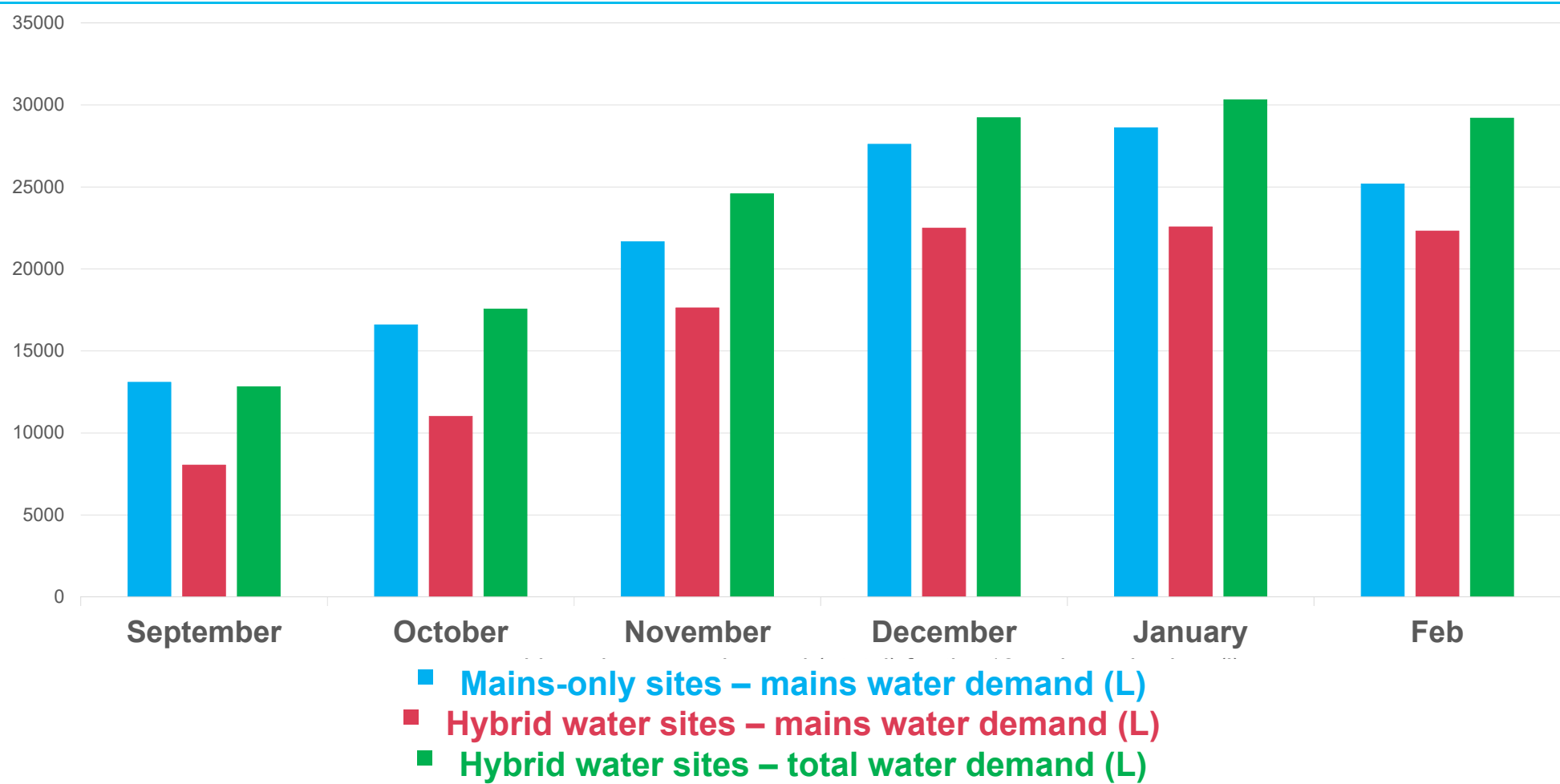
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Monthly Water Consumption (L)

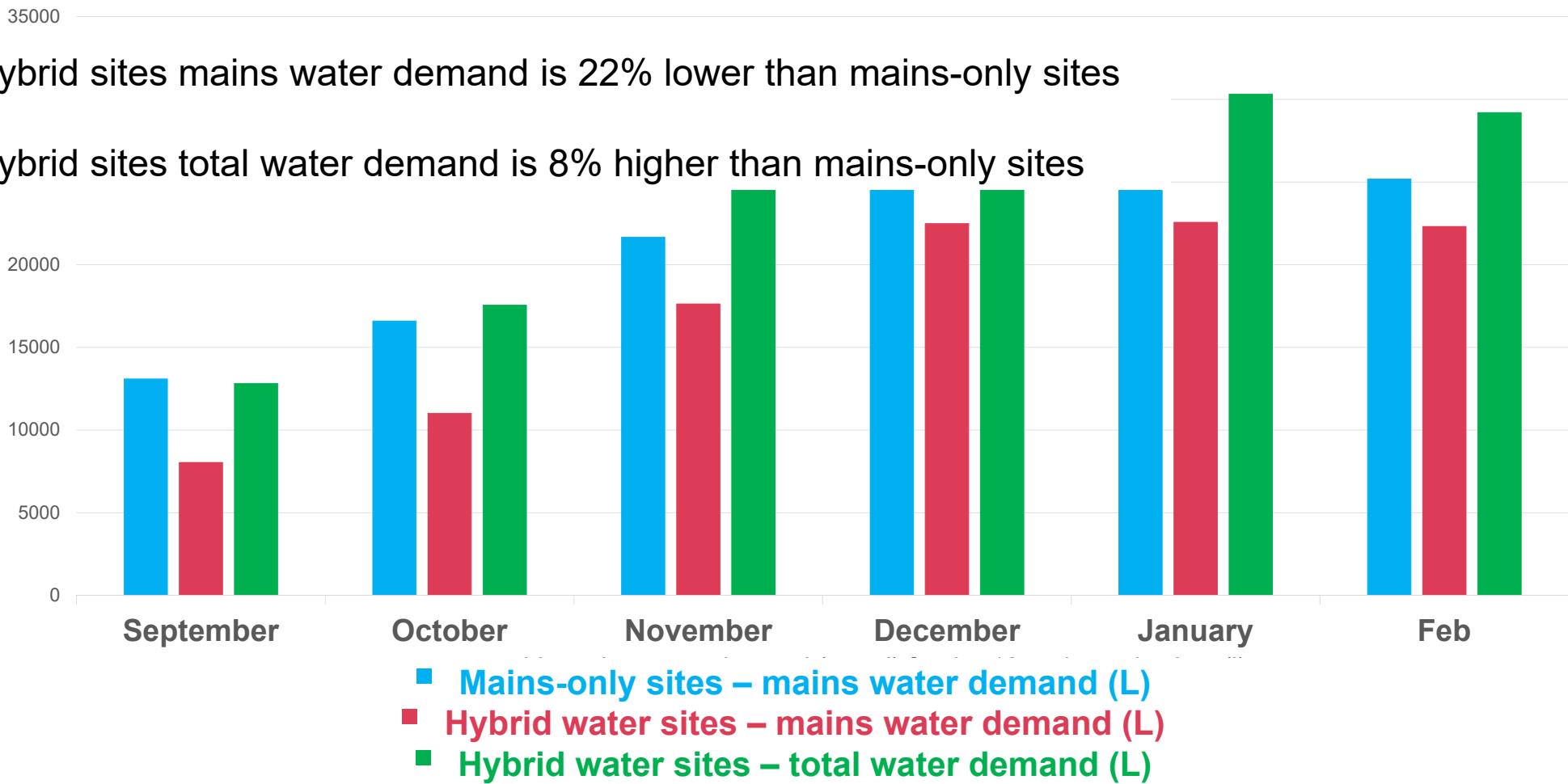
Average across sites



Monthly Water Consumption (L)

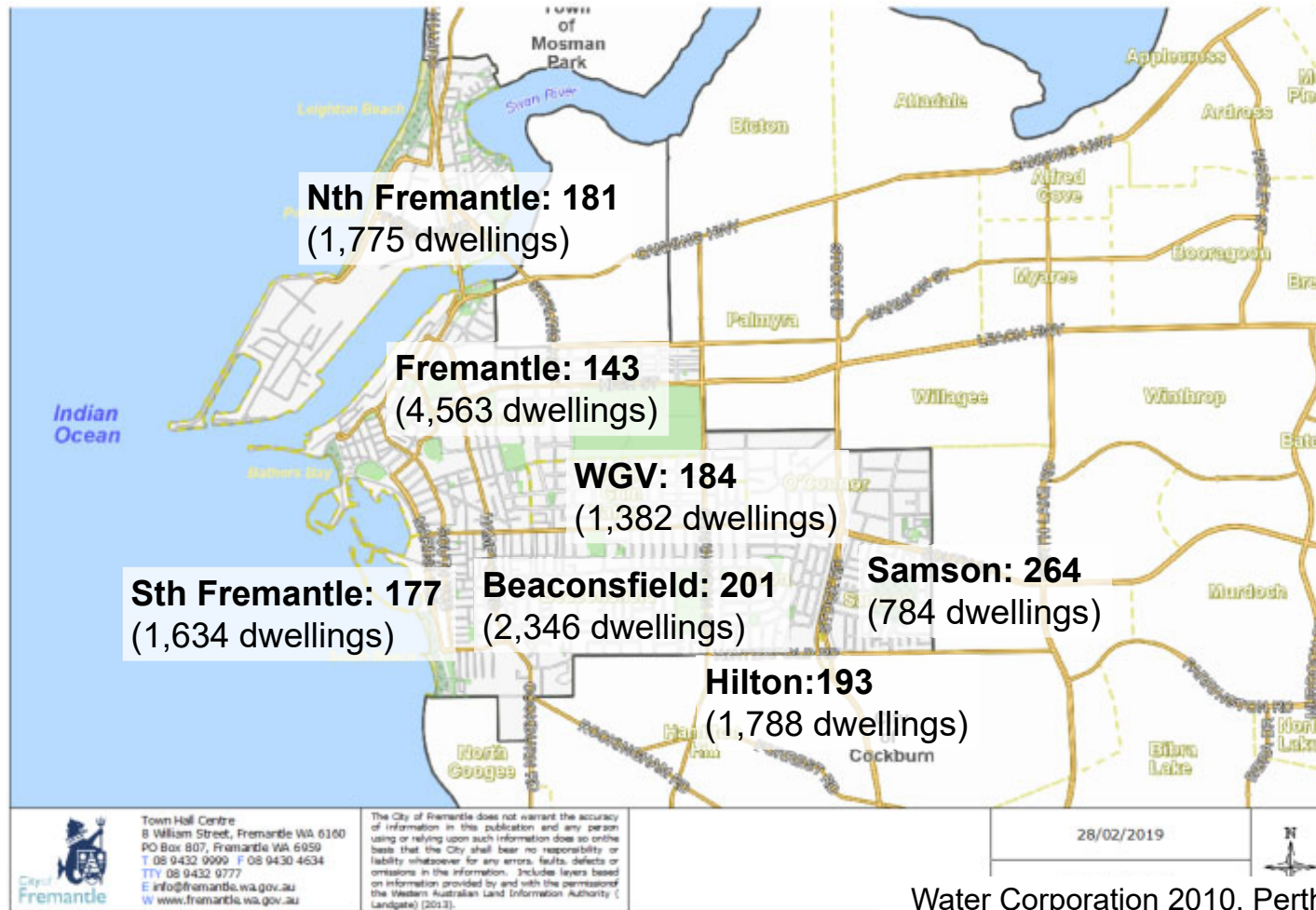
Average across sites

- Hybrid sites mains water demand is 22% lower than mains-only sites
- Hybrid sites total water demand is 8% higher than mains-only sites



Mains water demand in the City of Fremantle

Average, 2016-2017, kL/household/y



Average water demand City of Freo:
192 kL/hh/y

Average water demand Perth metro:
277 kL/hh/y (PRWUS, 2010)

Average water demand Mains-only:
198 kL/hh/y

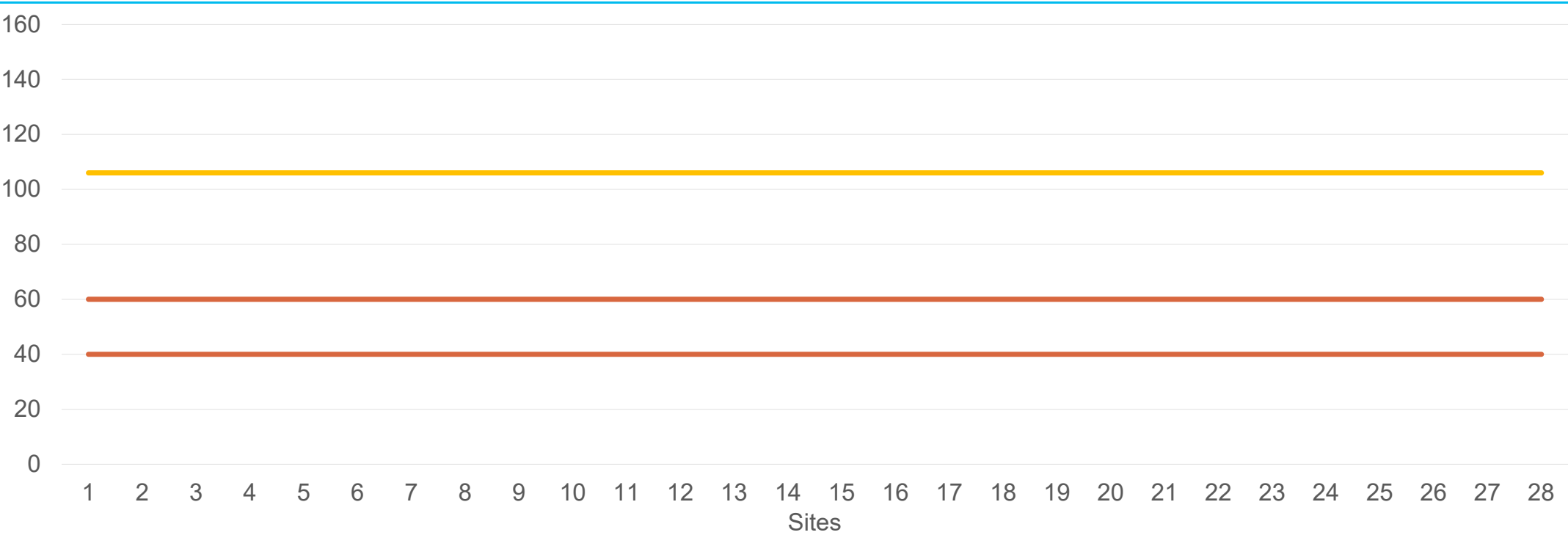
Average water demand Hybrids:
247 kL/hh/y

Average mains water demand Hybrids:
169 kL/hh/y

Water Corporation 2010, Perth residential water use study (PRWUS) 2008/09

Water demand per person per site (kL/p/y)

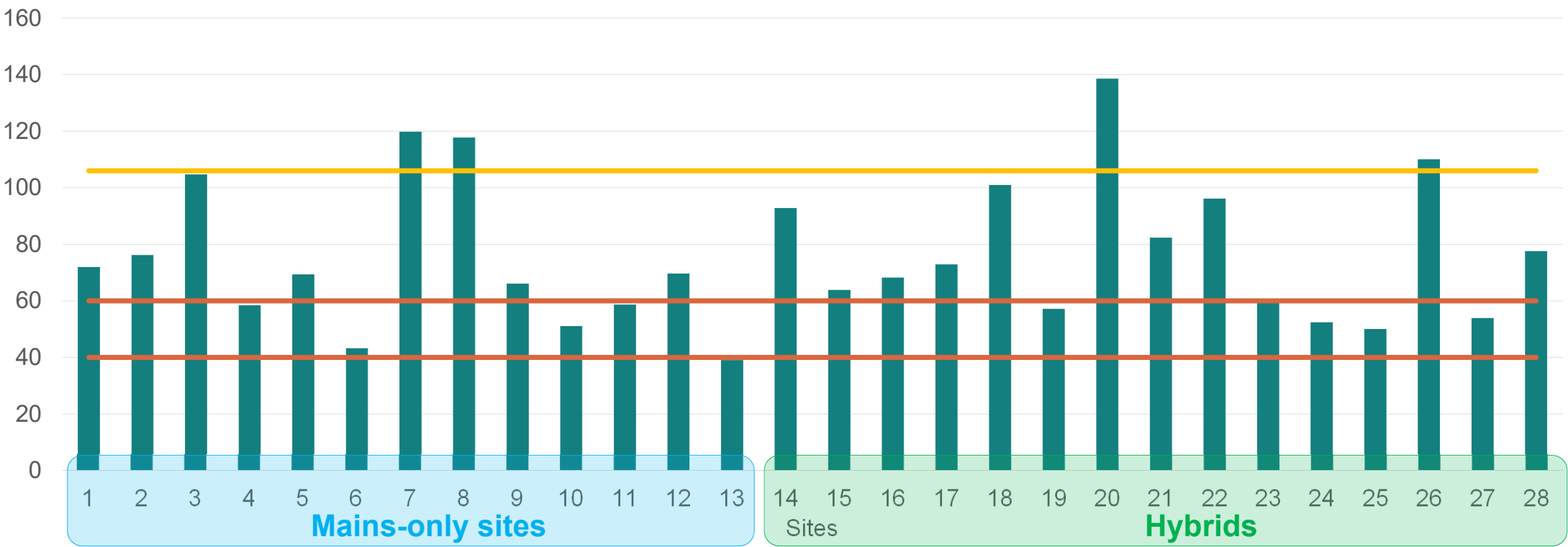
1 year extrapolation



- 106 kL/p/y – Water Corporation, 2010
- 40 – 60 kL/p/y – water efficiency target (SPP 2.9)

Water demand per person per site (kL/p/y)

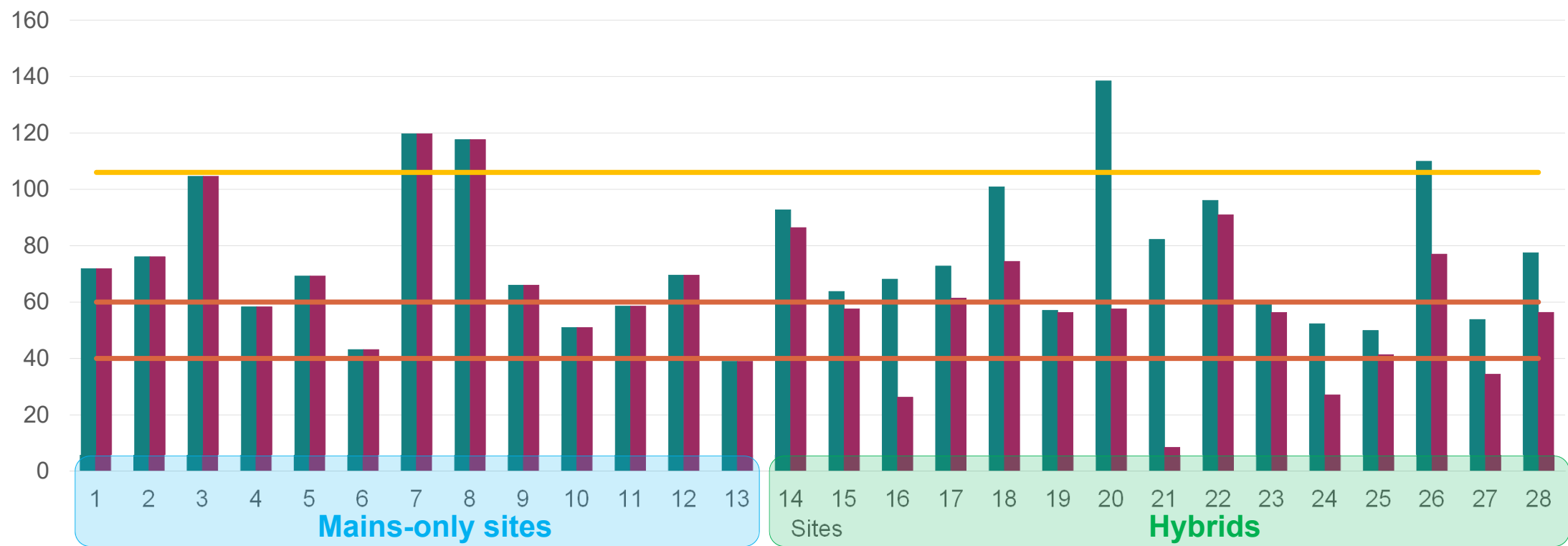
1 year extrapolation



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- Total water demand – 1 year extrapolation

Water demand per person per site (kL/p/y)

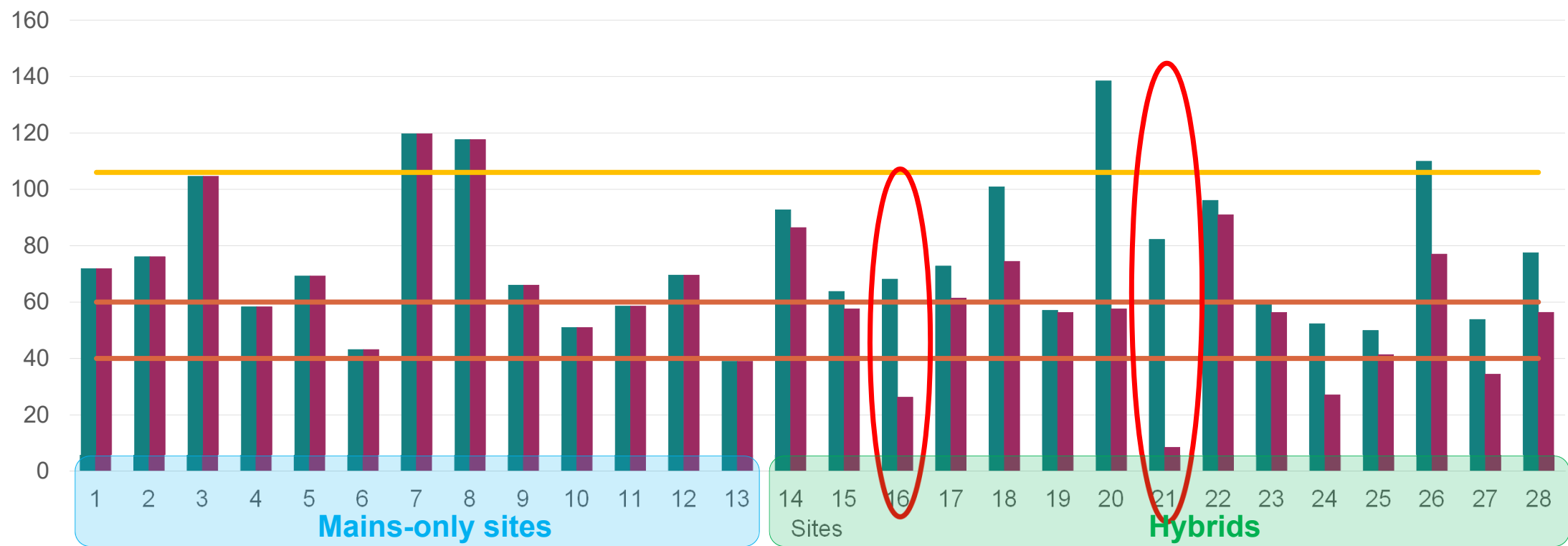
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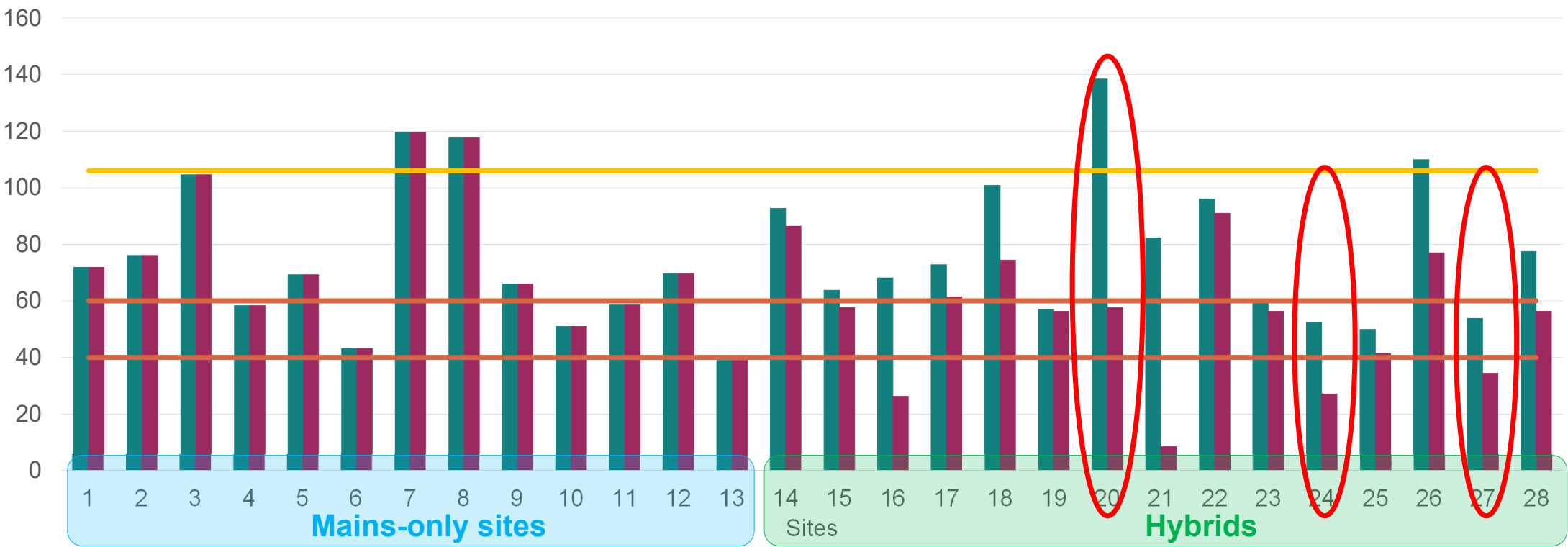
1 year extrapolation



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Water demand per person per site (kL/p/y)

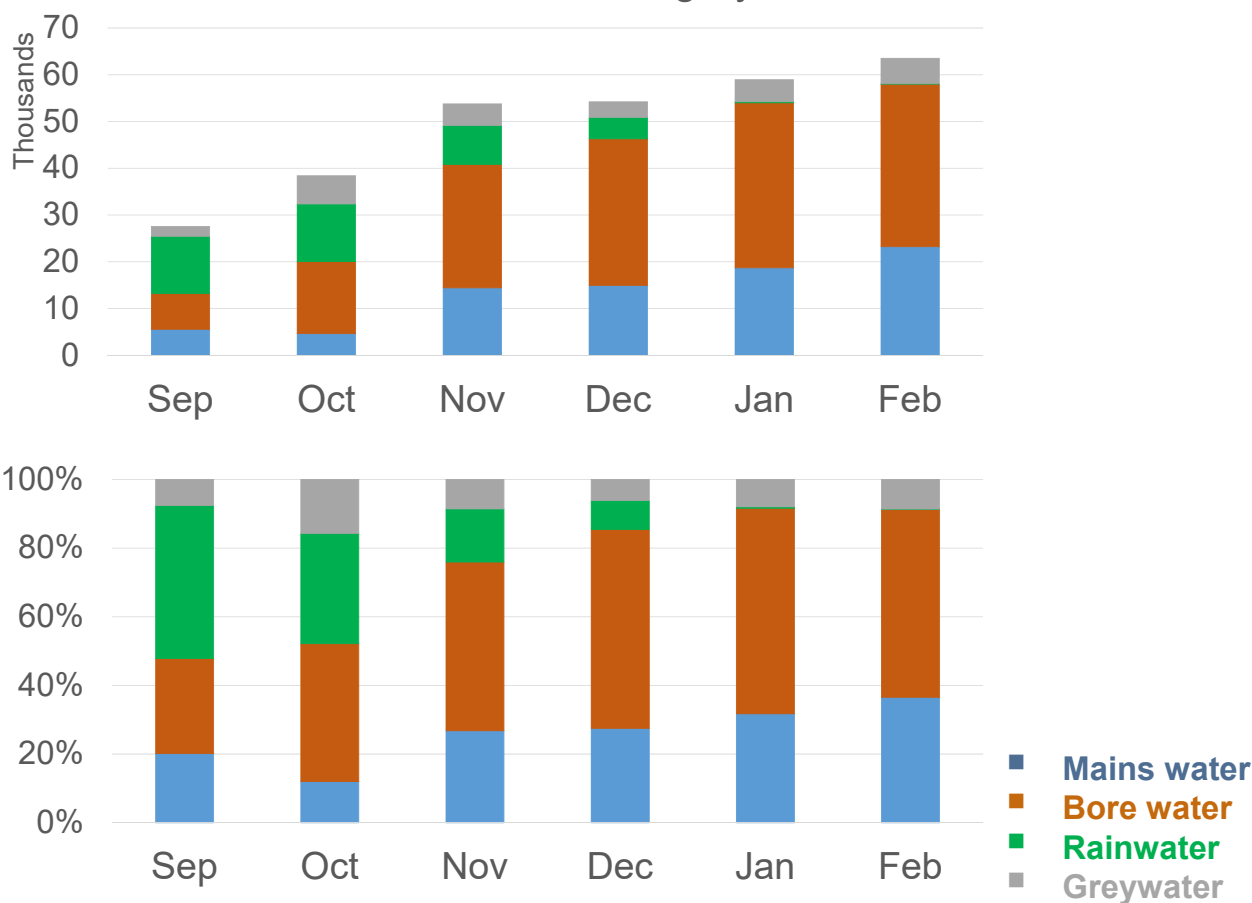
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- Total water demand – 1 year extrapolation
- Mains water demand – 1 year extrapolation

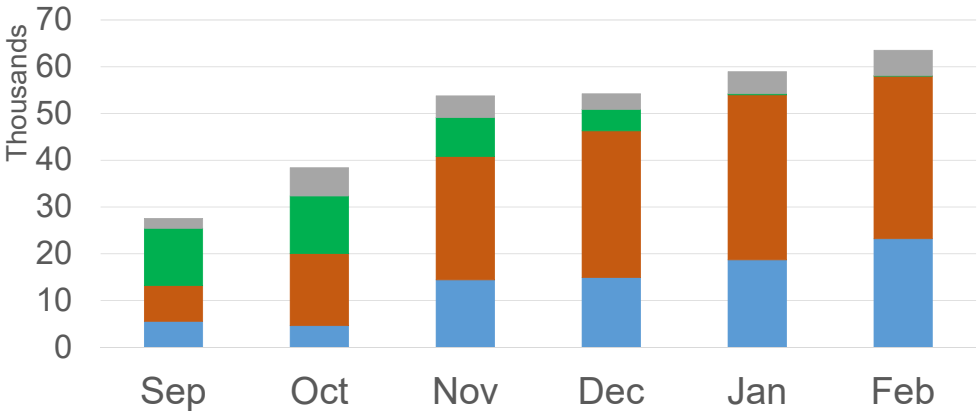
Water demand by source (L) – Hybrid sites

Sites with rain + bore + grey

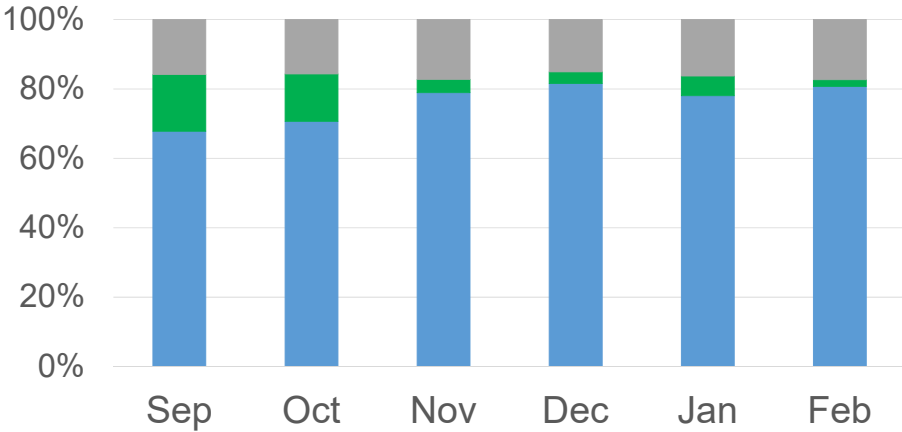
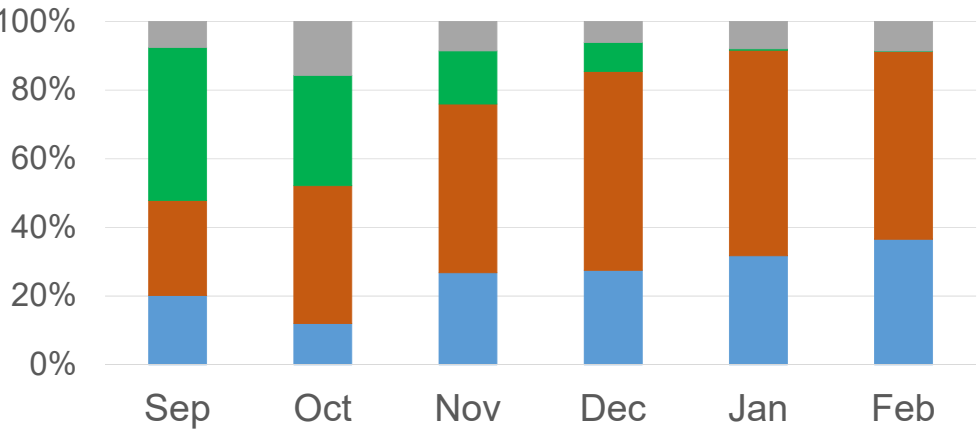
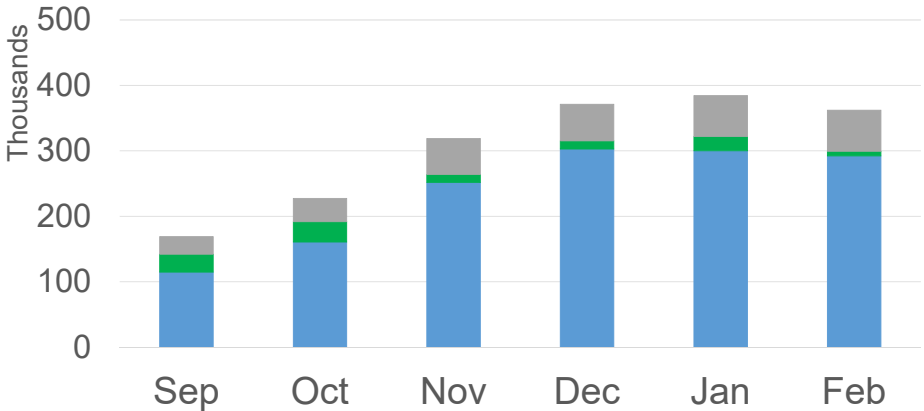


Water demand by source (L) – Hybrid sites

Sites with rain + bore + grey

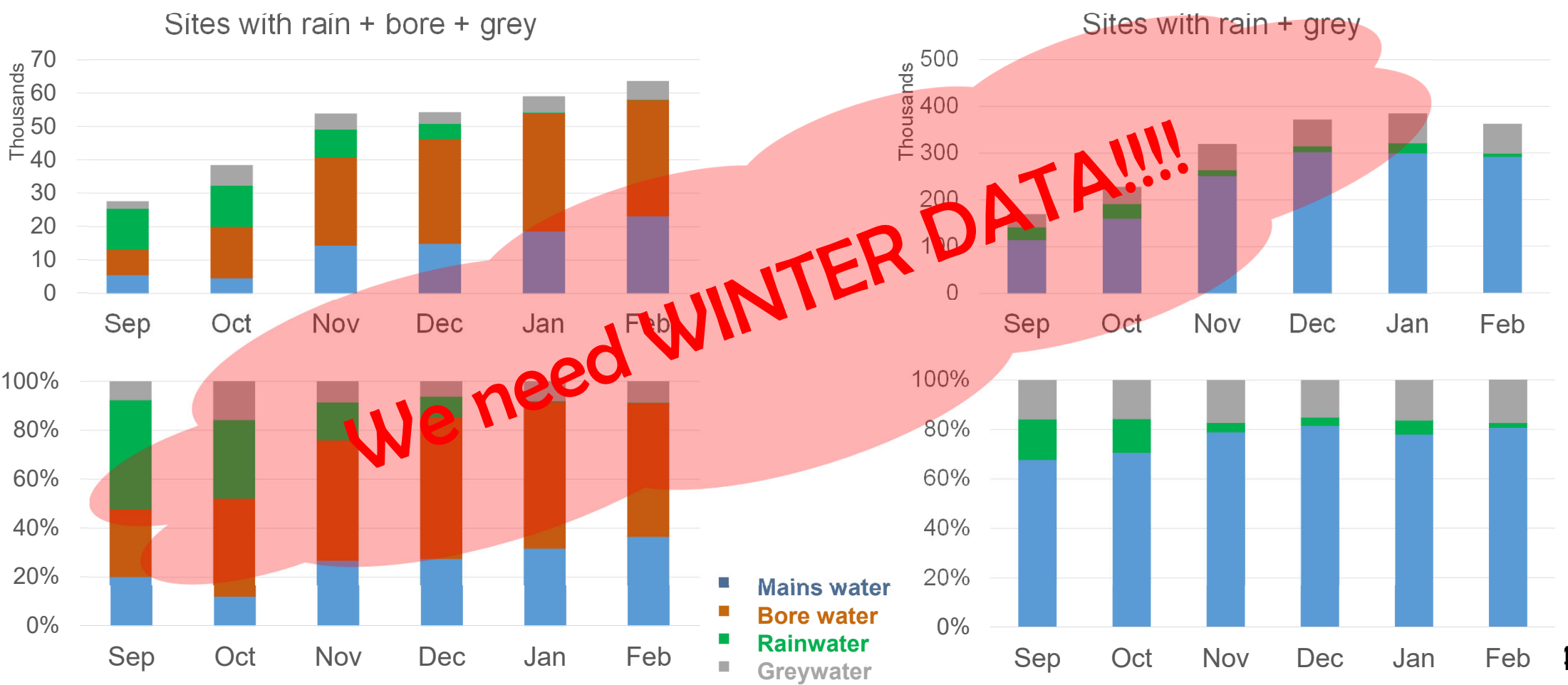


Sites with rain + grey



■ Mains water
■ Bore water
■ Rainwater
■ Greywater

Water demand by source (L) – Hybrid sites



RENeW Nexus Water

Water Dashboard

Roberta Fornarelli

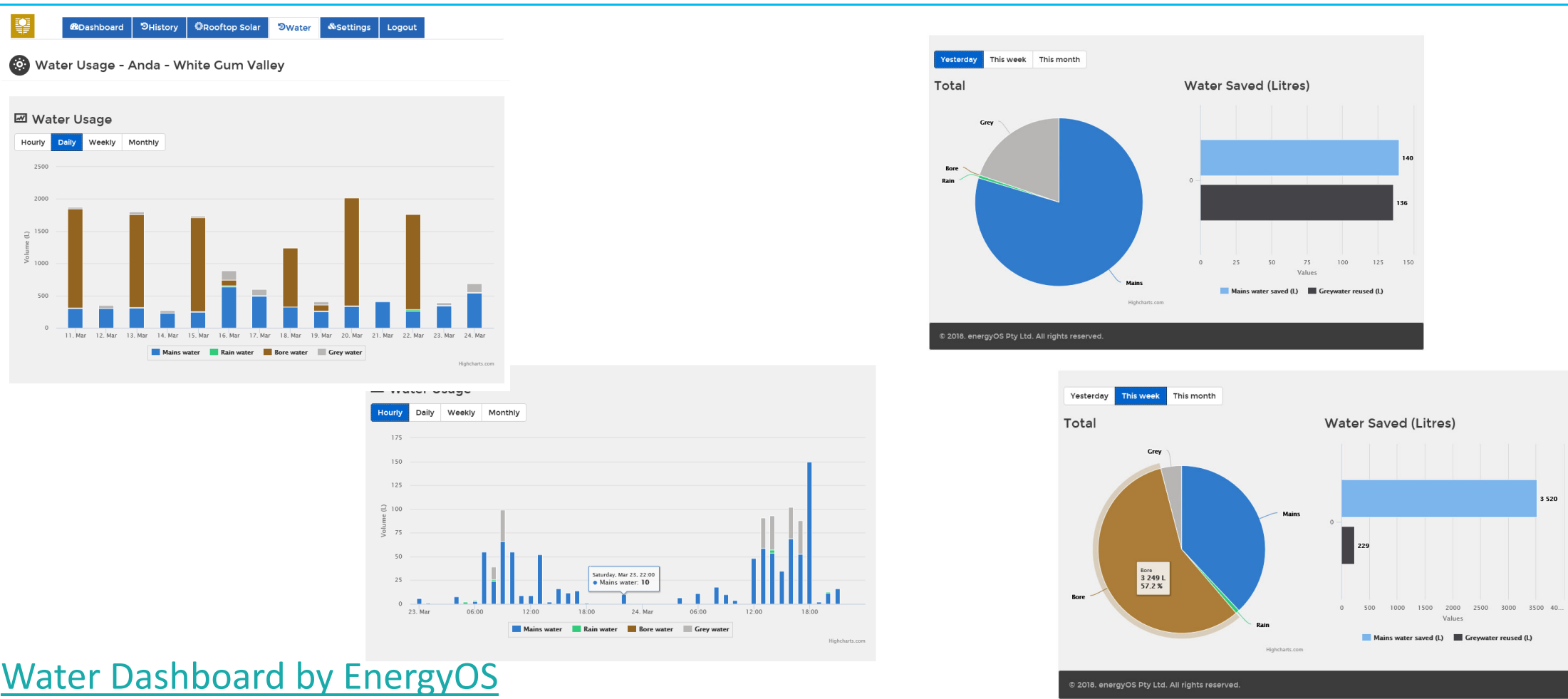


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Water dashboard



RENeW Nexus Water

Water Research

Roberta Fornarelli



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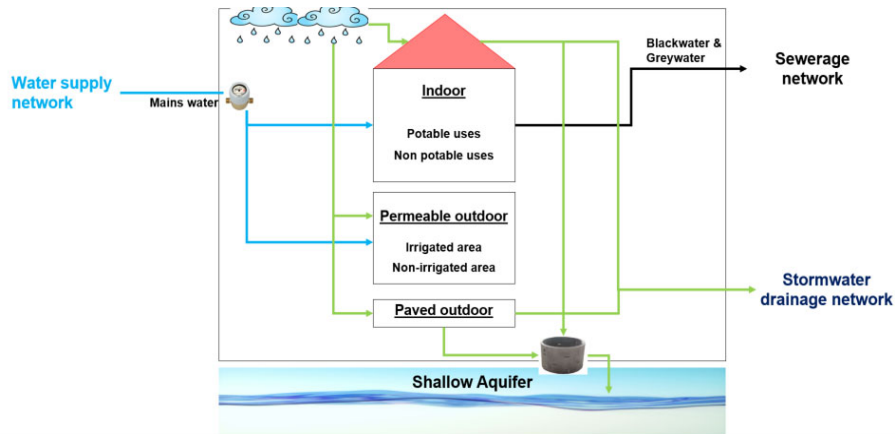


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UNIVERSITY

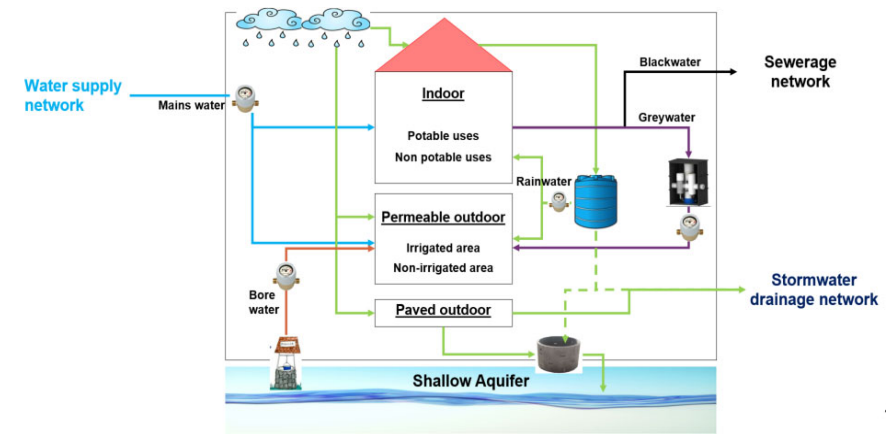
Water research in RENeW Nexus

Scientific questions?

Two-pipe water system



Multi-pipe hybrid water system

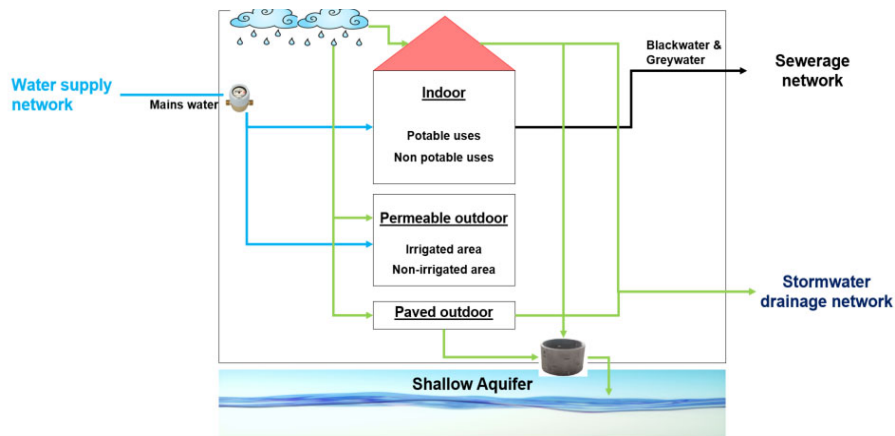


- How does water demand change as a consequence of hybrid water systems?

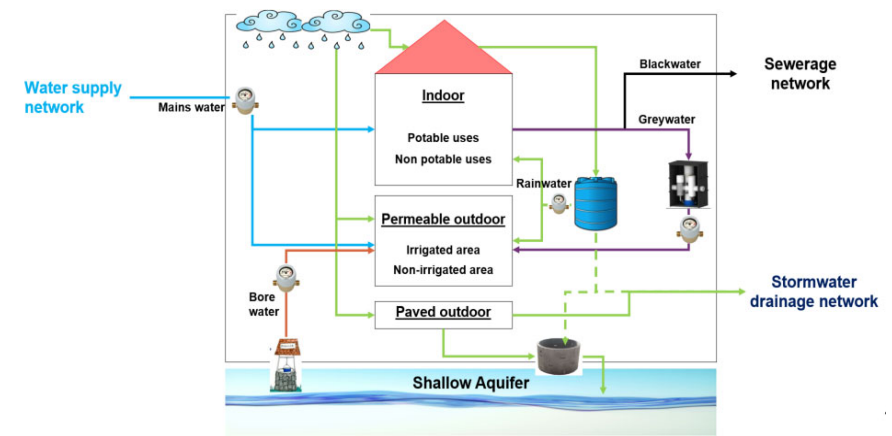
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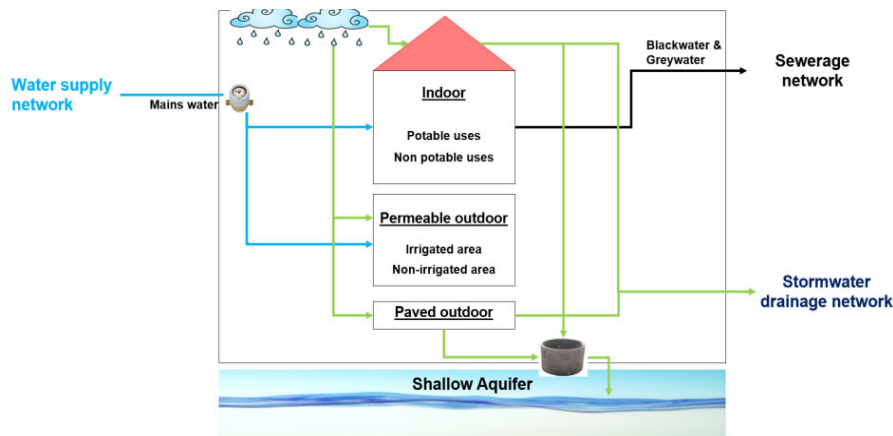


- How does water demand change as a consequence of hybrid water systems?
- What are the impacts of hybrid water systems on the surrounding water resources?

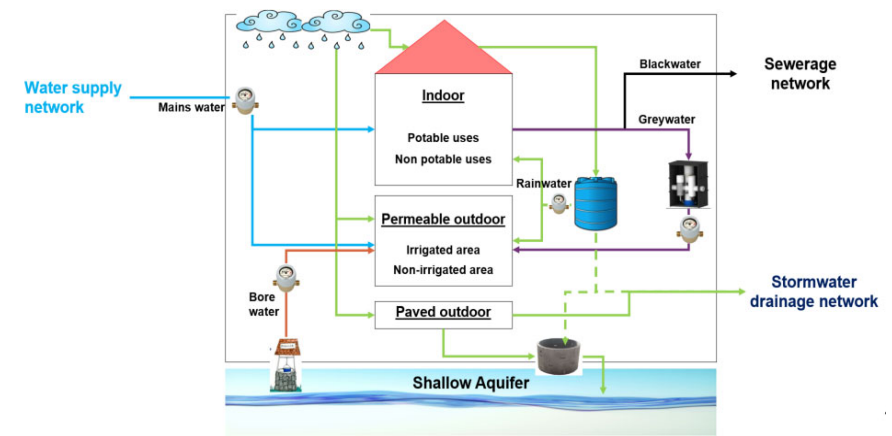
Water research in RENeW Nexus

Scientific questions?

Two-pipe water system



Hybrid water system

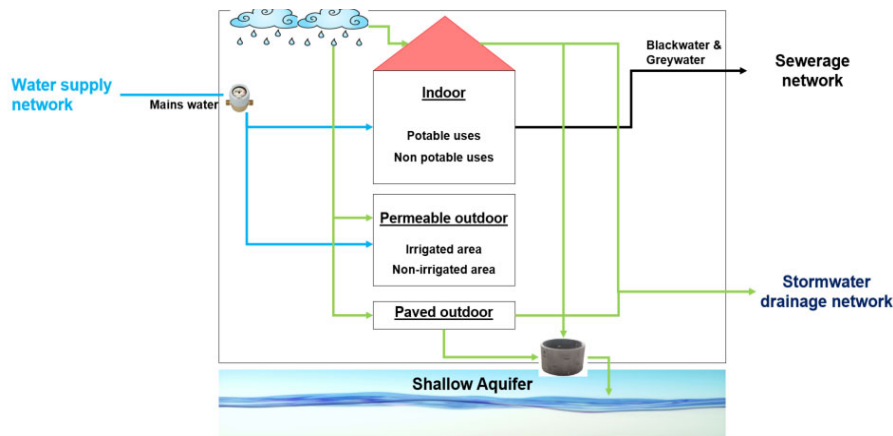


- How does water demand change as a consequence of hybrid water systems?
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- How can these findings help
 - the customer to improve/optimize water use
 - the regulators to manage water resources and to plan future new schemes (e.g., new sources of water and potential new tariff systems)

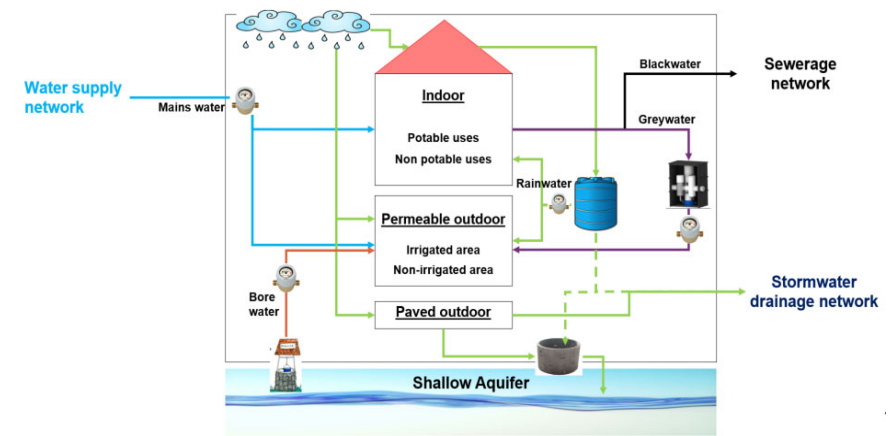
Water research in RENeW Nexus

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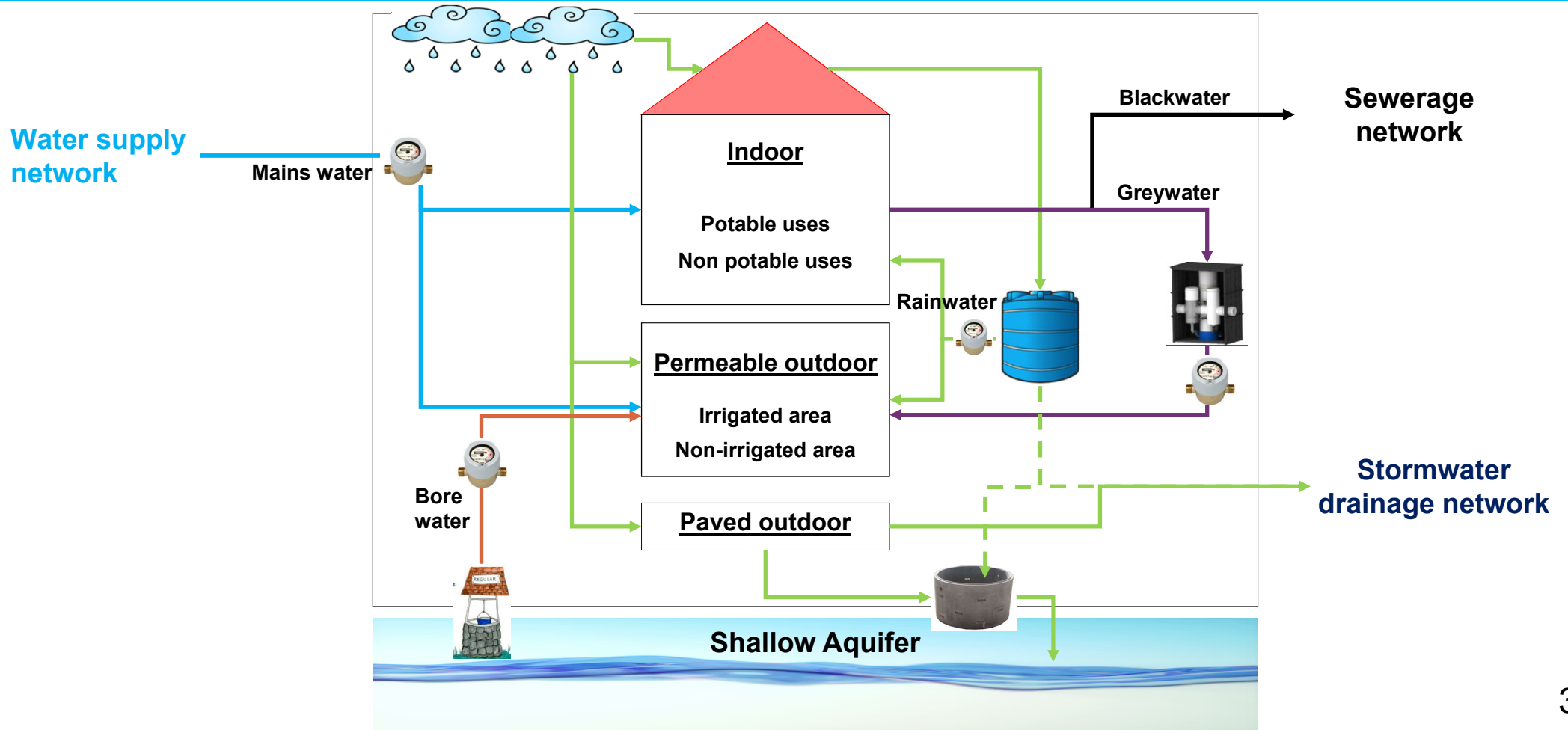
Hybrid water system



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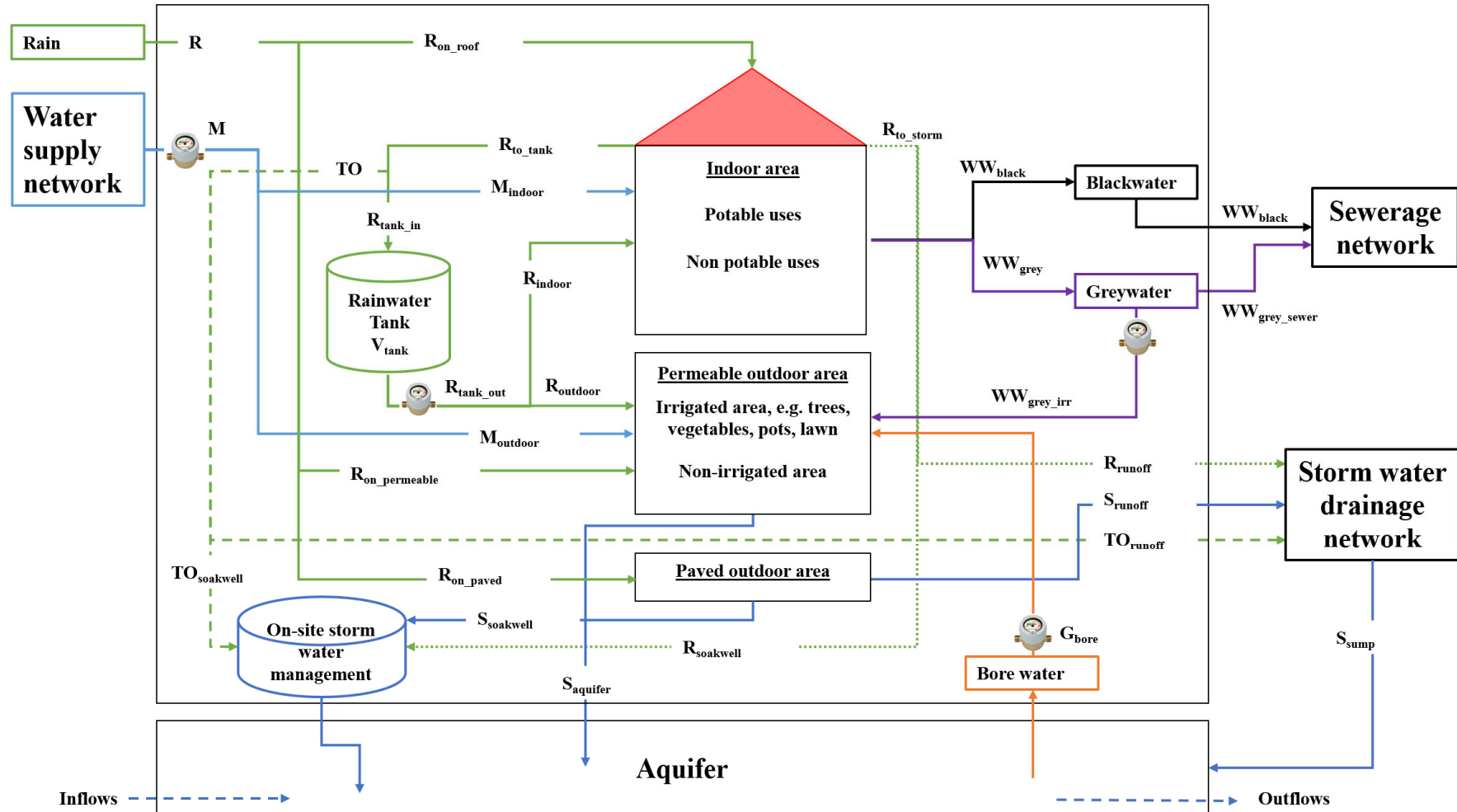
Accounting for our impacts on the water resources

A water balance approach



Accounting for our impacts on the water resources

A water balance approach

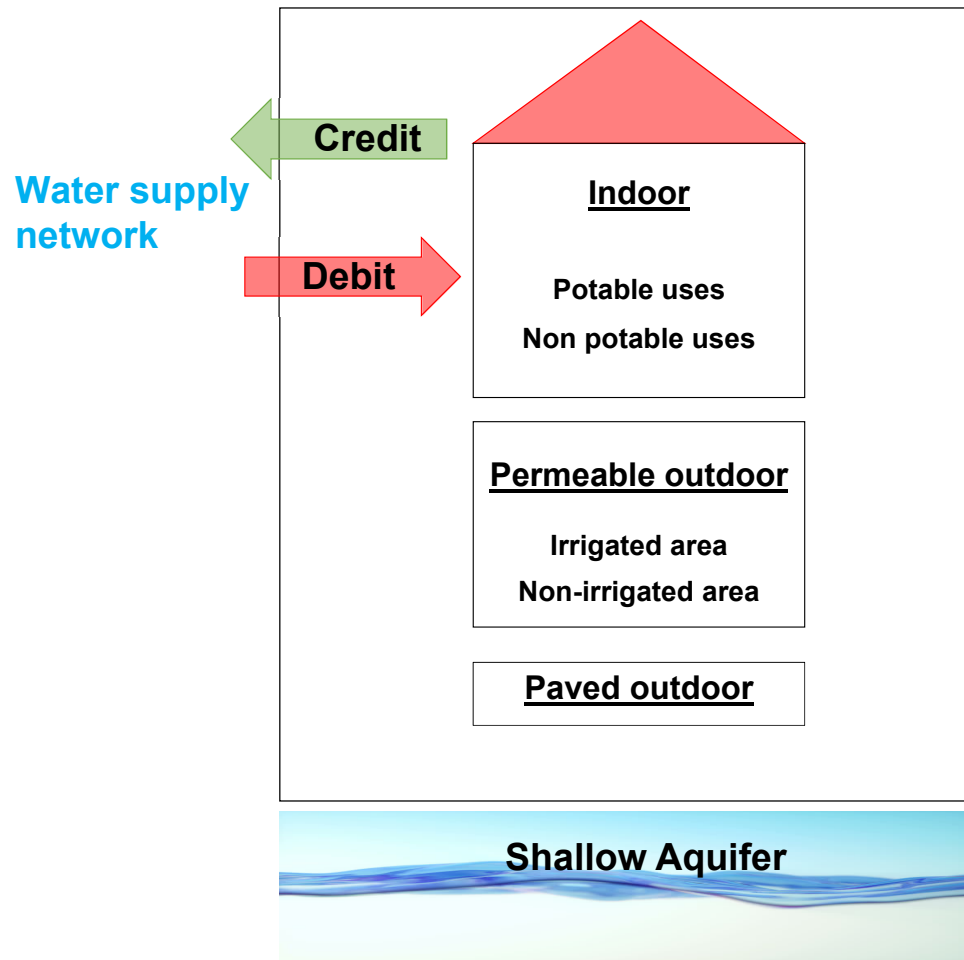


Water Ledger – Credit/Debit model

A water balance approach

Water Ledger – Credit/Debit model

A water balance approach

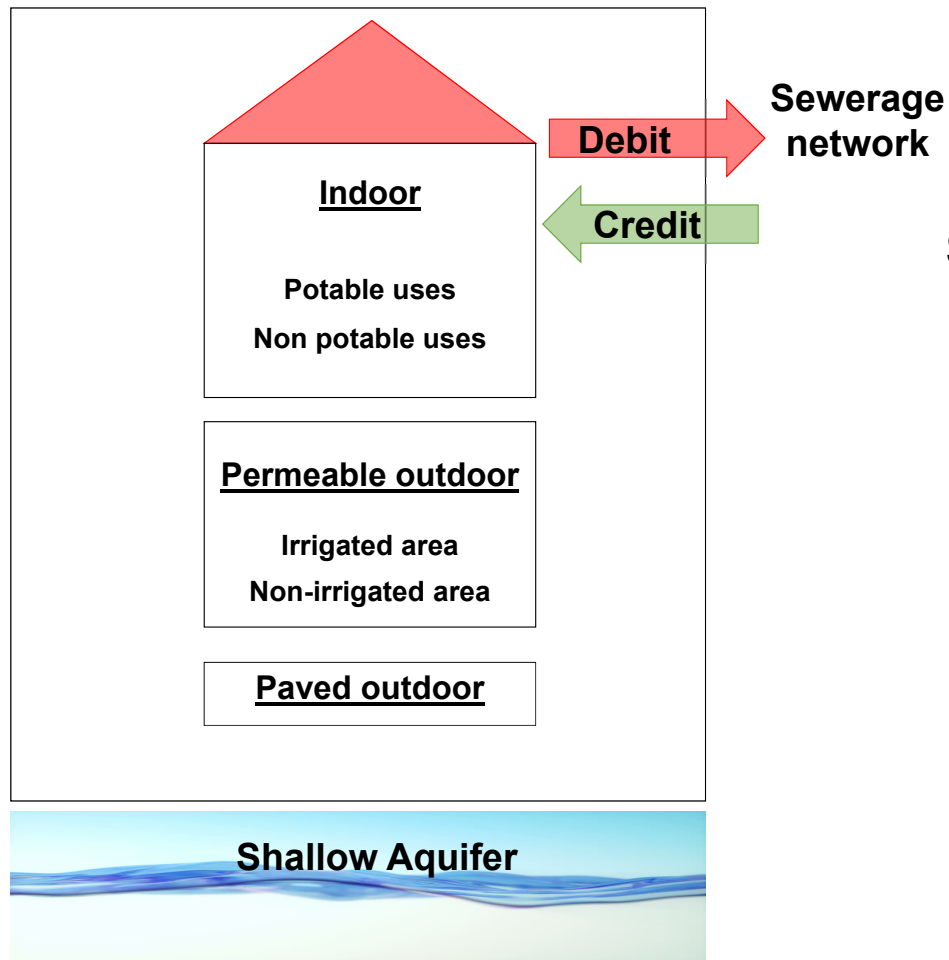


Water supply network

- **Credits**: saved scheme water > *rainwater use, greywater recycle, groundwater* > **Measured!**
- **Debits**: scheme water use > *scheme water use* > **Measured!**

Water Ledger – Credit/Debit model

A water balance approach

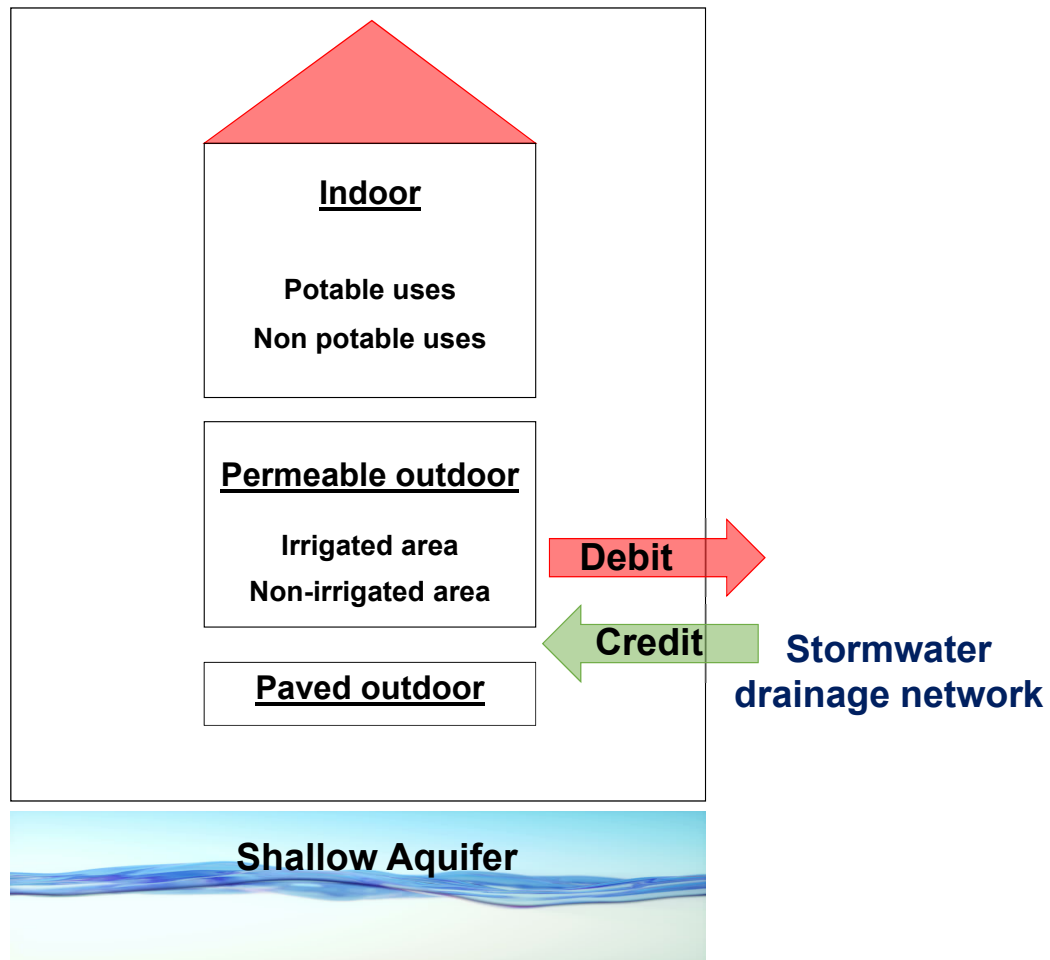


Sewerage network

- **Credits:** reduced discharge to sewer > *greywater recycle* > **Measured!**
- **Debits:** wastewater discharge > *diverted greywater, black water* > **Estimated**

Water Ledger – Credit/Debit model

A water balance approach

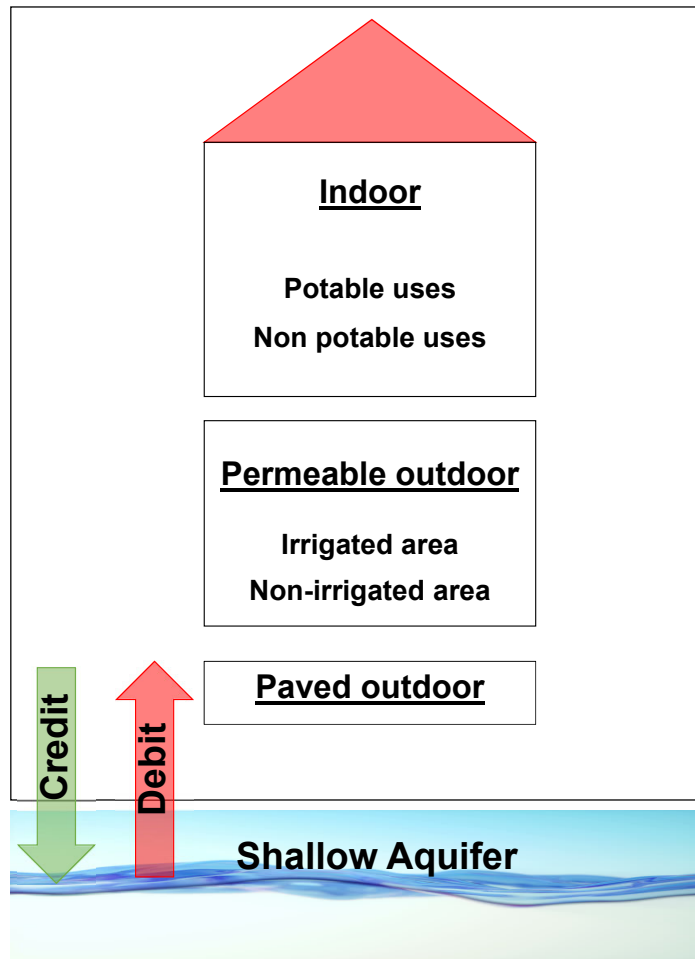


Stormwater drainage network

- **Credits:** reduced off-site discharge > *harvested rainwater, on-site retained stormwater* > **Estimated**
- **Debits:** off-site discharge > *off-site stormwater runoff to common sump* > **Estimated**

Water Ledger – Credit/Debit model

A water balance approach

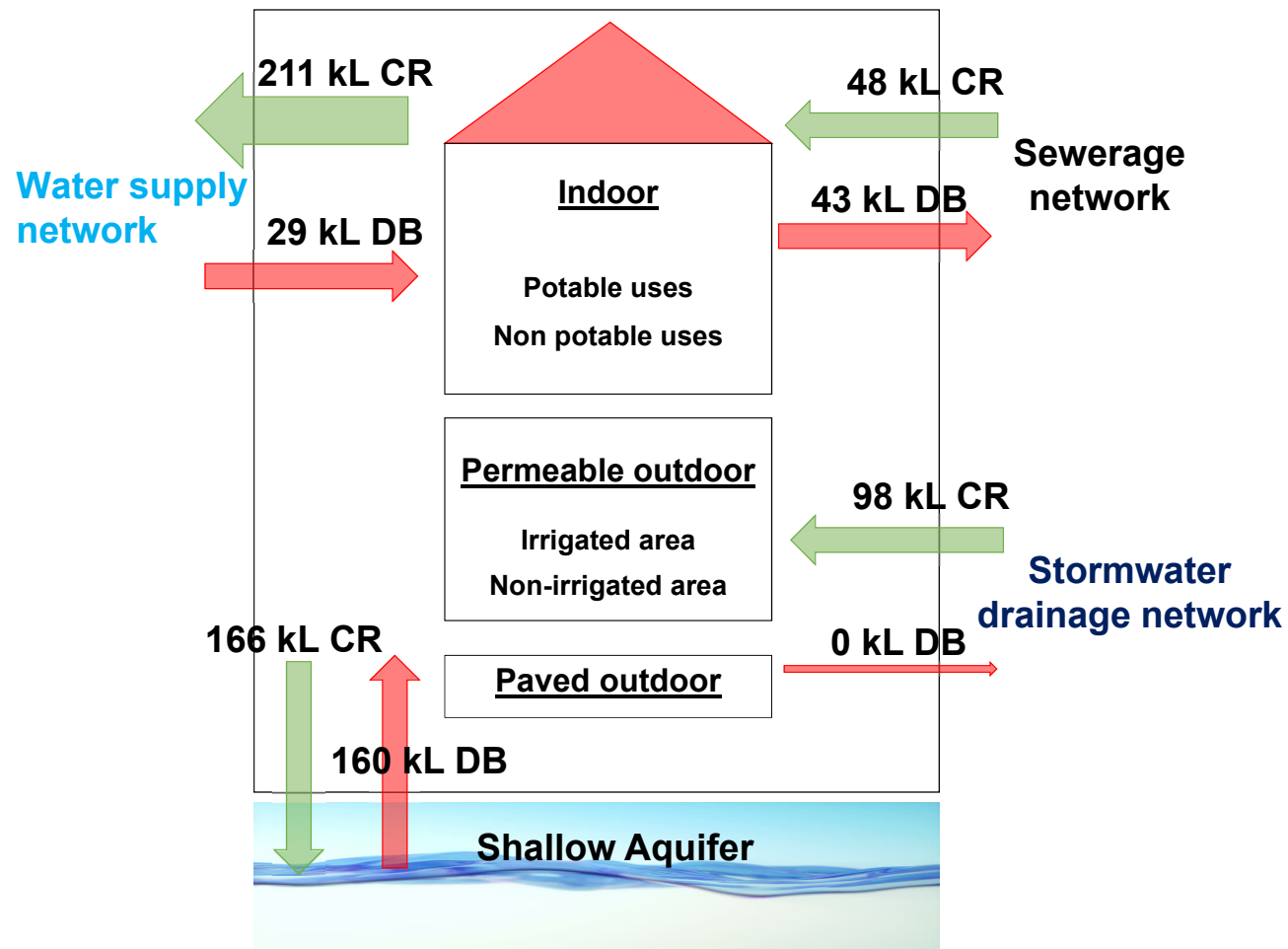


Shallow aquifer shared resource

- **Credits**: recharge > *on-site retained stormwater, off-site stormwater runoff to common sump, infiltrated rainfall on-site* > **Estimated**
- **Debits**: extracted groundwater, rain captured in tank > *groundwater, harvested rainwater* > **Measured**

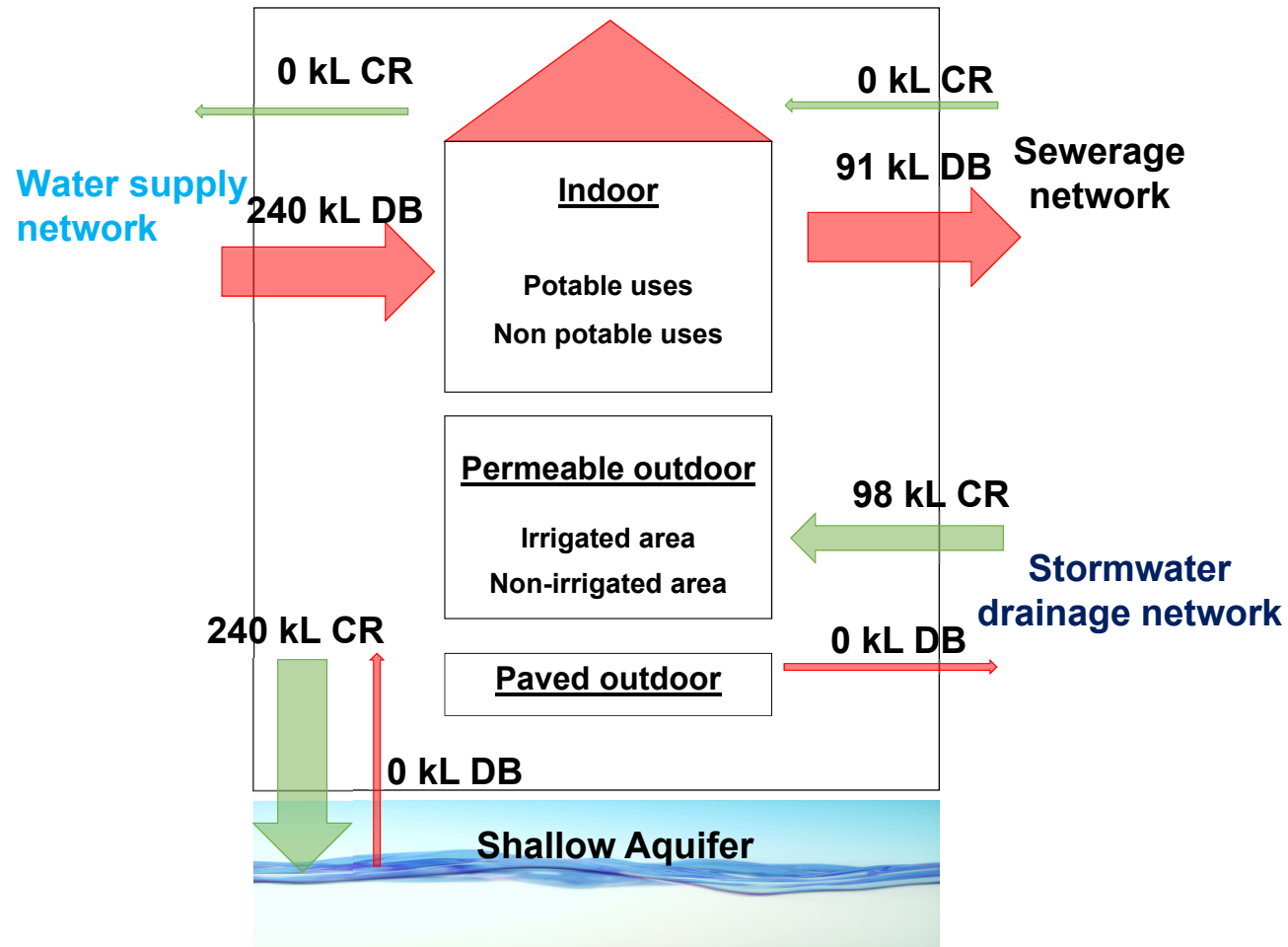
Water Ledger – Credit/Debit model

Site ID 50 of RENeW Nexus

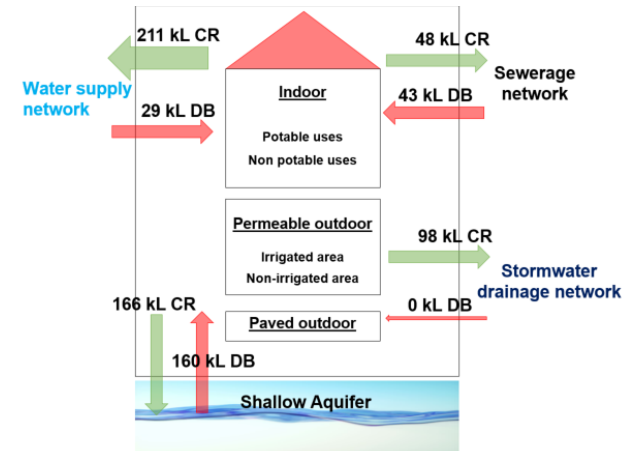
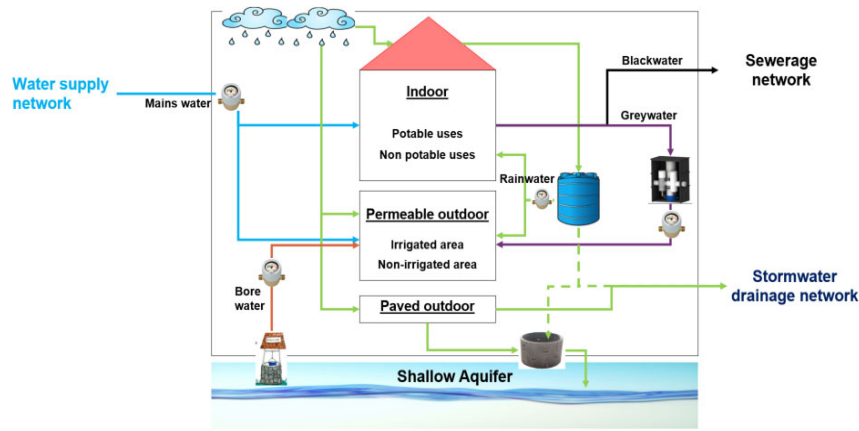


Water Ledger – Credit/Debit model

Site ID 50 of RENeW Nexus – what if no hybrid water systems?

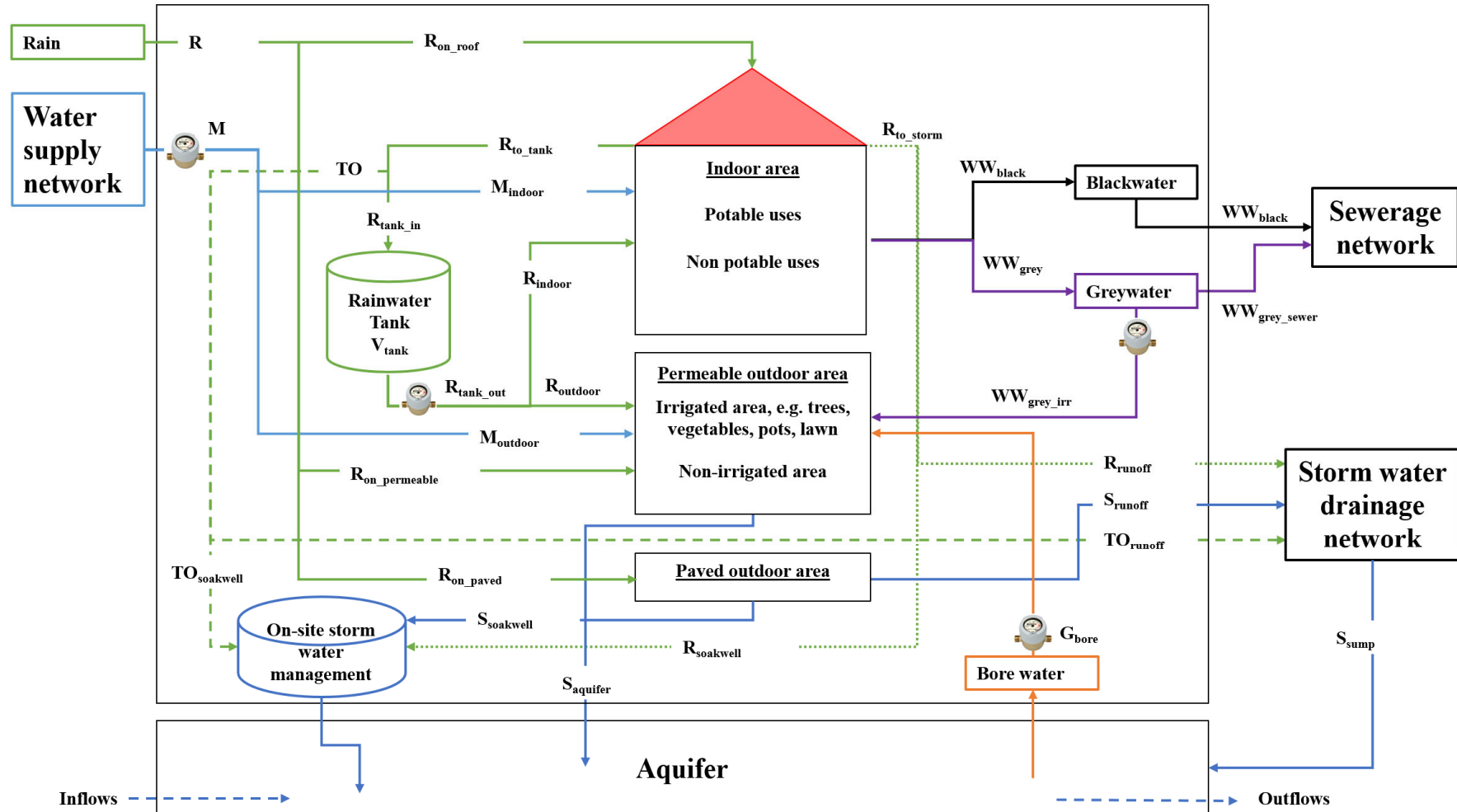


Water Ledger – Credit/Debit model



- Credit/debit model has two main functions:
 - It places value on each of the water sources
 - It could be a precursor to some form of urban water trading

Current research: Model error propagation and uncertainty analysis



RENeW Nexus Water

Water Workshop

Roberta Fornarelli



Curtin University

Consortium Meeting, Bentley, 5th April 2019



Water workshop with RENeW Nexus participants

Part 1. Your relationship with the water resource

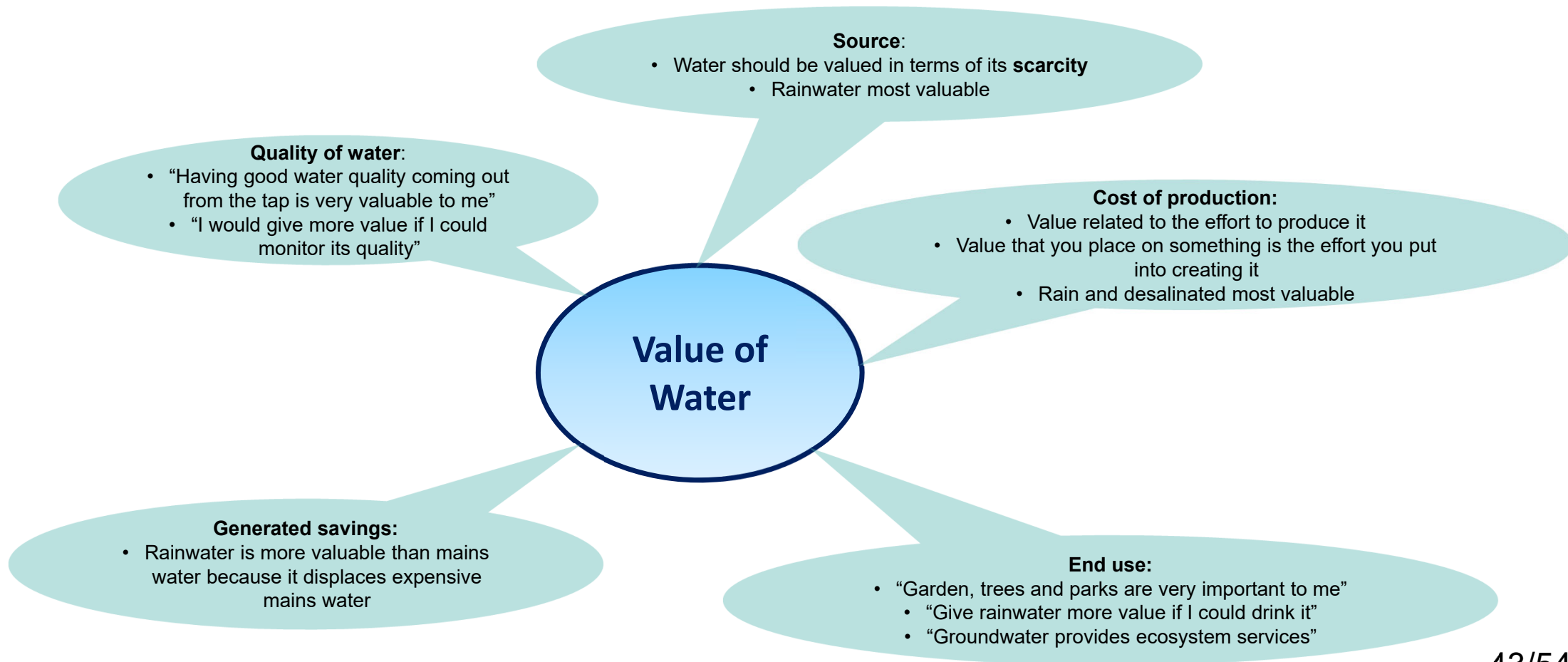
1. How do you perceive the value of water?
2. What triggered you to install a hybrid water system? Or, if you don't have one – why not?
3. How should we best protect groundwater as an environmental resource?

Part 2. Moving forward and new concepts

4. Future developments: Water trading?

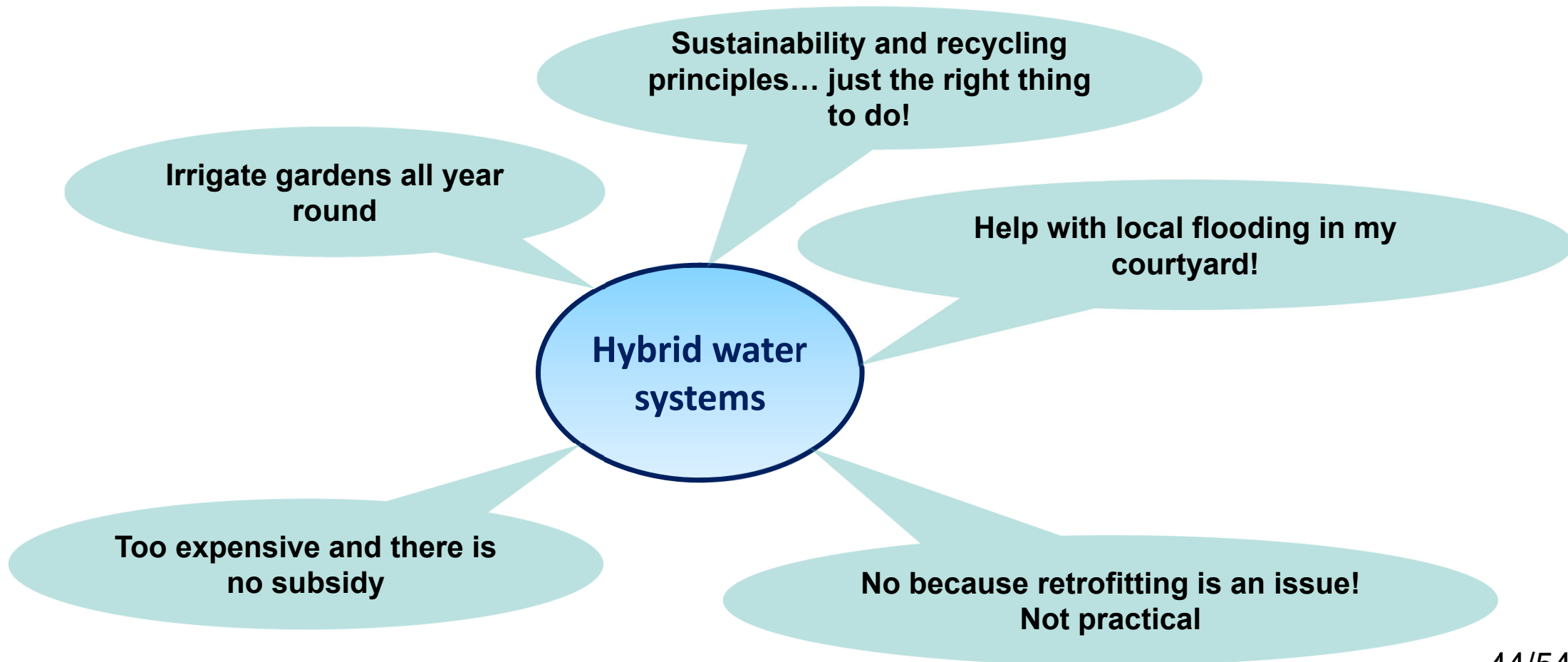
Outcome: focus groups workshop

How do you value water?



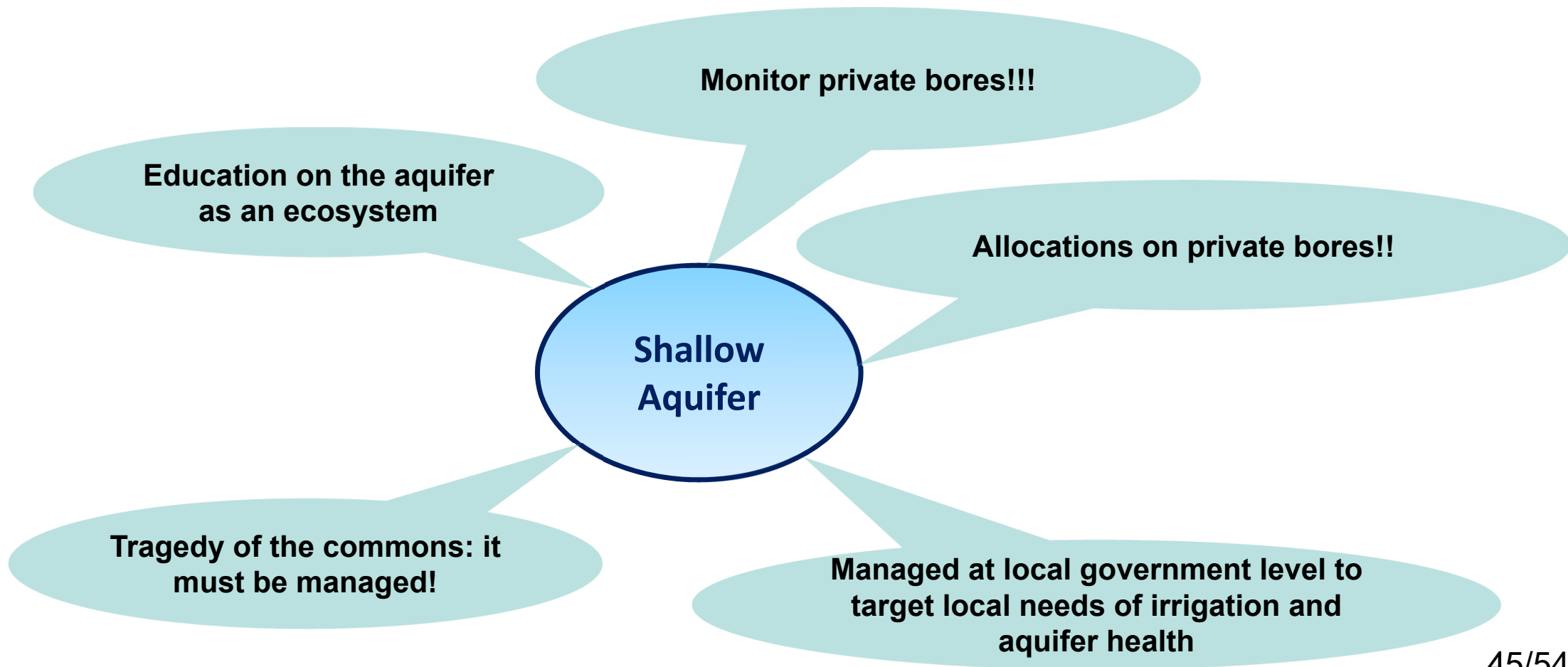
Outcome: focus groups workshop

Why installing a hybrid water system? Or, why not?



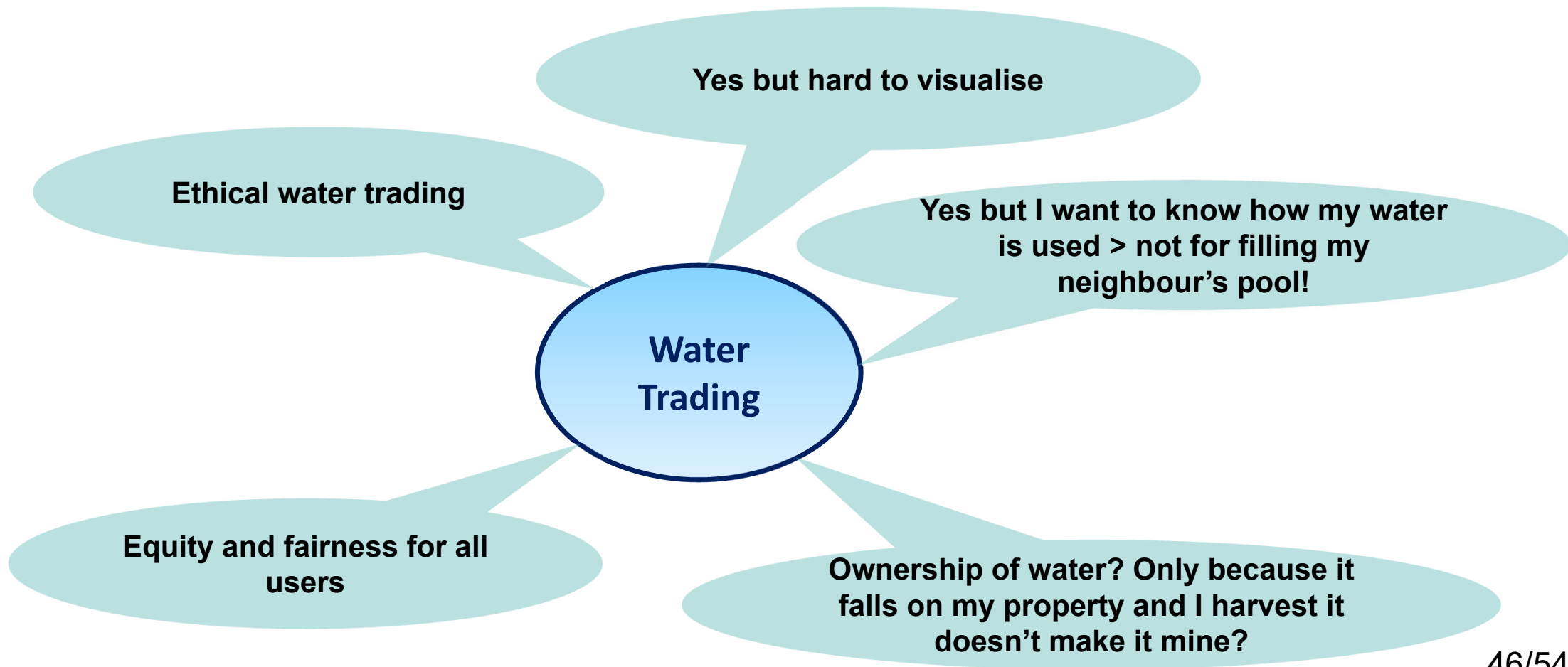
Outcome: focus groups workshop

How to protect groundwater as a resource?



Outcome: focus groups workshop

Water trading



Outcome: evaluation form

Q1. Today's presentations and workshop were informative and clear?

54% strongly agree, 46% agree, 0% disagree

Q2. Today's presentations and workshop improved my understanding of urban water management and hybrid water systems.

23% strongly agree, 77% agree, 0% disagree

Q3. How useful is the water dashboard given you by RENEW Nexus and integrated with your EnergyOS one?

36% very useful, 55% useful, 9% not so useful, 0% useless

Added comments: it would be nice to have rain tank storage levels. The "very useful" results relate to the ability to adjust the reticulation (and save water) by looking at the meters and dashboard together

Outcome: evaluation form

Q4. Would you now consider installing hybrid water systems (bore, greywater or rainwater)?

46% yes, 15.5% maybe, 15.5% no, 23% already have

*Added comments: the “no” refers to impracticability of house retrofitting, the “yes” refers to i) reuse, recycling and sustainability principles, ii) **foster community solutions towards water share**, iii) the workshop was a good reminder to consider greywater recycling solutions, iv) **foster community owned solutions**, v) respect the environmental value of water*

Outcome: evaluation form

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Q5. If you can see a change happening in the urban water management and planning, what would that be?

More hybrid systems and less desalination: 7 out of 13

More value given to all water sources: 10 out of 13

Legislation on rain and groundwater to protect the ecosystem: 8 out of 13

A new water tariff with more incentives to save water: 10 out of 13

Others: strategies for **managing bores**, more **education** on how to monitor data (active use of meters and dashboard)

Outcome: evaluation form

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Others: strategies for managing bores, more education on how to monitor data (active use of meters and dashboard)

Q6. Is there a topic you would have liked to discuss in more depth today?

Water bill and tariff scheme: 3 out of 13

Natural water cycle: 1 out of 13

Urban water management at a bigger scale (Perth metro): 2 out of 13

No responses: 6 out of 13

Others: water ledger technology

Outcome: evaluation form

Additional comments given by the participants include:

Run regular community workshops on water

Continuous access to water monitoring data

Metering rainwater tank volume and tank overflow

This research is very interesting: keep us informed on the outcome

Thank you for running this trail: it's an important problem to consider

Thank you!



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Power Ledger

Energy, reimagined.

Contents

- 3 Summary Statistics
- 4 Further Questions
- 5 Buy Rates
- 6 Sell Rates
- 7 Dynamic Trade Prices
- 8 Transactions Summary
- 9 Rates Changes Over Time
- 10 Rate Change Stimulus Example
- 11-14 Appendix 1: Buy and Sell Rate Graphs
- 15-18 Appendix 2: Price Stimulus Example Steps

Summary Conclusions

- 20% of consumers were at times willing to pay their peers more for energy than they were willing to pay the grid, totaling \$90 in additional payments.
- 99.36% of coincident consumption and production was traded.
- Engagement in dynamic pricing was high at the onset of the trial and tapered off quickly as the trial continued.

Summary Statistics

#	Description	Statistic
1	% of available P2P energy (prosumer generation –self consumption) purchased by Synergy	82.02% of all energy sold was sold to grid.
2	% of potential trades that cleared	99.36% of coincident consumption and production was traded.
3	P2P energy as a % of total energy consumed	Consumers purchased 37.31% of their energy from their peers. All participants purchased 19.26% of their energy from their peers. The barriers to a higher % of demand being met by P2P can be attributed to the relative lack of demand during periods of daylight. See slide 8 for a visual summary
4	# of individuals that set buy rate above Synergy energy price, when they did it of how long	There were four participant who set their peer to peer buy price above the grid rate for a week or more. The remaining participants most commonly set their rates within 1c of the grid rates. One participant spent an extra \$78 on peer to peer energy, with their buy rate set above the grid rate for a total of 68 days. This equates to a daily average additional spend of \$1.15. Another participant spent an extra \$7.50 on peer to peer energy, with their buy rate set above the grid rate for a total of 150 days. This equates to a daily average additional spend of \$0.05. Two more participants set their rates above the grid rate for a length of at least 132 days, spending a total of \$3.50 more than they would have had they bought from the grid.
5	# of individuals that set price below feed in tariff rate, when and for how long	Seven unique prosumers set their sell rate below the feed in tariff rate for more than a week at a time. Four unique prosumers set their sell rate to zero for more than a week at a time.
6	# times the average participant changed their pricing	On average each participant changed their rates 36 times.



Further Questions

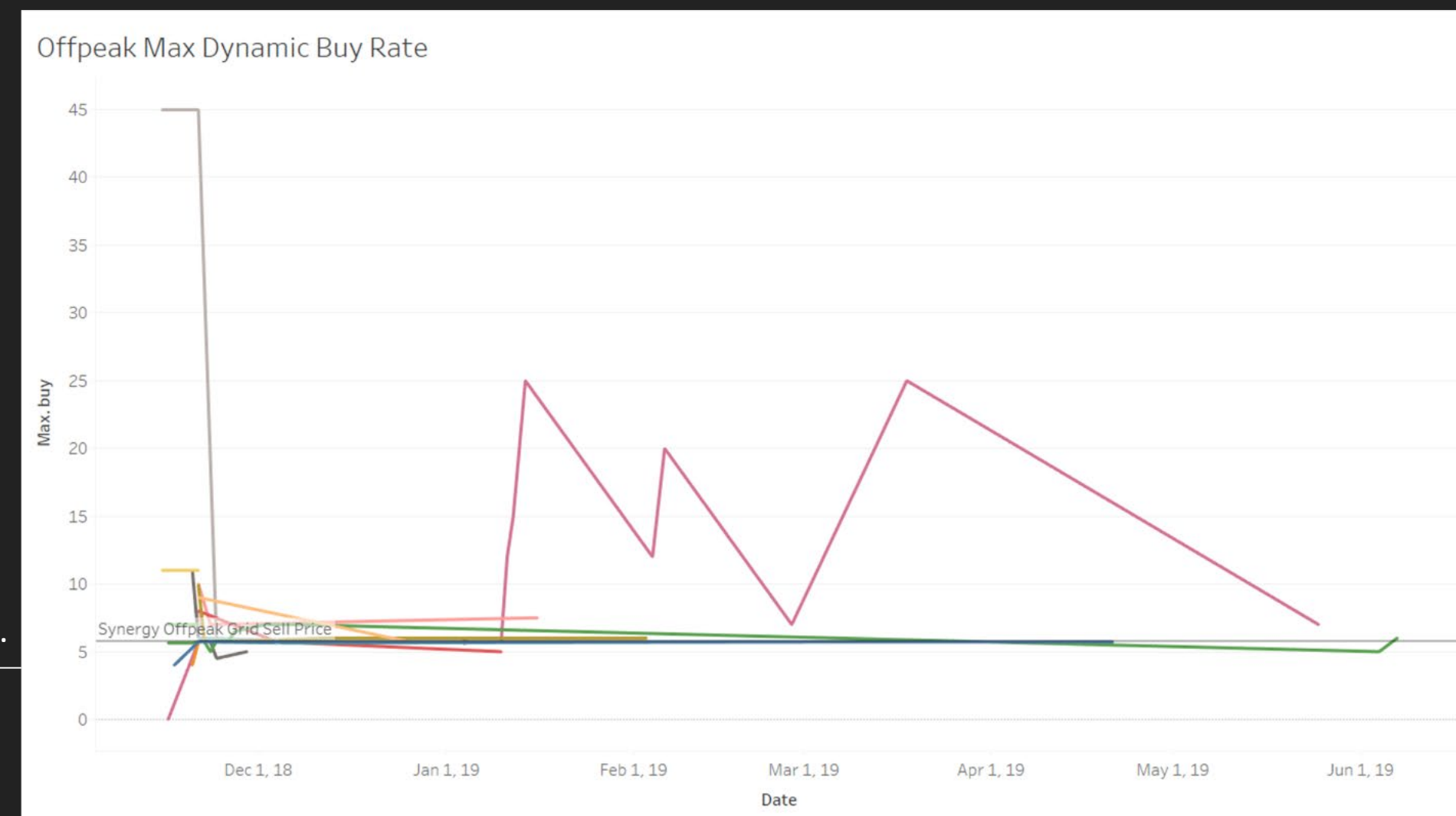
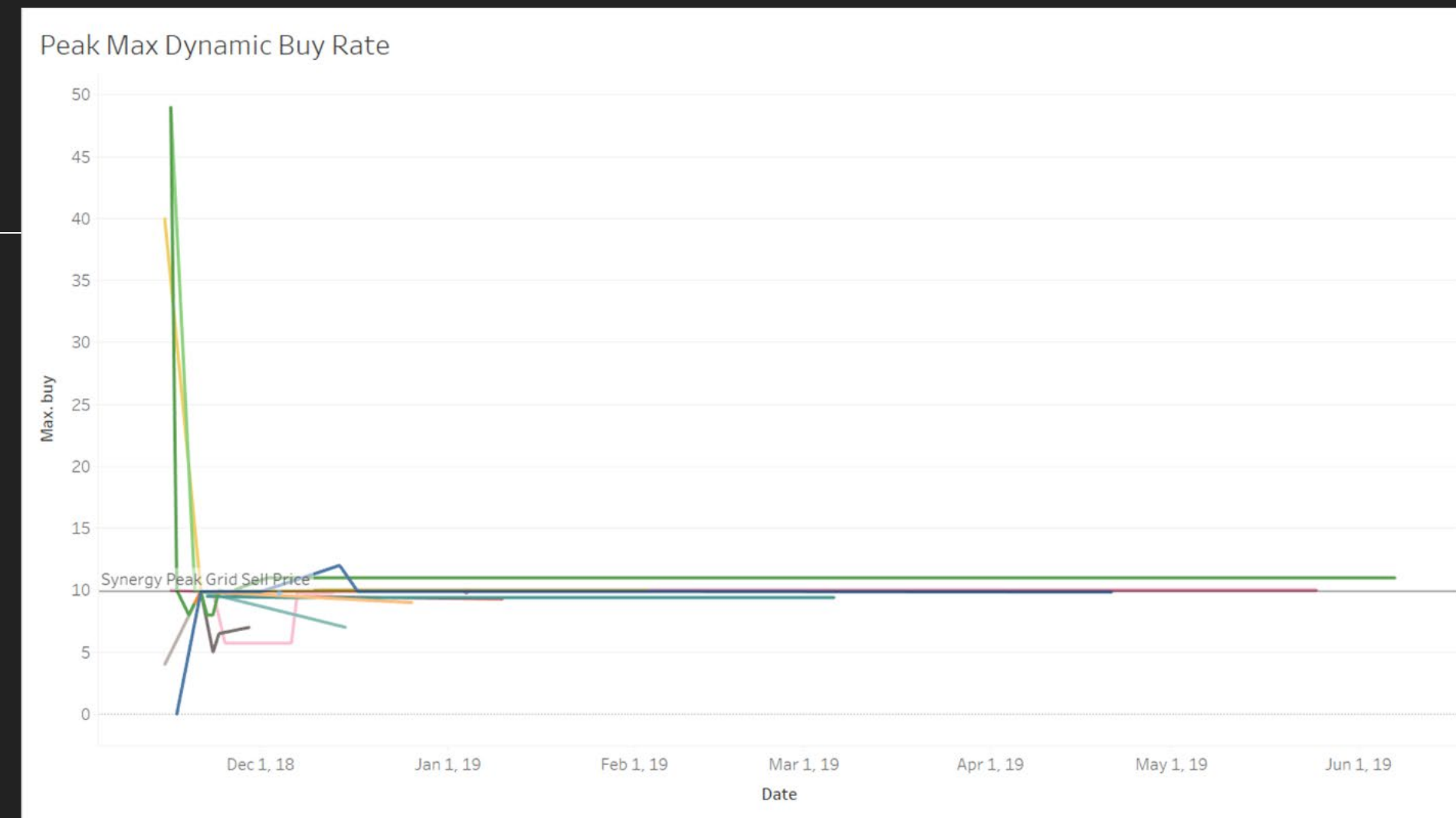
#	Questions	Answers
1	What is the stimulus to change pricing?	There is evidence to suggest some participants changed their rates in response to external stimuli. For an example of this, see 'price competition story' on slide 10.
2	What pricing behaviour was the most advantageous for prosumers and consumers?	<p>For some consumers we saw an expected behaviour which was them lowering their price over time. However it is hard to say conclusively with the relatively small sample size and with some consumers that may have strong preferences towards local energy and as such are willing to pay more than the grid rate for that energy.</p> <p>For prosumers trying to sell, it was generally most advantageous to have as low a sell rate as possible. This is likely due to the oversupply of electricity and the method used to schedule the trades.</p>
3	Do participants feel incentivised to price buy and sell rates beyond the Synergy energy and feed in tariff rates respectively?	As evidenced by proceeding slides 5 and 6, yes.
4	What are the barriers to P2P trades clearing?	<p>As evidenced by summary statistic #2, there have been few barriers to P2P trades clearing, when it was possible for them to occur.</p> <p>Only 0.64% of trades were not cleared due to price mismatches. This is likely impacted by the high supply offered at a rate of zero.</p>
5	Has there been any behaviour change, and if so, is it possible to determine what brought about the change?	-
6	How many trades cleared during the 12 network peak intervals when IRCR charges were being set and what was the total and average amount of electricity exported during those intervals?	During the 12 IRCR 'Peak Intervals' for 2019, a total of 7kWh was bought P2P in 115 transactions, and 90kWh was bought grid in 187 transactions.



Buy Rates

- 13 participants had their buy rate above the grid rate at some point.
- 7 participants had their buy rate above the grid rate during the peak period.
- 12 participants had their buy rate above the grid rate during the offpeak period.
- The highest rate seen was 49 cents.

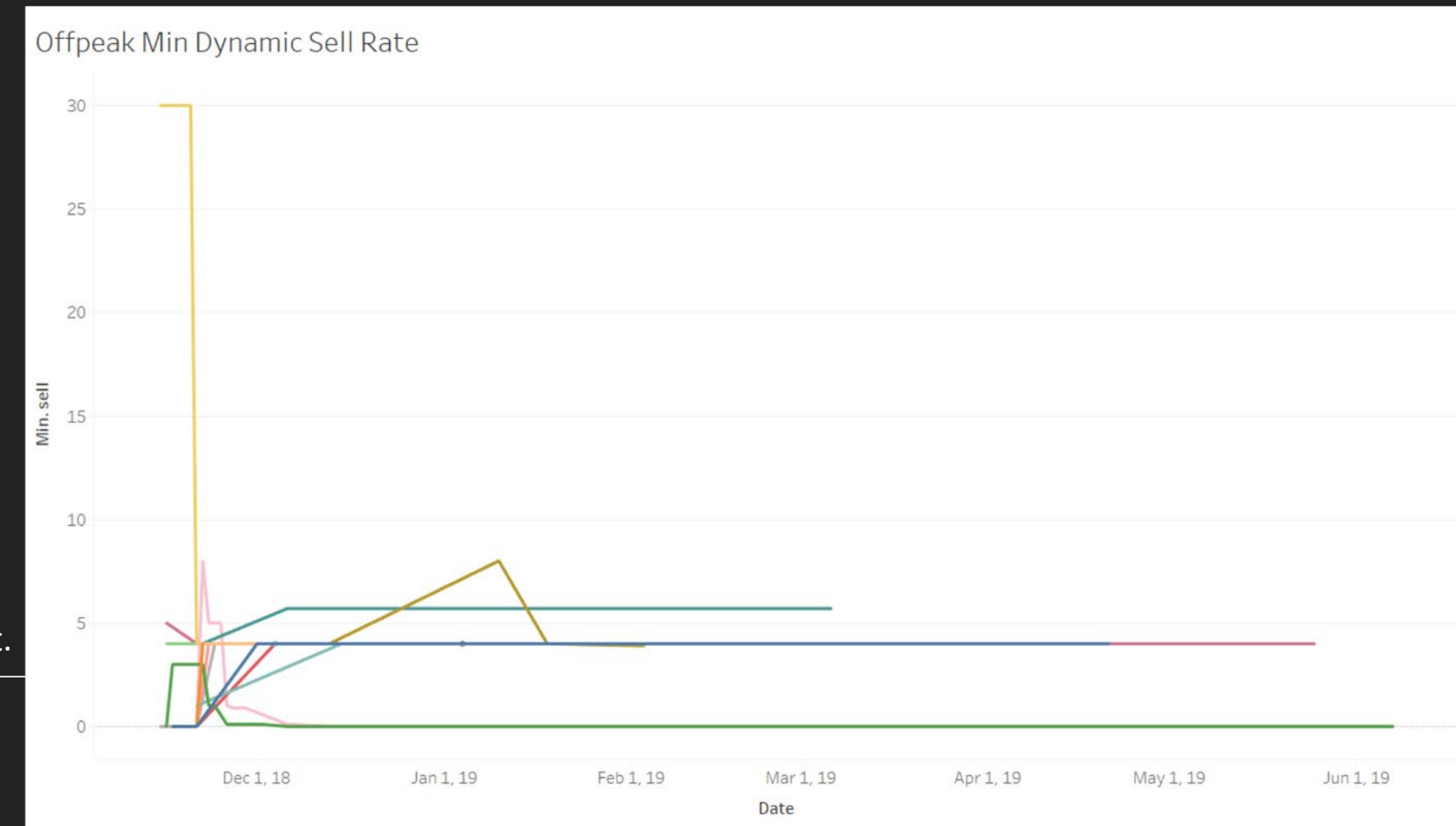
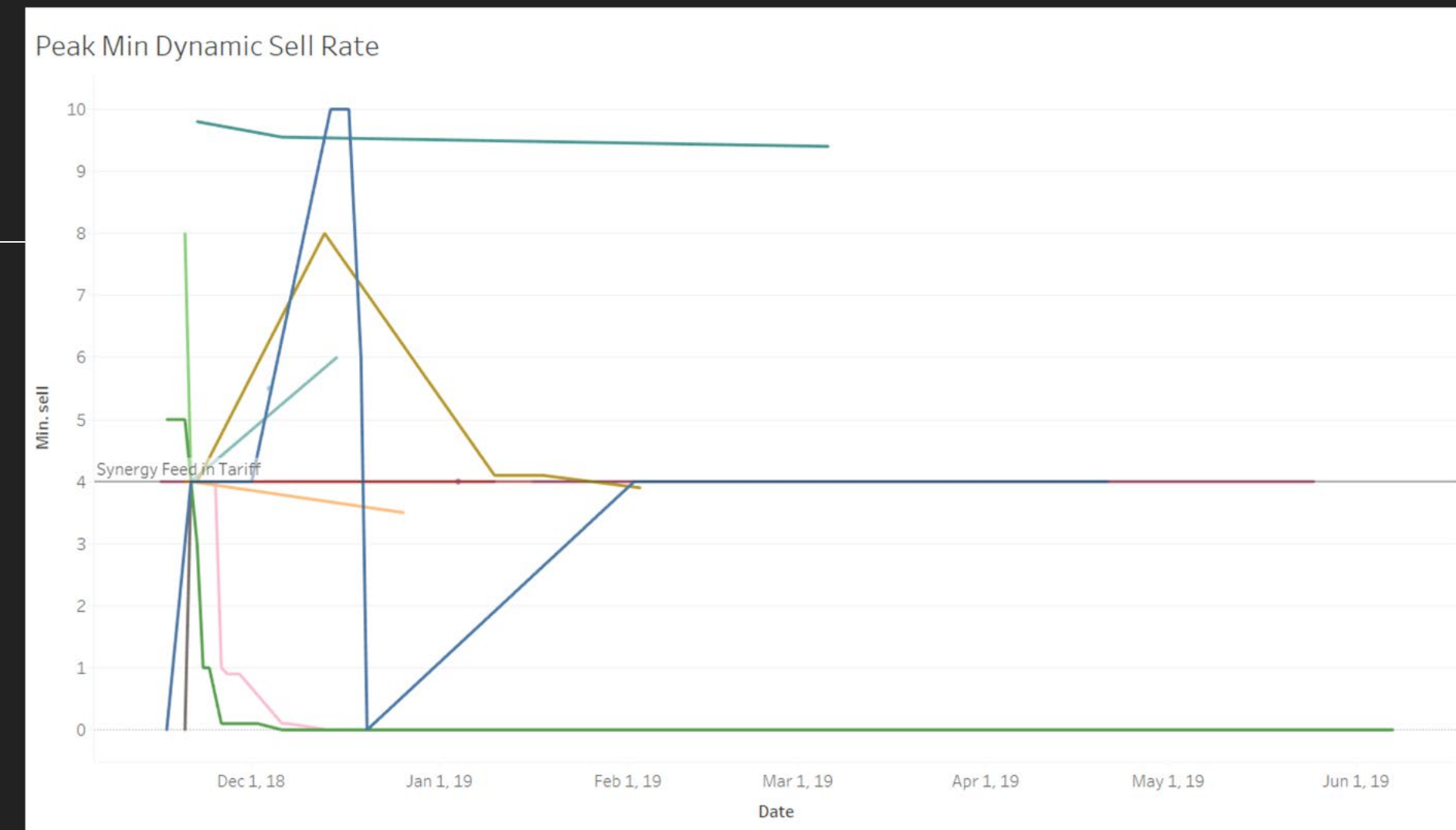
*where each line ends reflects the last rate change by that participant.



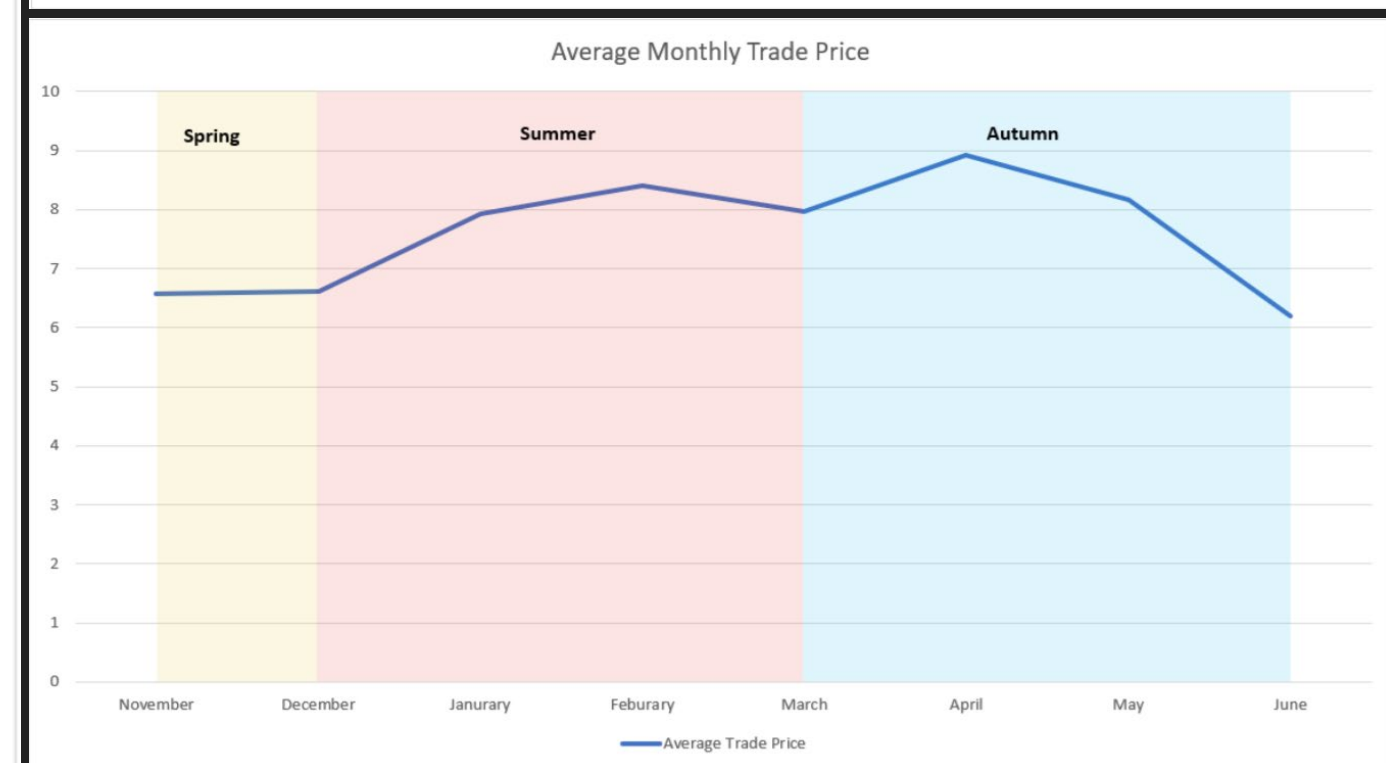
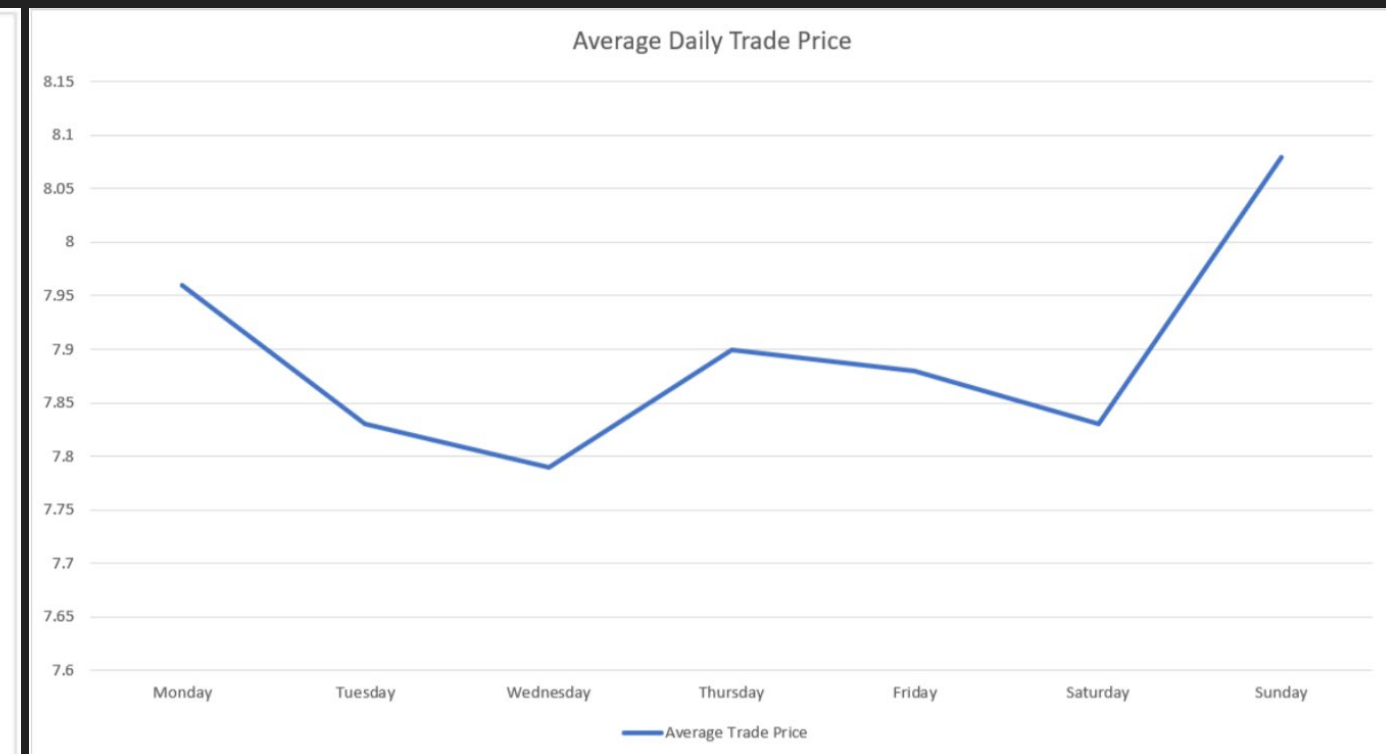
Sell Rates

- 7 participants had their sell rate below the grid rate at some point.
- 5 participants had their sell rate below the grid rate during the peak period.
- 6 participants had their sell rate below the grid rate during the offpeak period.
- 4 participants set their sell price to 0 cents at some point.

*where each line ends reflects the last rate change by that participant.



Dynamic Trade Prices

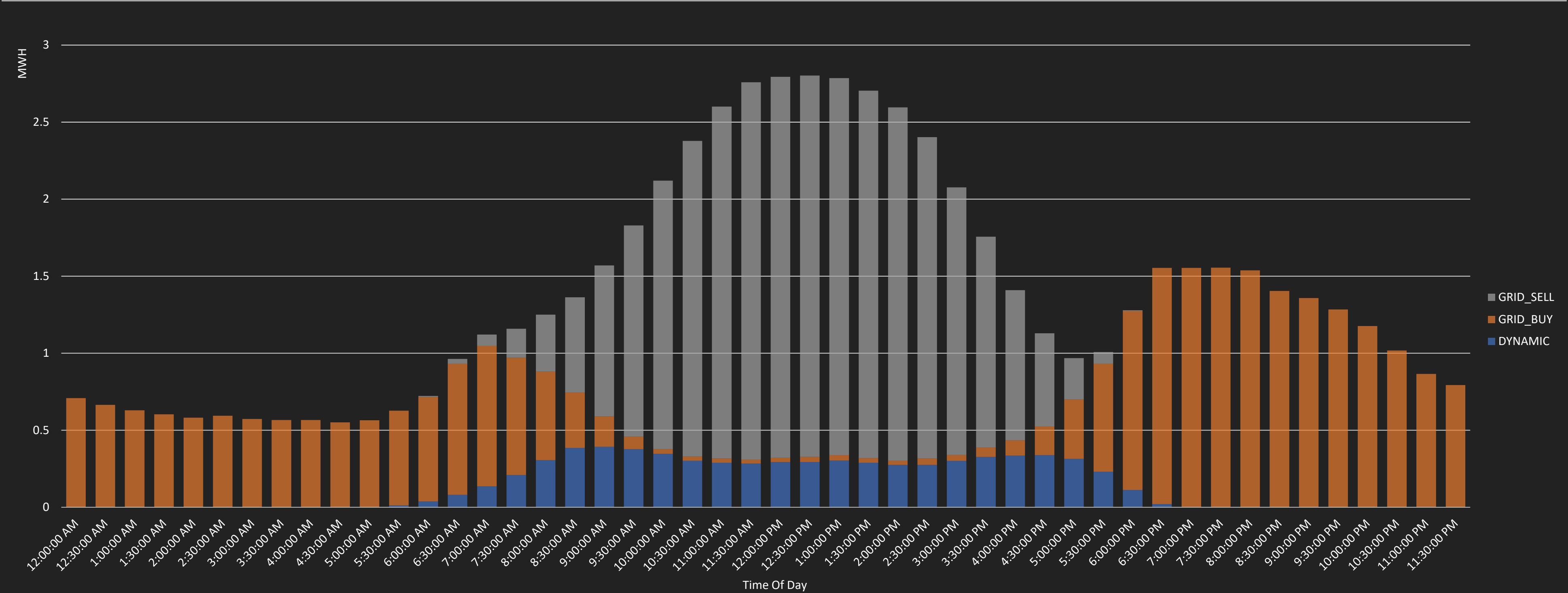


Power Ledger

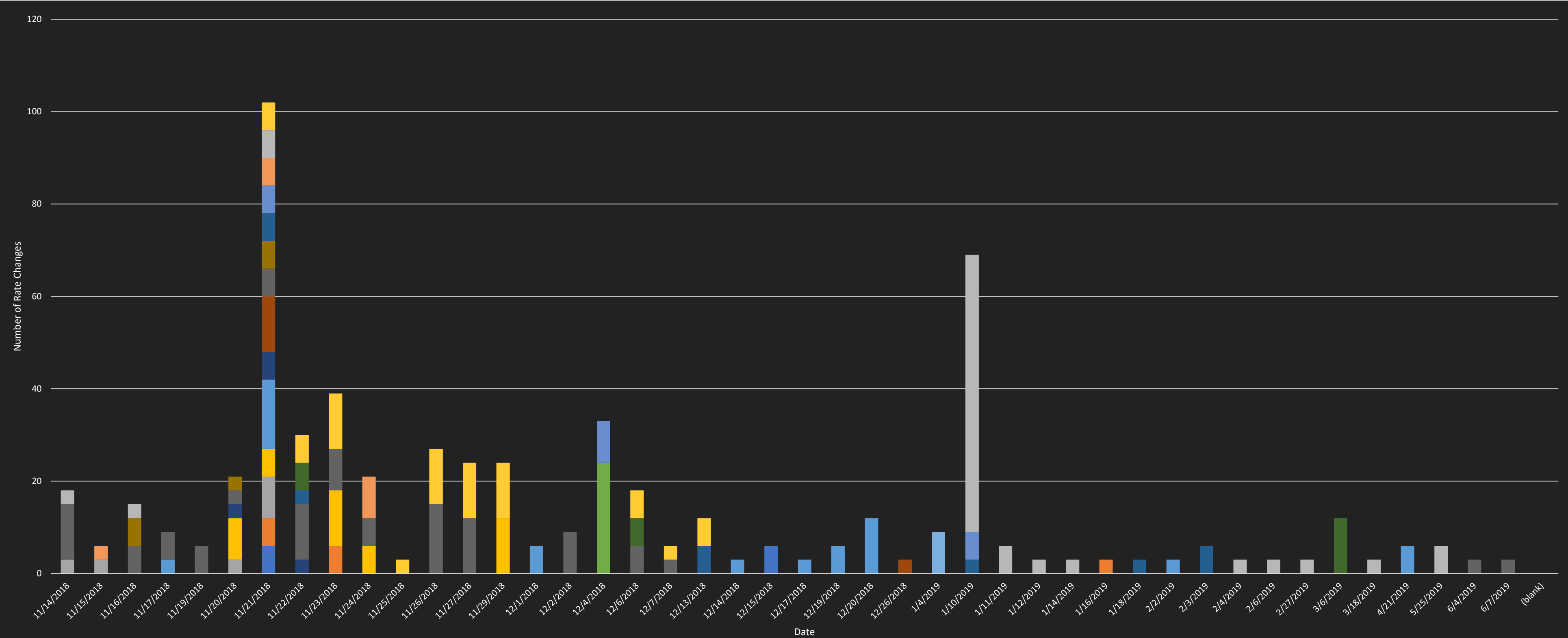
*Weighted average calculation was used. Weighted on the number of watt hours traded at each price.

**The size of the cohort means the one or two participants with relatively high prices have increased the average trade price

Transactions Summary



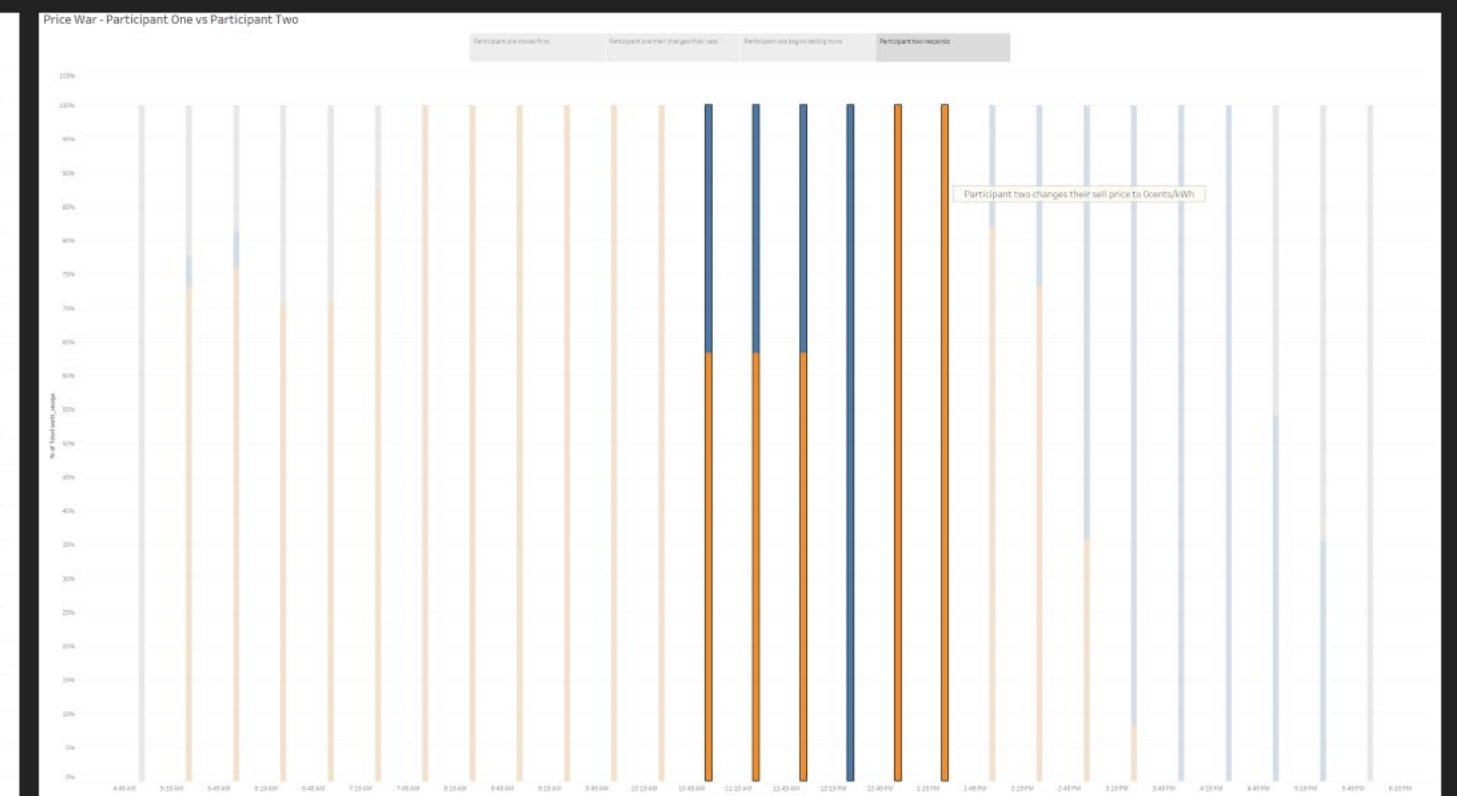
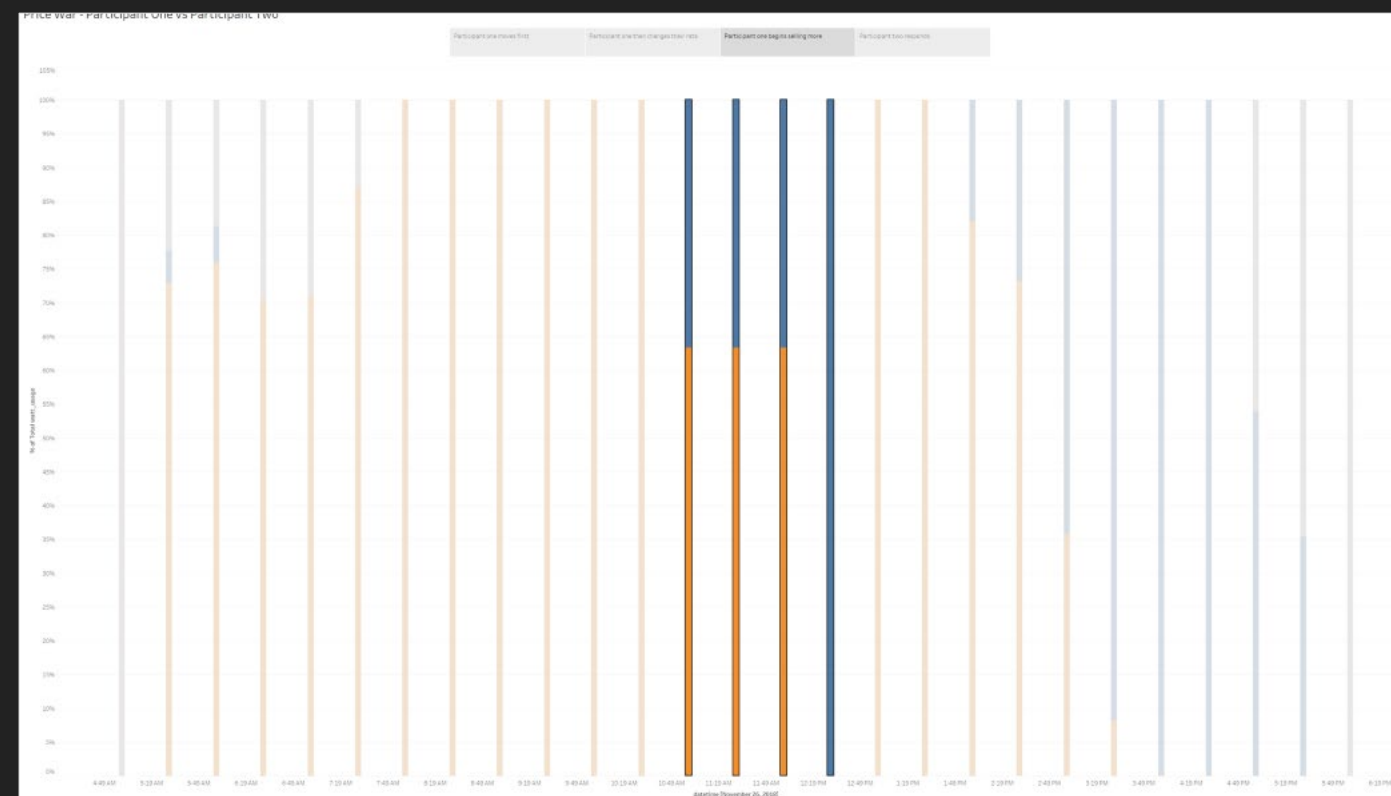
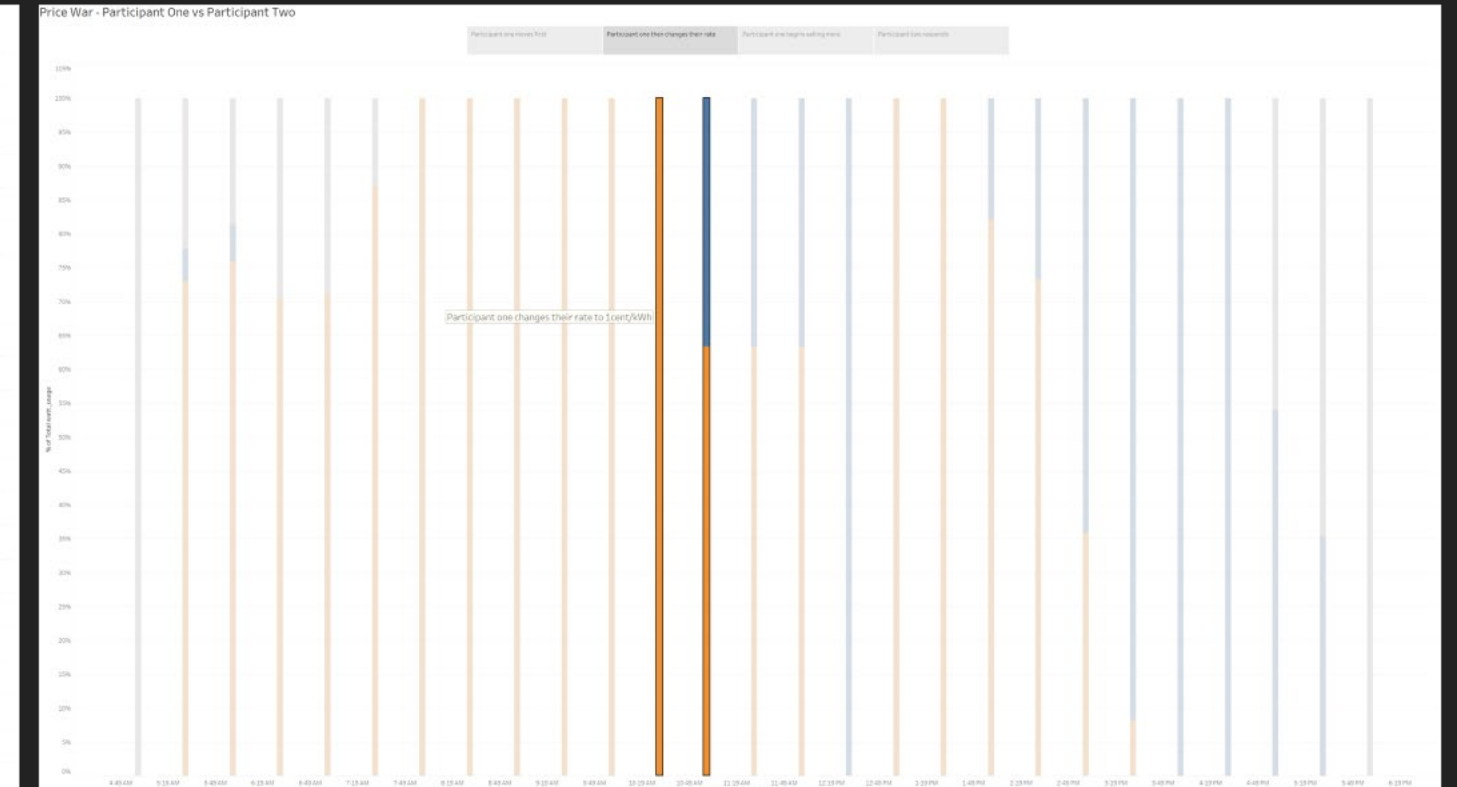
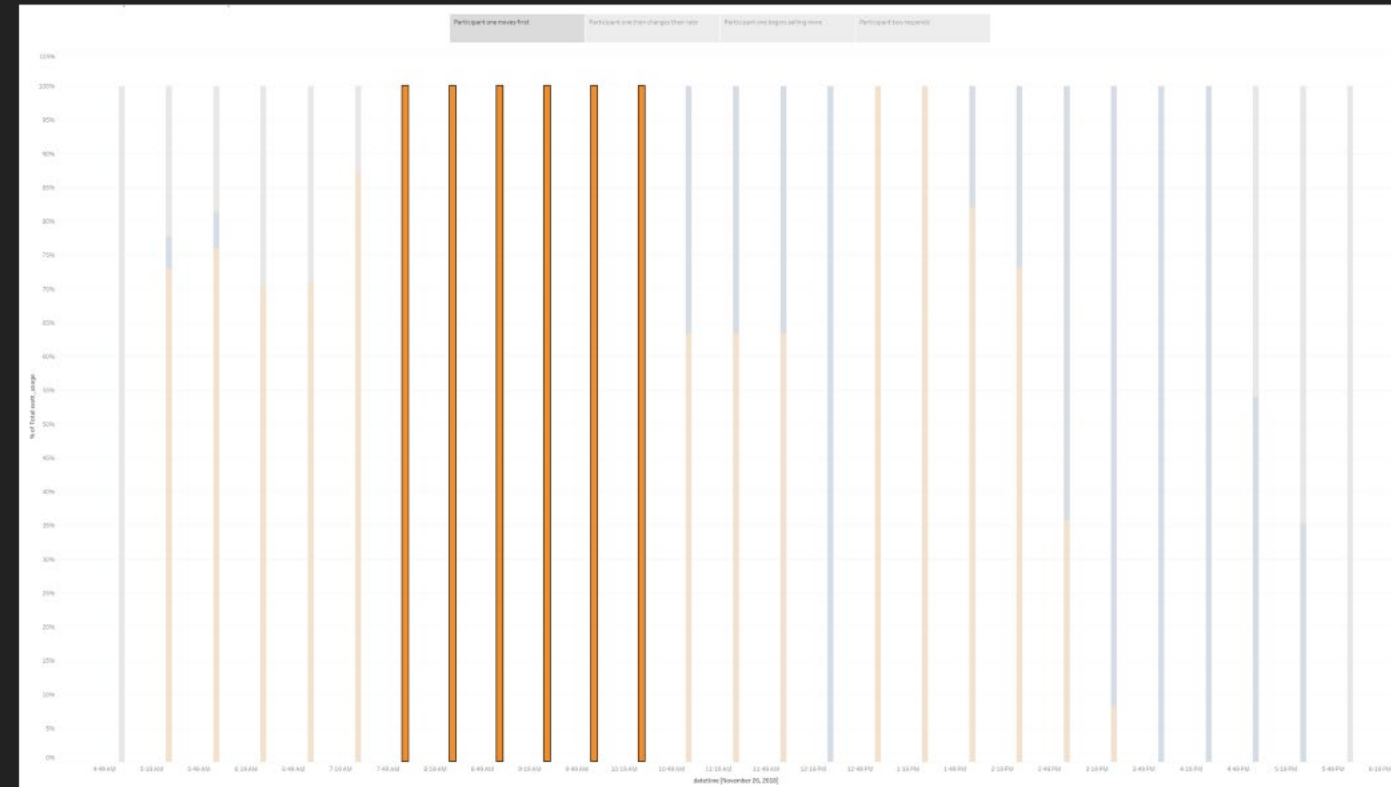
Number of Rate Changes Over Time



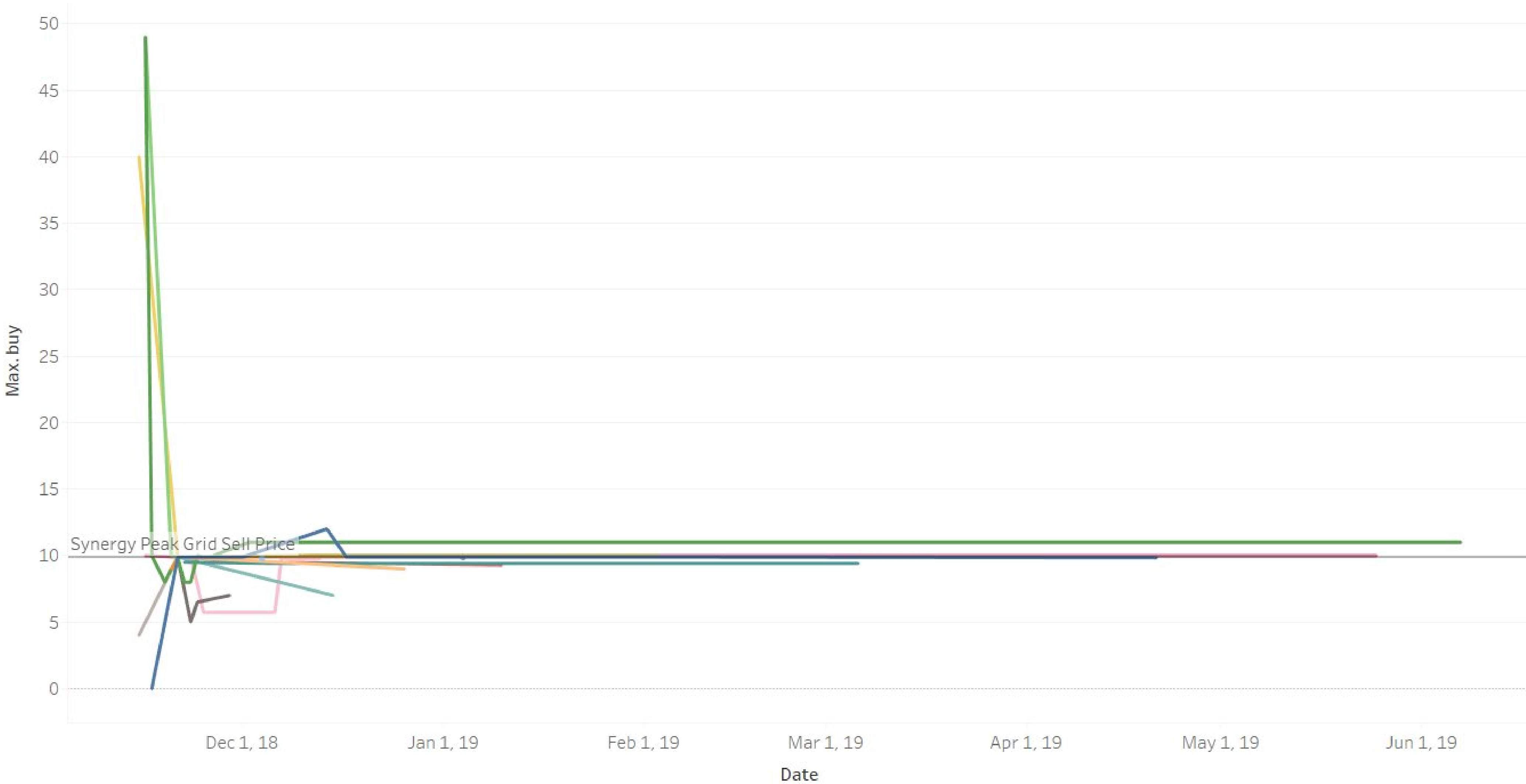
We see two points when engagement is highest, one the week after the beginning of the trial where all participants were highly engaged and one in late January when one participant changed their rates ~60 times.

Rate Change Stimulus Example

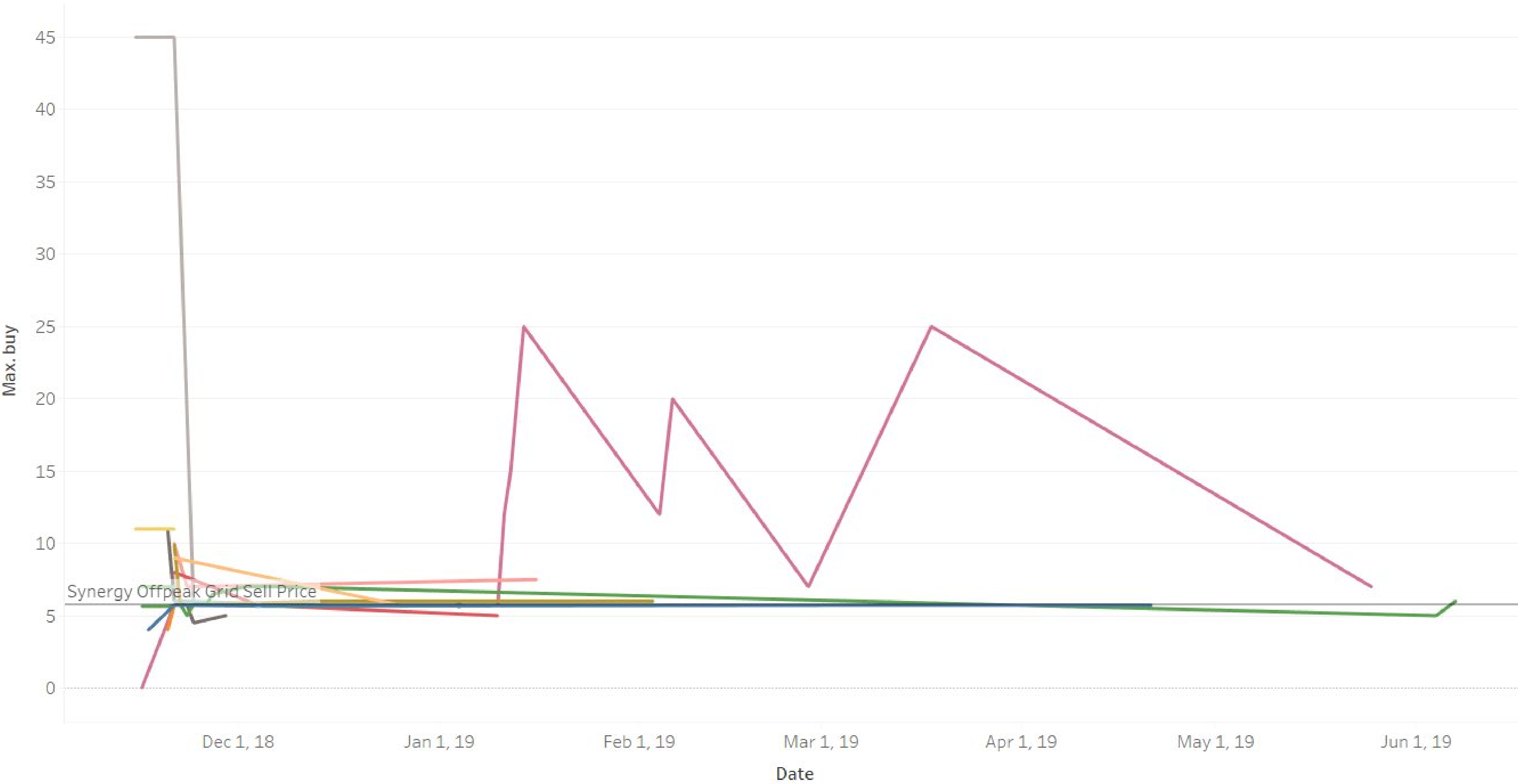
1. Before any rate changes, we see participant two selling a majority of the peer to peer sold energy.
2. The first rate change we see is participant one, who sets their sell rate to 1cent/kWh.
3. Participant one then begins to sell more peer to peer energy.
4. We see a response from participant two, who sets their sell rate to 0cents/kWh.



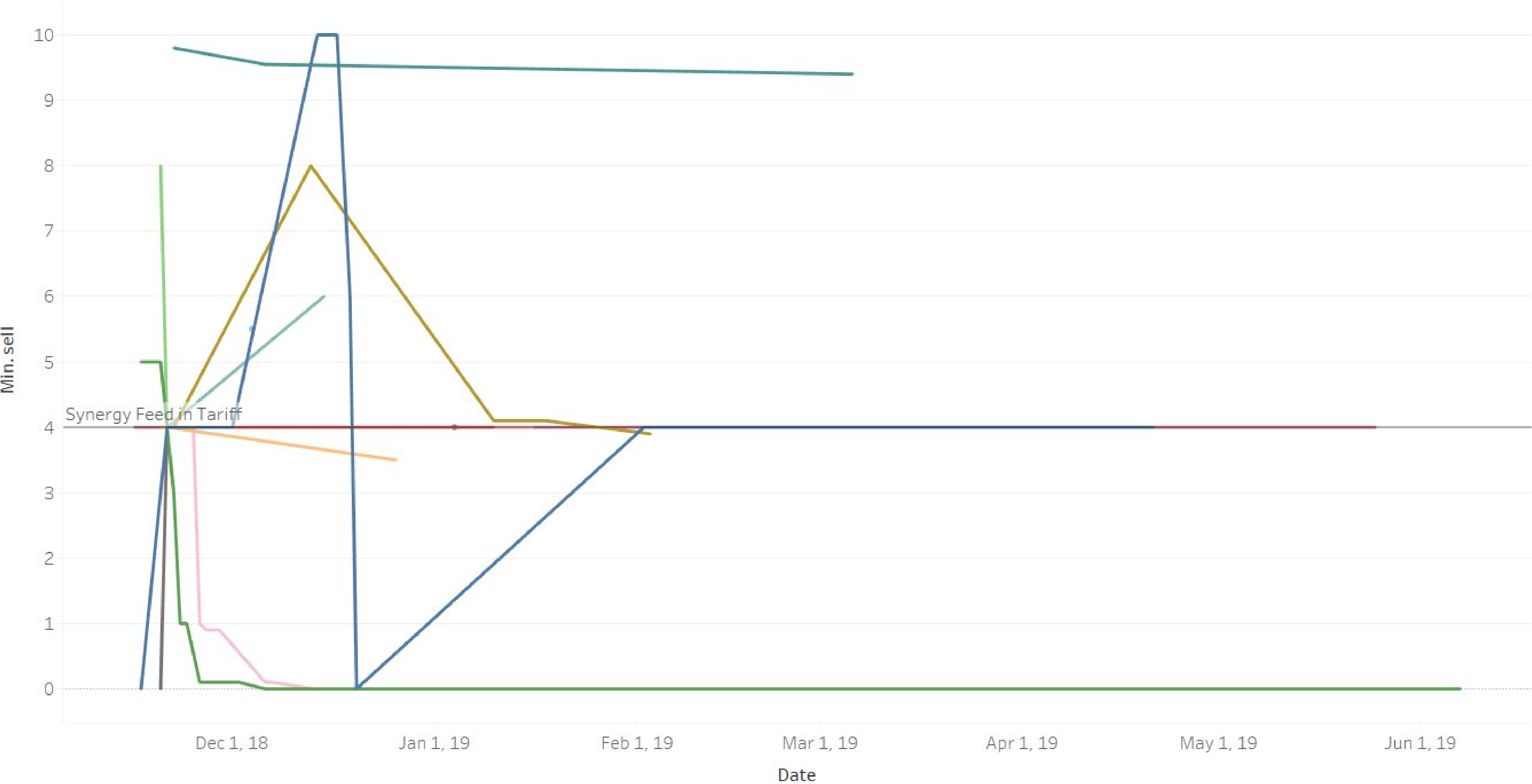
Peak Max Dynamic Buy Rate



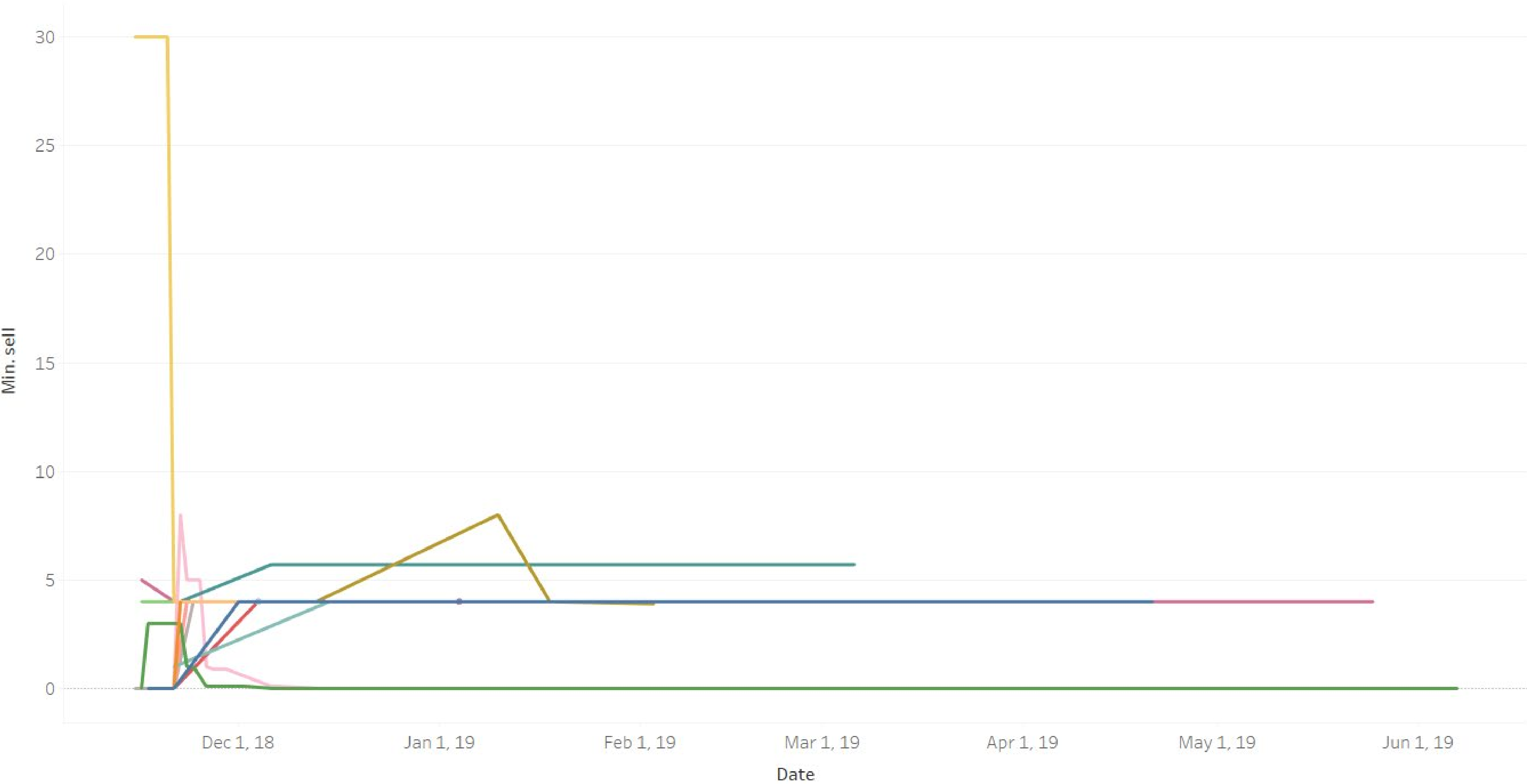
Offpeak Max Dynamic Buy Rate



Peak Min Dynamic Sell Rate



Offpeak Min Dynamic Sell Rate

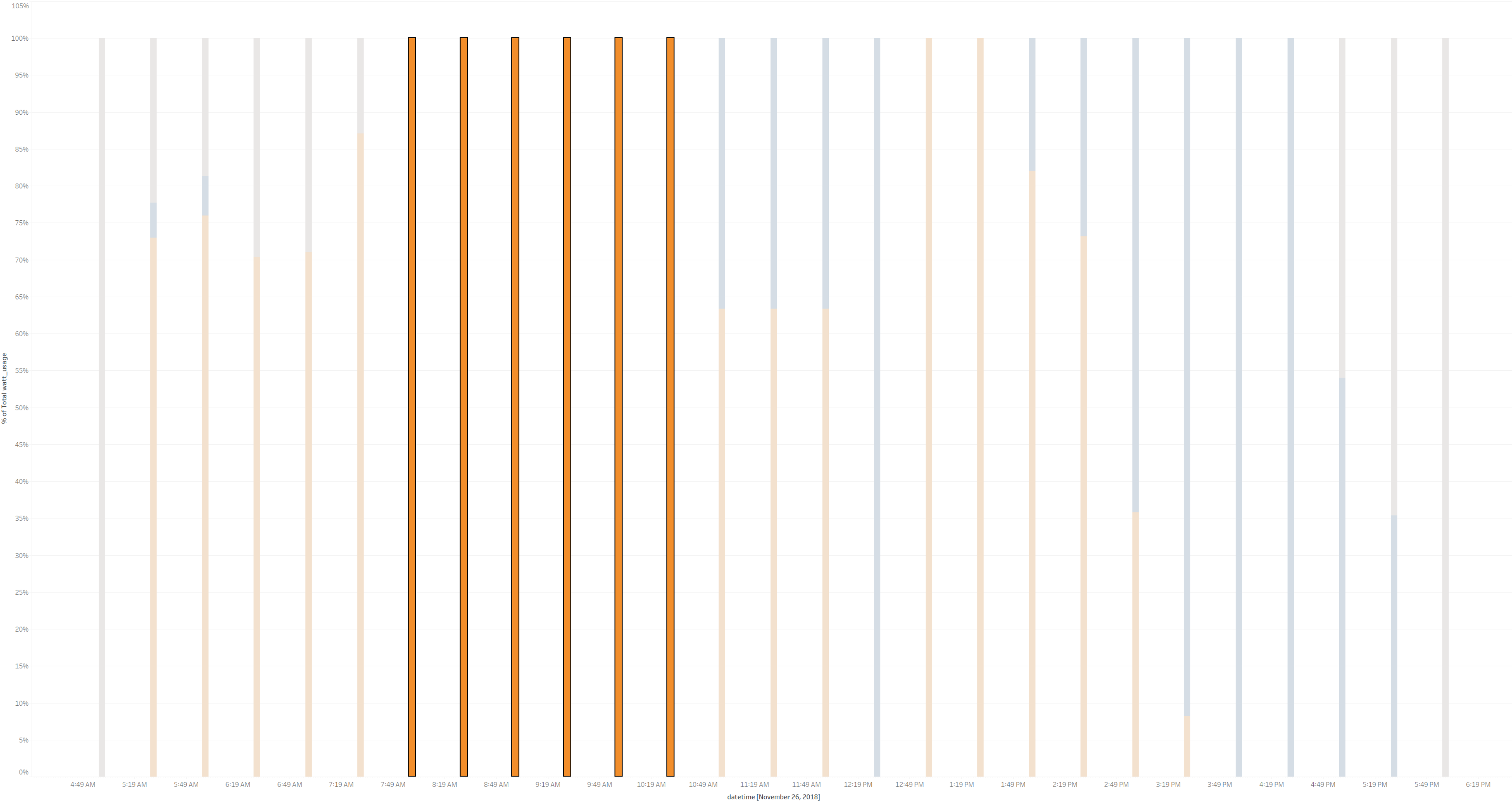


Participant one moves first

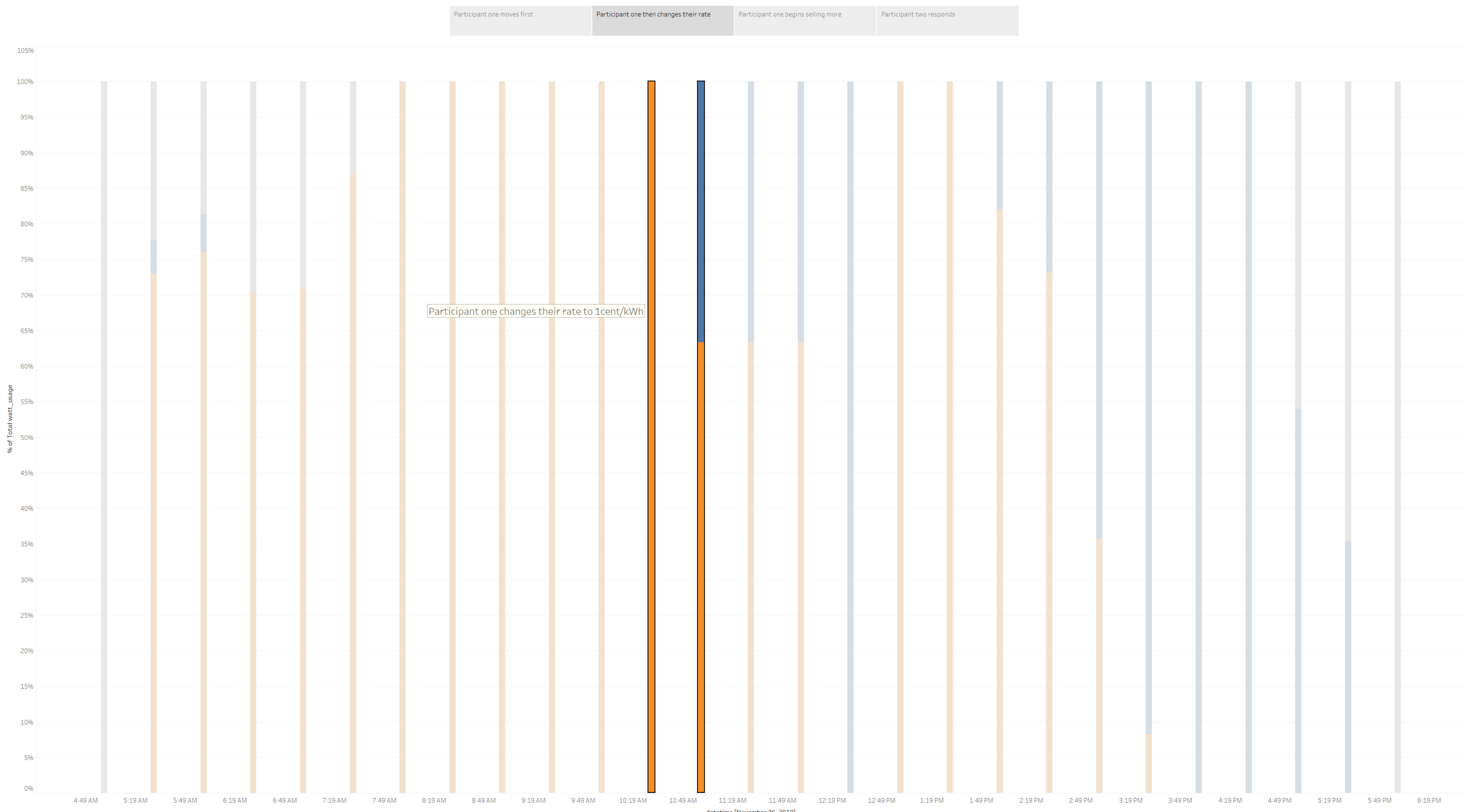
Participant one then changes their rate

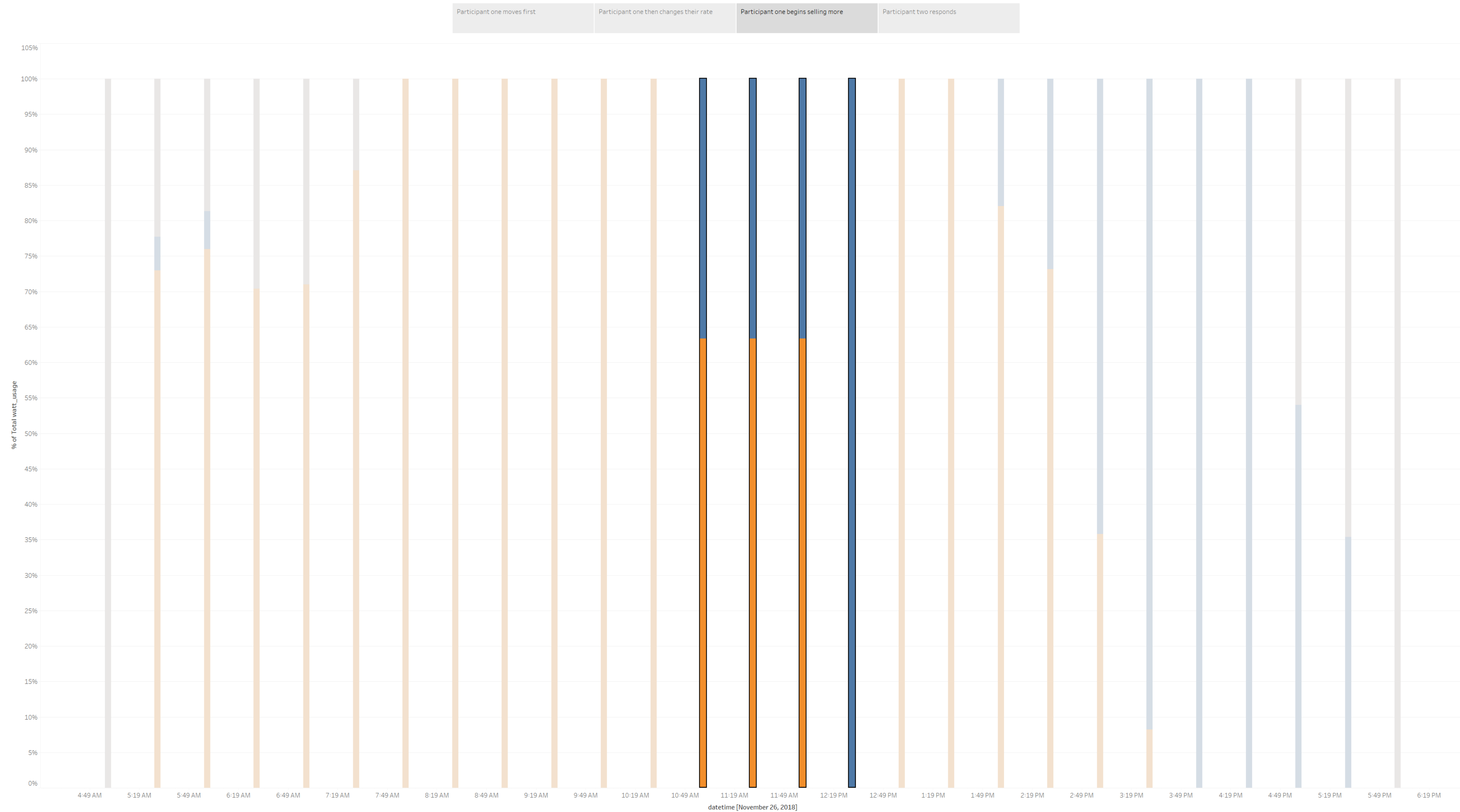
Participant one begins selling more

Participant two responds

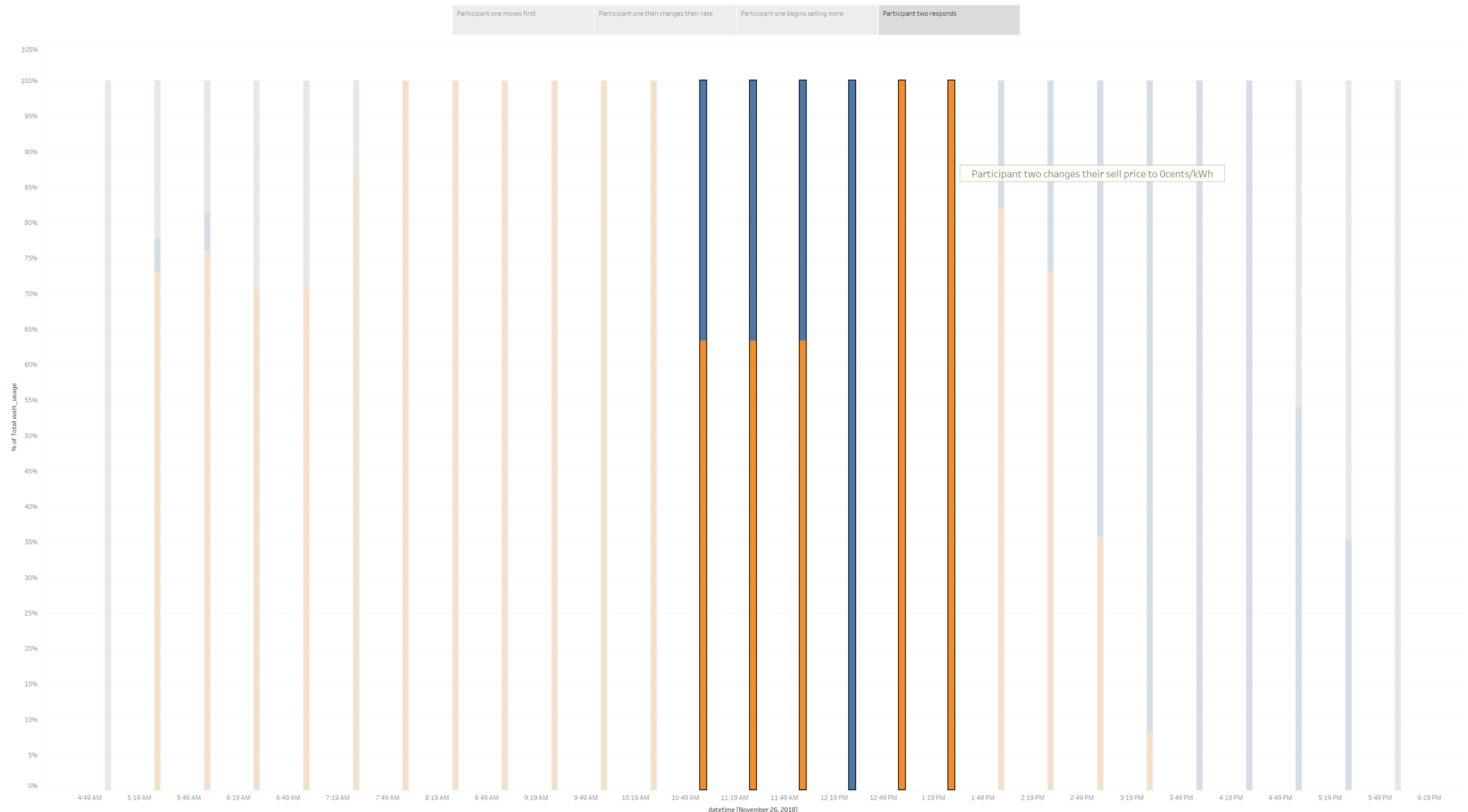


Price War - Participant One vs Participant Two





Price War - Participant One vs Participant Two





RENeW Nexus Water Study

Water workshop with the RENEW Nexus participants

Background

A Water Workshop was held on Tuesday April the 2nd 2019 in the City of Fremantle offices, Fremantle (WA). The RENEW Nexus participants were invited and 14 participants attended the session.

The main intent of the workshop was to create a collaborative environment to update the participants on the work done so far by RENEW Nexus water team and to understand the participants' different interests. Of particular interest was the understanding of the participants' relationship with water, both as scheme water from the centralised potable water network and as hybrid water sources (grey, rain and groundwater).

The workshop was structured in two parts: the first hour was comprised of presentations and Q&A, whilst the second hour was organised in focus groups and five questions were discussed. At the end of the workshop the participants filled in an evaluation form.

This report summarises the findings of the focus groups workshop and is distributed amongst the participants of RENEW Nexus water study. A pdf version of the presentation has also been sent to the participants.

Part 1. Presentations and open Q&A

The purpose of the first part of the meeting was to:

- Show the participants a preliminary analysis on the water data;
- Update the participants on the work done and the water research to date;
- Launch the water dashboard;

The list of presentations is summarised in Table 1 and a pdf version has been sent to the participants.

Table 1. List of presentations and topics

<i>Introduction, welcome, housekeeping (2 min)</i>
<i>Introductory video (5 min)</i> The purpose is to show a quick overview of hybrid water system with a short 3-minute video. All the aspects touched upon in the video will then be presented in details in the following presentations
<i>Introduction to RENeW Nexus Water</i> <i>Slide pack no. 1: Perth Water Systems</i> BAU urban water management in Perth metro, water tariff and Water Corp bill, hybrid water systems <i>Slide pack no. 2: Meters and data</i> Project overview on water, meters installation, summary of renew nexus data collected so far Short Q&A
<i>RENeW Nexus water dashboard</i> <i>Slide pack no. 3: Water dashboard.</i> EnergyOS water dashboard: explain the graphs and ask the audience for feedback on layout and content Short Q&A
<i>RENeW Nexus water research</i> <i>Slide pack no. 4: Credit/debit model, water trading: concept and possible scenarios</i> Q&A
<i>Introduction to workshop</i> <i>Slide pack no. 5: quick overview of the questions that will be discussed during the workshop</i>

Part 2. Focus groups workshop

The general aim of the focus groups workshop was to:

- Learn about the water practices of the participants and how they relate to their water sources and hybrid water systems;
- Discuss future developments in the water domain, e.g., water trading between residents, urban water management scenarios.

The qualitative data collected during the workshop will be integrated with the quantitative data on water consumption collected during RENeW Nexus to form the basis of two potential publications. The first one integrates analytics on the collected data with the relationship and perceived value of water resources within the studied cohort (answers to questions 1 to 3). The second publication uses the

quantitative credit/debit model and answers to questions 4 and 5 to develop new urban water management strategies (e.g., water trading, potential new tariff system).

The participants were divided in three groups and asked to discuss the following questions. An agreement form was signed before starting the discussion.

Q1. How do you perceive the value of water? (e.g., mains water is more valuable than rain and groundwater, rain and groundwater are unlimited free resources, water should be more expensive/cheaper, same values for all sources as water is part of the ecosystem, etc)

Amongst the three groups, there was the common perception of the value of water as related to *i)* its source and scarcity, *ii)* cost of production, *iii)* end use, *iv)* generated energy and monetary savings, *v)* quality of water. Figure 1 summarises the view of the participants.

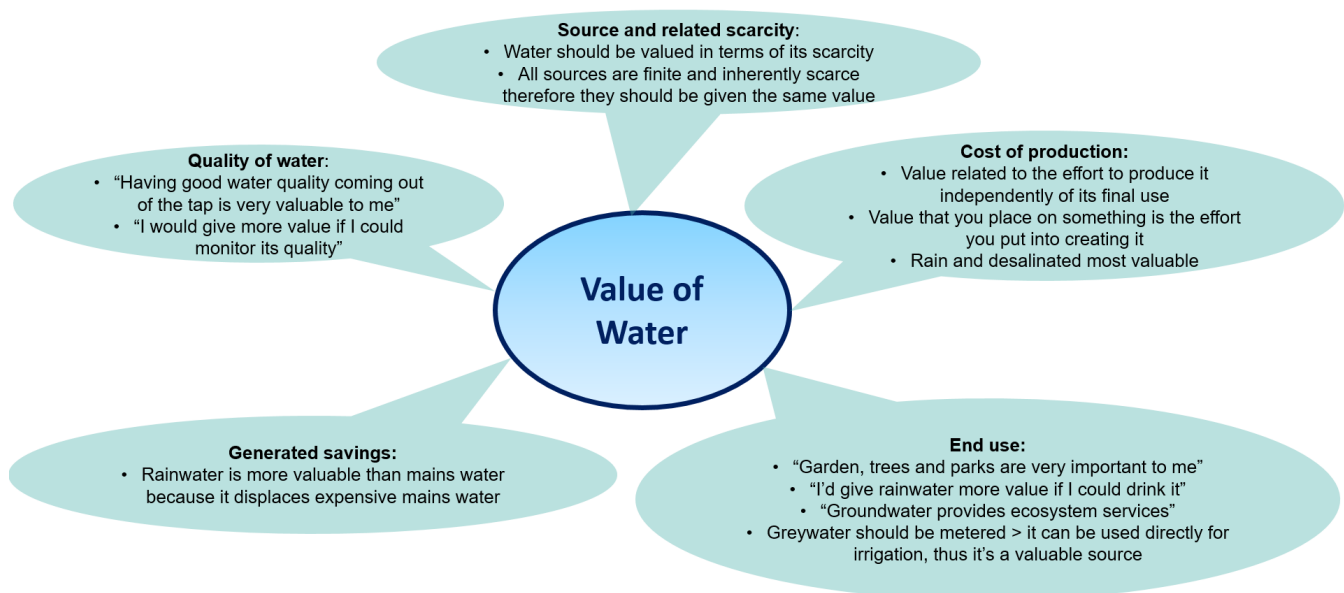


Figure 1. Responses to Q1 "how to you perceive the value of water?"

Question 1 also prompted the discussion on the current water tariff and how to incentivise the community to reduce water usage. In particular:

- There was a common perception that volumetric usage of water should be charged more than the current rate to incentivise consumers reduce consumption and reward those who actively change their practices towards water usage reduction.
- The current tariff that charges wastewater proportionally to the rateable value of the property (which is mostly based on the housing market) extremely devalues wastewater despite the potential for greywater to be directly recycled and used for irrigation (which in turns generate savings by displacing scarce rainwater and groundwater as well as expensive mains water).

- Having recognised the value of hybrid water systems in saving mains water (thus possibly deferring capital intensive infrastructures), it was suggested that a percentage discount on the fixed charges could incentivise consumers to adopt hybrid water systems.
- Water tariff is too often treated more of a political issue than an environmental sustainability one despite the very nature of water resources as finite and scarce.

A new water tariff and continuous education programs (from school age to adults) are perceived as necessary tools to improve the relationship with all water sources and maximise their perceived value.

Q2. What triggered you to install a hybrid water system (e.g., saving on water as a resource, lower bills, sustainability principles, etc)? **Or, if you don't have one – why not?** (e.g. not aware of them, too expensive, not my house, mains water is so cheap, I don't use a lot of water, I don't have a garden, I live in an apartment, don't want to reuse greywater)

Figure 2 summarises the view of the participants. In summary:

- Sustainability principles and perception as water as a precious resource are the main drivers for installing hybrid water systems.
- Lack of incentives to save water (as perceived in the water tariff), lack of subsidy and retrofitting challenges are the mains reasons that prevent these consumers to install hybrid water systems.

Of interest is the common perception that the volume of greywater produced on daily basis might be too much for some sites due to the size of their garden. This aspect has been addressed in the water trading question (Q4). In principle, all participants agree in the importance of recycling greywater on-site for local reuse for irrigation.

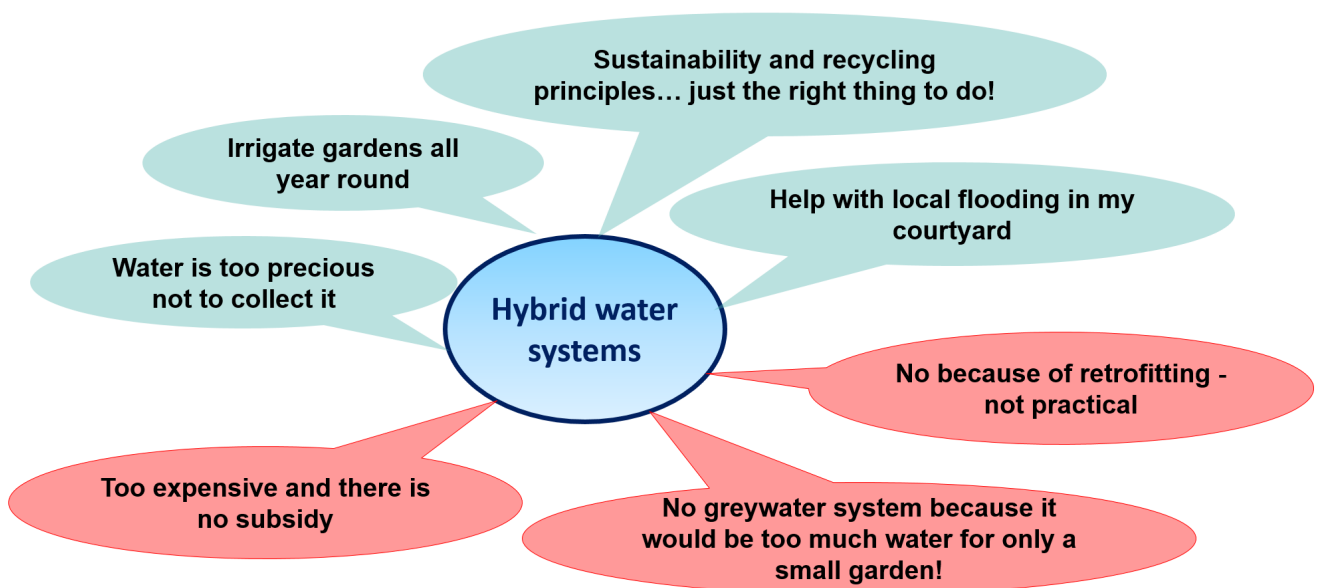


Figure 2. Responses to Q2 “What triggered you to install a hybrid water system (green callouts)? Or if not, why not (red callouts)?”

Q3. We live in a drying climate, population is growing and groundwater reserves is declining. Therefore, **how should we best protect groundwater?** (e.g., fees for licensing private bores, charge for meter and usage, apply an allocation limit only, limit the number installed in a particular area)

A common theme amongst all groups is the need to manage domestic bores the same as commercial ones are managed, i.e., by licensing, monitoring and managing through allocations, if not fees (Figure 3).

A general misunderstanding of the groundwater structure in the Perth metropolitan area and WA and the difference in use and environmental impacts between shallow aquifer and deep aquifer has been highlighted in the workshop. It is suggested that education programs targeting the aquifer as a complex water system and an ecosystem service provider would be beneficial and assisting with a better use of the resource.

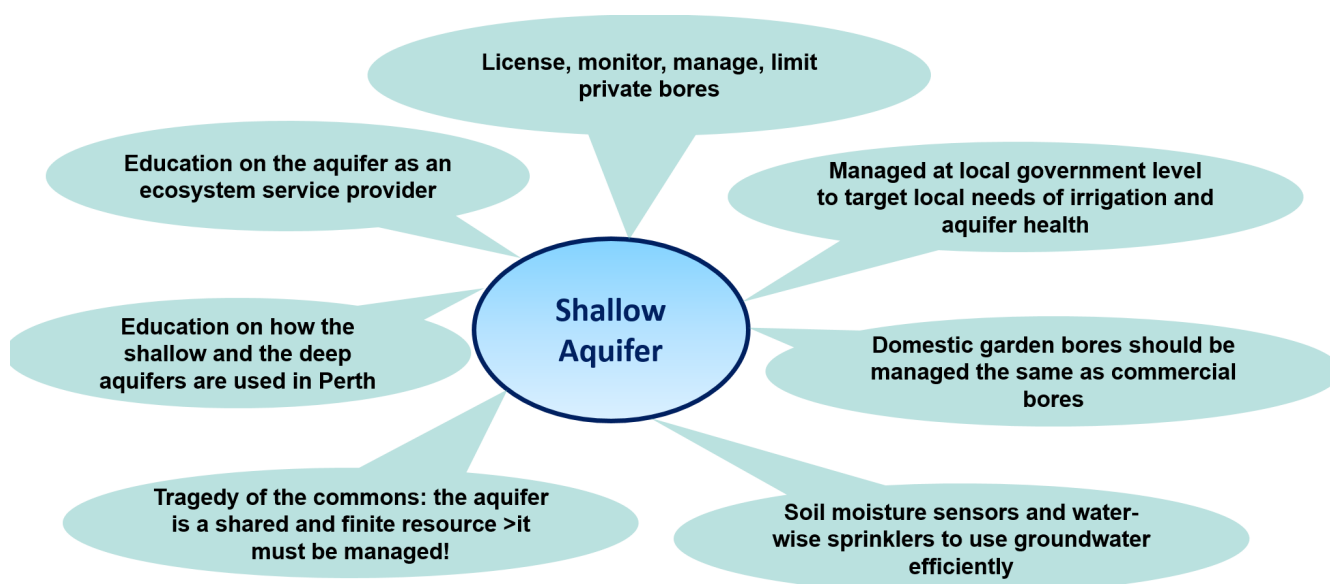


Figure 3. Responses to Q3 “How should we best protect groundwater?”

Q4. Thinking of future developments in urban water management and hybrid water systems: what are your thoughts about water trading between residential customers?

The idea of water trading was generally accepted by the participants and three possible scenarios were discussed:

- Scenario 1 - Rainwater. In your water dashboard you can see your projected water use together with, say, the rain forecast. Would you discharge a certain volume of water off your rainwater tank towards aquifer/common storage tank for trading with another consumer?
- Scenario 2 - Greywater. Say there is a communal greywater treatment systems, managed by a strata or local council where a neighbourhood's greywater is collected and used to irrigate

pocket parks: would you participate in such a trial acquiring credits for the recycle of your greywater?

- Scenario 3 - Groundwater. Say you would like to create a more abundant garden and install a bore (metered, limited allocation), thereafter exceeding this allocation for summer irrigation. Would you trade with neighbours and purchase their allocation via an online platform?

Figure 4 summarises the main points discussed amongst the participants. A general positive attitude transpired in the discussion towards both a physical trading of water and a trading of water credits.

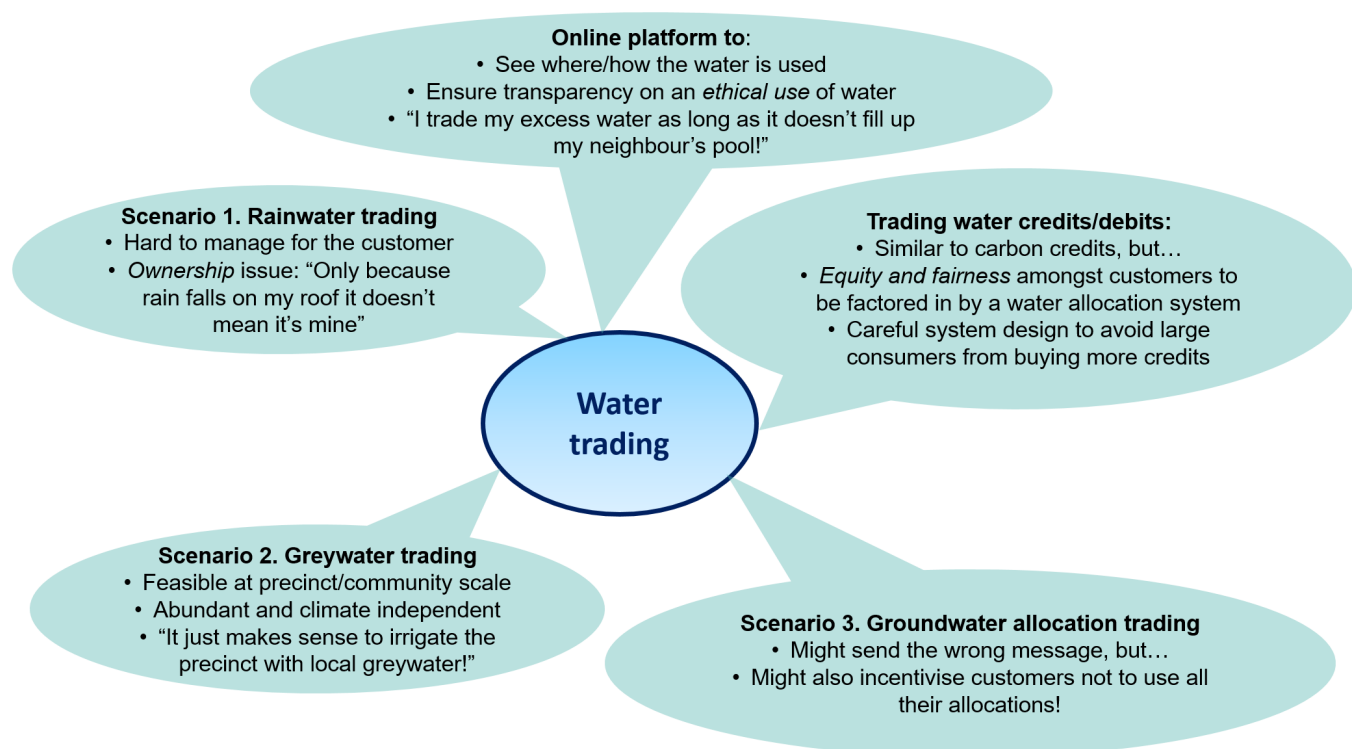


Figure 4. Responses to Q4 "Water are your thoughts about water trading between residential customers?"

General preference and support was found for the recycle and reuse of greywater for irrigation of local lawns and public open spaces. Some points to think through thoroughly when designing a water trading schemes are:

- Ease of trading from the customer's perspective with minimal interaction, e.g., possible automation of rainwater tank discharge
- Ethical use of water, equity and fairness across the water consumers to be factored in

- Ownership of rainwater and groundwater is an important aspect to protect the ecosystem value of both water sources
- The presence of a water monopoly in Western Australia together with the need to reach a critical mass of customers to sign up are some of the challenges of a potential water trading trial
- Water trading might be more successful (as in contributing to a reduced use of mains water, maximising rainwater and greywater sharing locally) if conducted voluntarily at a community level, rather than a faceless trading scheme where the value of water as a vital resource is overtaken by the monetary value (i.e., "I'm paying for it therefore I can use it as much as I want").

Q5. Water Corporation offers MyWater service for people to check their water usage and understand their bill. Do you ever access this service? If no, why? If yes, is it helping you to take informed decision on the consumption of water?

The answer to this question was quickly touched upon at the end of the workshop. Generally this cohort doesn't access the MyWater dashboard regularly as the dashboard as it is developed doesn't assist with managing irrigation and water usage dynamically. However information such as neighbourhood comparison and last year water usage are both perceived as valuable information. A feedback to improve the usability of the dashboard would be to put it as a phone app service.

Part 3. Evaluation form

Q1. Today's presentations and workshop were informative and clear

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree

Responses: 54% strongly agree, 46% agree, 0% the rest

Added comments: Well presented

Q2. Today's presentations and workshop improved my understanding of urban water management and hybrid water systems

☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree

Responses: 23% strongly agree, 77% agree, 0% the rest

Added comments: always good to learn about this

Q3. How useful is the water dashboard given you by RENeW Nexus and integrated with your EnergyOS one?

- ☐ Very useful ☐ Useful ☐ Not so useful ☐ Useless

Responses: 36% very useful, 55% useful, 9% not so useful, 0% useless

Added comments: it would be nice to have rain tank storage levels. The “very useful” results relate to the ability of adjusting the reticulation (and save water) by looking at the meters and dashboard together

Q4. Would you now consider installing hybrid water systems (bore, greywater or rainwater)?

- ☐ Yes ☐ Maybe ☐ No ☐ Already have

Responses: 46% yes, 15.5% maybe, 15.5% no, 23% already have

Added comments: the “no” refers to impracticability of retrofitting the house for a greywater or rainwater system, the “yes” refers to i) reuse, recycling and sustainability principles, ii) foster community solutions towards water share, iii) the workshop was a good reminder to consider greywater recycling solutions, iv) foster community owned solutions, v) respect the environmental value of water

Q5. If you can see a change happening in the urban water management and planning, what would that be?

- ☐ More hybrid systems and less desalination: 7 out of 13
- ☐ More value given to all water sources: 10 out of 13
- ☐ Legislation on rain and groundwater to protect the ecosystem: 8 out of 13
- ☐ A new water tariff with more incentives to save water: 10 out of 13
- ☐ Others: strategies for managing bores, more education on how to monitor data (active use of meters and dashboard)

Q6. Is there a topic you would have liked to discuss in more depth today?

- ☐ Water bill and tariff scheme: 3 out of 13
- ☐ Natural water cycle: 1 out of 13
- ☐ Urban water management at a bigger scale (Perth metro): 2 out of 13
- ☐ No responses: 6 out of 13

☐ Others: water ledger technology

Additional comments given by the participants include:

- Run regular community workshops on water
- Continuous access to water monitoring data
- Metering rainwater tank volume and tank overflow
- This research is very interesting: keep us informed on the outcome
- Thank you for running this trial: it's an important problem to consider