

1 November 2023

Peak Demand Reduction Scheme

Rule change 2
Public consultation forum

Agenda

Slido: #2567287 or
use the Slido widget



10:00 am	Acknowledgement of Country and introduction
10:10 am	PDRS design overview
10:20 am	PDRS rule change overview
10:25 am	Changes to existing PDRS activities
10:35 am	Commercial and industrial demand response
10:45 am	Residential demand shifting
10:55 am	Residential demand response
11:05 am	Next steps
11:10 am	Q&A
12:00 noon	Session closes

Acknowledgement of Country

We acknowledge that today we meet on many Aboriginal lands.

We acknowledge the traditional custodians of the lands and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work.

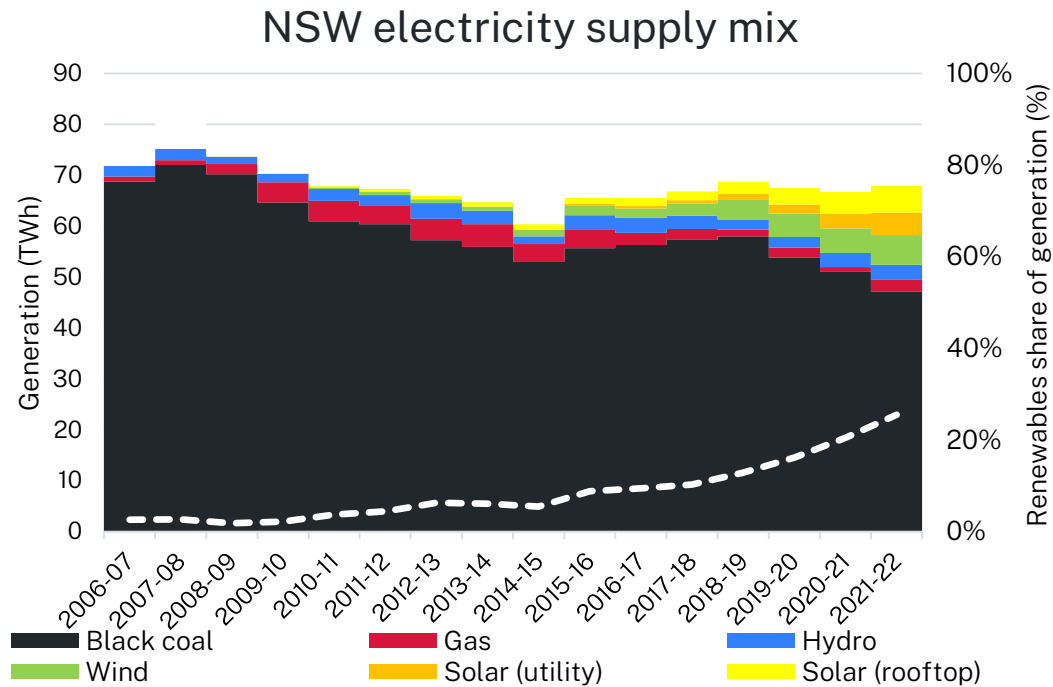


Nikita Ridgeway

NSW remains heavily reliant on fossil fuels for energy needs

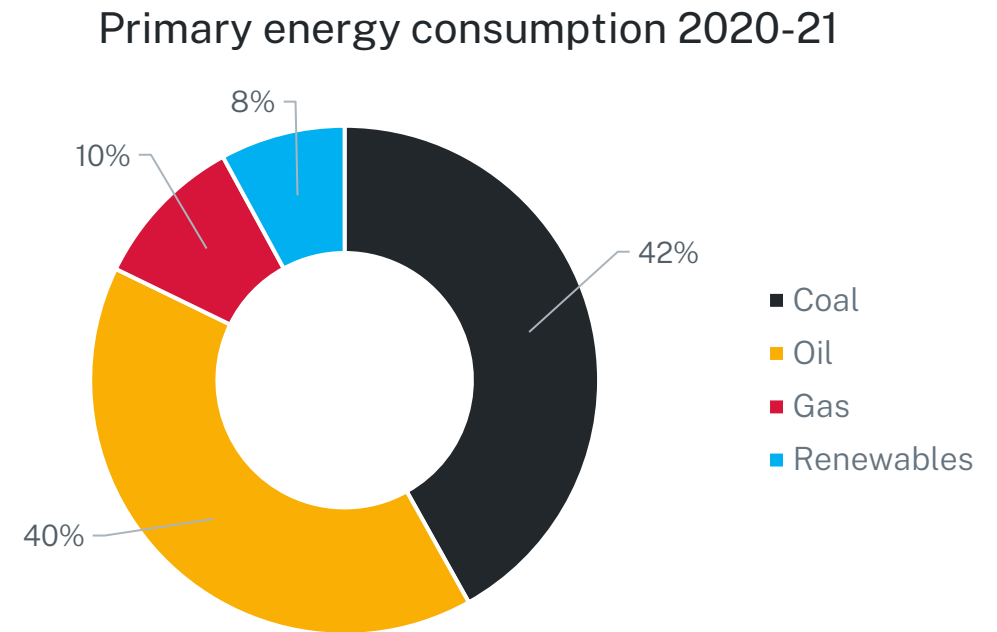


Renewable energy in the NSW electricity supply mix has been steadily increasing to around 30% in 2022



Source: OpenNEM

But renewable energy accounts for less than 10% of primary energy consumption (all energy including from oil, gas, coal).

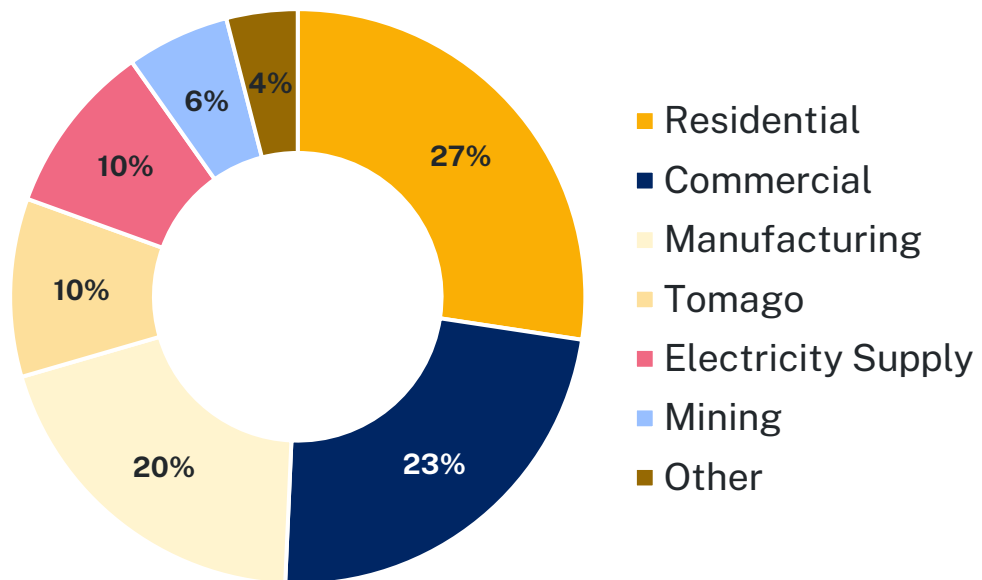


Source: Department of Environment and Energy's *Australian Energy Statistics 2022*,

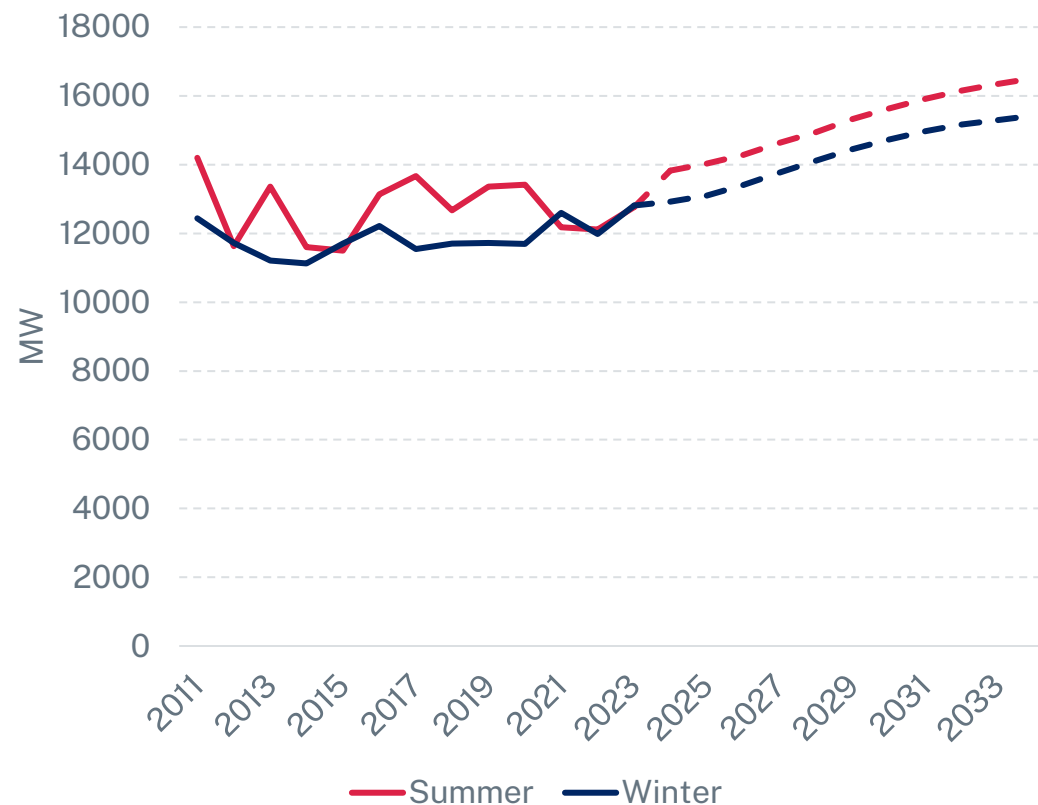
NSW Journey to Net Zero



Electricity Consumption by sector 2020-21



Notes: Source is Department of Environment and Energy's *Australian Energy Statistics 2022*. Tomago Aluminium's smelter consumed at least 950 MW energy for 24 hours x 365 days as per their report - <https://www.tomago.com.au/tomago-keeps-the-lights-on-across-the-state/#:~:text=Tomago%20Aluminium%20is%20the%20country's,the%20state%20grid%20within%20minutes>.



Notes: Source for forecast is the Electricity Statement of Opportunities 2023, takes the 10% POE scenario

What is energy policy in NSW aiming for?

1 Safe, secure, reliable supply

- Expand and upgrade networks
- Orderly retirement of coal-fired power stations
- Tail risk, renewable resource lulls
- Safety frameworks

2 Affordable and accessible energy

- Energy social programs (rebates, hardship supports)
- Energy efficiency (Energy Savings Scheme)
- **Best time of use (Peak Demand Reduction Scheme)**
- Intervene where market fails (coal price caps)
- Consumer Energy Resources

3 Decarbonisation

- Transition to renewables
- Electrification
- Build and maintain social licence
- Support new technologies

Energy Security Safeguard

More affordable, reliable and sustainable energy

Energy Savings Scheme (ESS)

Encourages people to reduce energy use (*demand side*)



Scheme extended

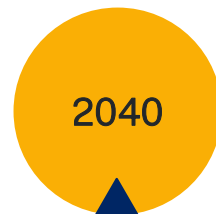


+ 13%

Target increase

Peak Demand Reduction Scheme (PDRS)

Encourages people to reduce peak demand (*demand side*)



\$1.2B Bill savings



10%

Targeted reduction

Renewable Fuel Scheme (RFS)

Encourages green fuel production such as H₂ (*supply side*)



Scheme gazettal



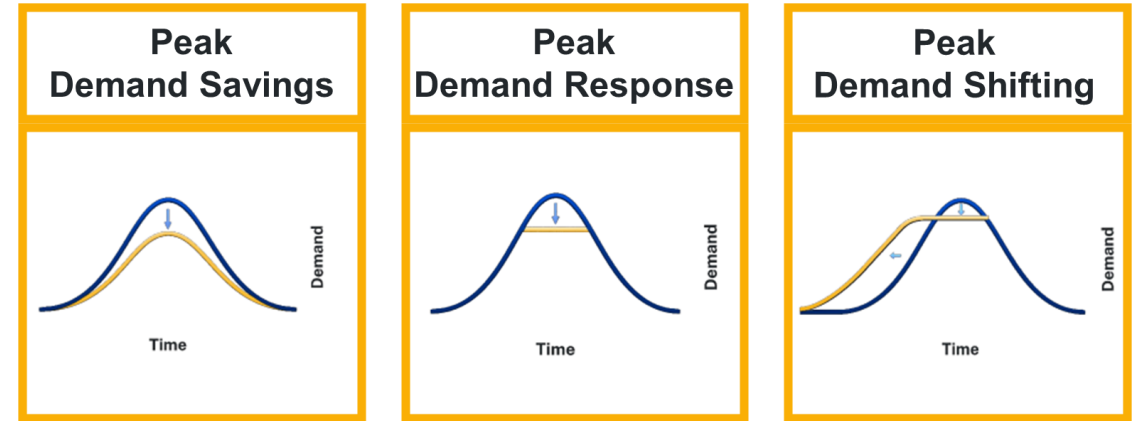
Peak Demand Reduction Scheme

Overview

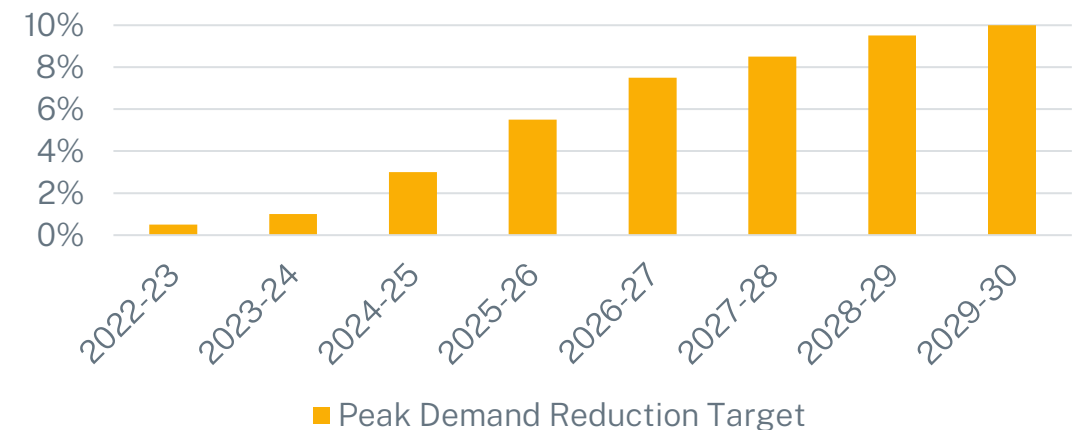
Peak Demand Reduction Scheme

Overview

Reduces peak demand by encouraging **availability** of peak demand reduction capacity

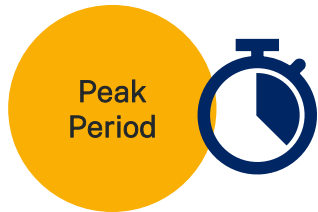


Peak Demand Reduction Target



Peak Demand Reduction Scheme

Overview



2.30pm -
8.30pm
AEST



1 November -
31 March



Set relative
to forecast
maximum demand

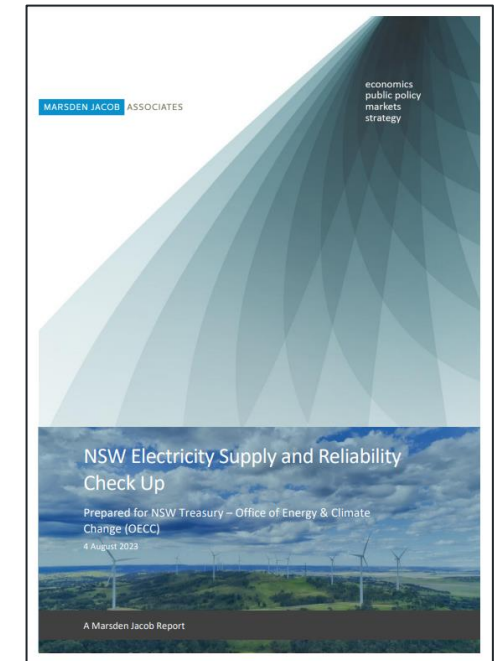


= 0.1 KW capacity for a
1 hour in the peak
period

NSW Electricity Supply and Reliability Check Up – August 2023

Recommendation 32

That eligibility for the Peak Demand Reduction Scheme (PDRS) be expanded to include use of batteries, virtual power plants (VPPs) and other measures that help reduce peak demand.



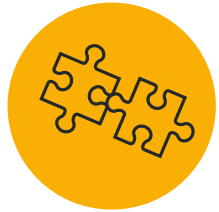


Rule change overview

Current PDRS activities

End-use equipment	PDRS activity definition	ESS method	ESS activity definition
Residential air conditioners	HVAC1	Home Energy Efficiency Retrofits	D16
Commercial air conditioners	HVAC2	High Efficiency Appliances for Business	F4
Commercial heat pump water heaters	WH1	High Efficiency Appliances for Business	F16
Non-primary refrigerators and freezers	RF1	Removal of Old Appliances	C1
Refrigerated cabinets	RF2	High Efficiency Appliances for Business	F1
Motors (refrigeration and ventilation)	SYS1	High Efficiency Appliances for Business	F7
Residential pool pumps	SYS2	Home Energy Efficiency Retrofits	D5

Why update the PDRS Rule?



Maintain consistency between PDRS and ESS

Ensure existing activities are delivering genuine savings



Introduce new activities that provide capacity during peak period

Support increased PDRS savings targets



New types of activities

Demand response



Demand reduces during peak periods

Equipment operation changes to lower demand

Capacity



Financial incentive

Third-party control provided in return for financial incentive

Annual commitment



Energy use before demand response



Energy use after demand response

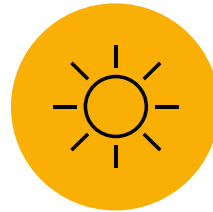
New types of activities

Demand shifting



Demand shifts away from peak periods

Equipment operation changes to shift demand



Increases consumption of renewable energy, including solar

Reduces local grid impacts of rooftop solar



- Energy use before demand shifting
- Energy use after demand shifting

Scope of this rule change

Peak
demand
savings

Existing PDRS

WH1
HVAC1, HVAC2
RF1, RF2
SYS1, SYS2

PDRS rule change 2

Updates to
WH1
HVAC1, HVAC2
SYS2

Peak
demand
response

Existing PDRS

No activities

PDRS rule change 2

WARM method
BESS2
HVAC3

Peak
demand
shifting

Existing PDRS

No activities

PDRS rule change 2

BESS1





Changes to existing PDRS activities

Improvements to existing PDRS activities

SYS2

Equation updates

Baseline input power 1.052 kW
adjustment factors increased

Changes align to equivalent VEU
activity

ESS updates to follow

Pool pump	Current equation PRCs	New equation PRCs
4.5 star	75	141
5 star	80	150
6 star	90	161

Improvements to existing PDRS activities

WH1

Alignment with ESS by introducing capacity cap

Controlled load requirement to ensure best outcomes for consumers and the grid



Improvements to existing PDRS activities

HVAC1

HVAC2

Introduction of a demand response capability requirement

Non-DR air conditioners will still be eligible under the ESS





Commercial and industrial demand response

PDRS rule change 2

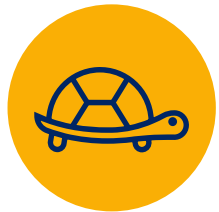


Wholesale Demand Response Mechanism (WDRM)



Defined in the National Electricity Rules

Administered by AEMO



Slow enrolment means NSW has just 32.8MW of registered capacity

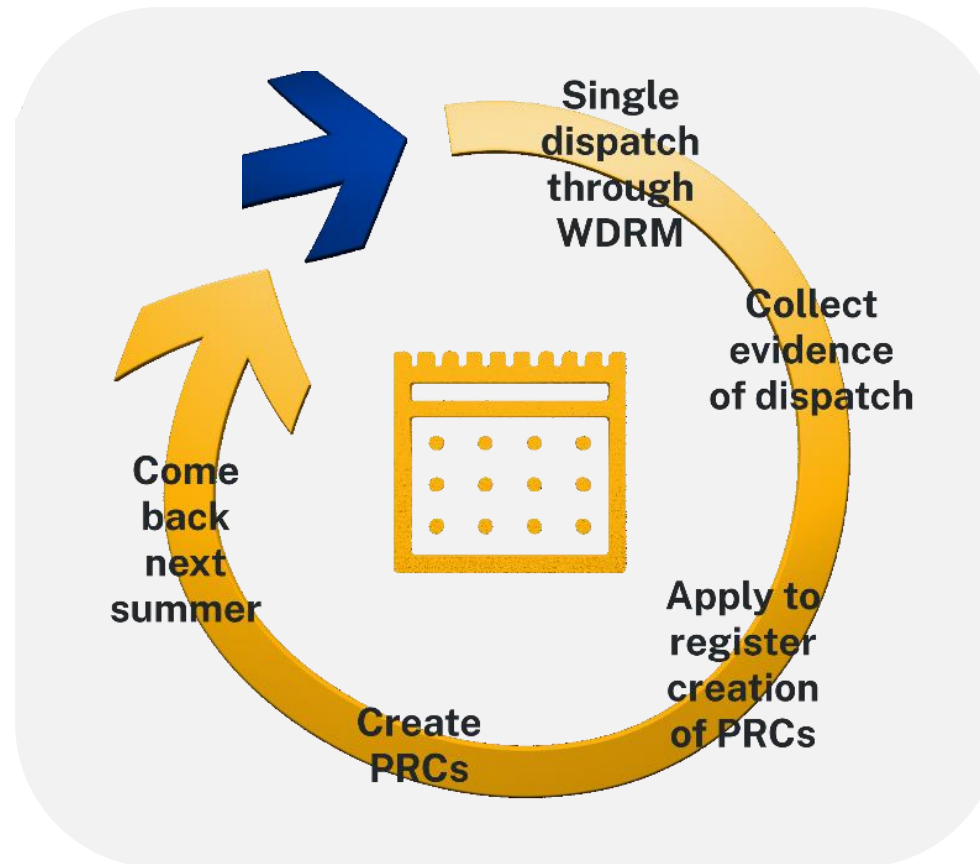
WDRM = actual **dispatch** of capacity

PDRS = **availability** of capacity



Wholesale Annual Response Mechanism (WARM)

Method



WARM method

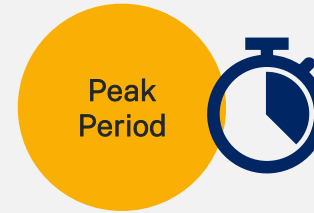
Key requirements



Dispatch through the WDRM at a site in NSW



1 Nov. - 31 March compliance year



2.30 - 8.30pm AEST



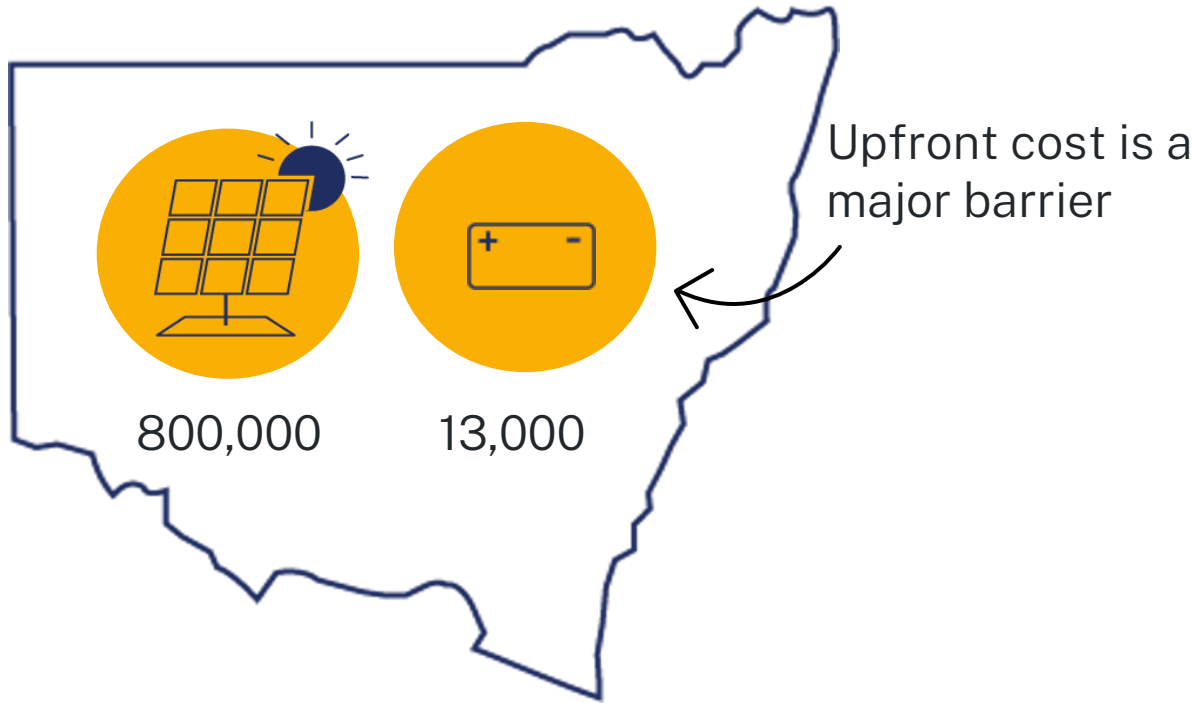
Not contracted for RERT or LTESA

Consecutive single dispatch of up to 6 hours



Residential demand shifting

Residential Battery Energy Storage Systems (BESS)

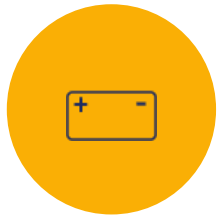


Solar batteries typically configured to reduce power from grid during peak



BESS1

Residential Battery Requirements



Capacity
2 – 28 kWh



Warranty 7+ years



Listed on approved battery
list as specified by scheme
administrator



Internet connectable and
can be controlled by
demand response aggregator

BESS1

Key requirements



Residential building with a solar PV system



Installation recorded on AEMO DER register

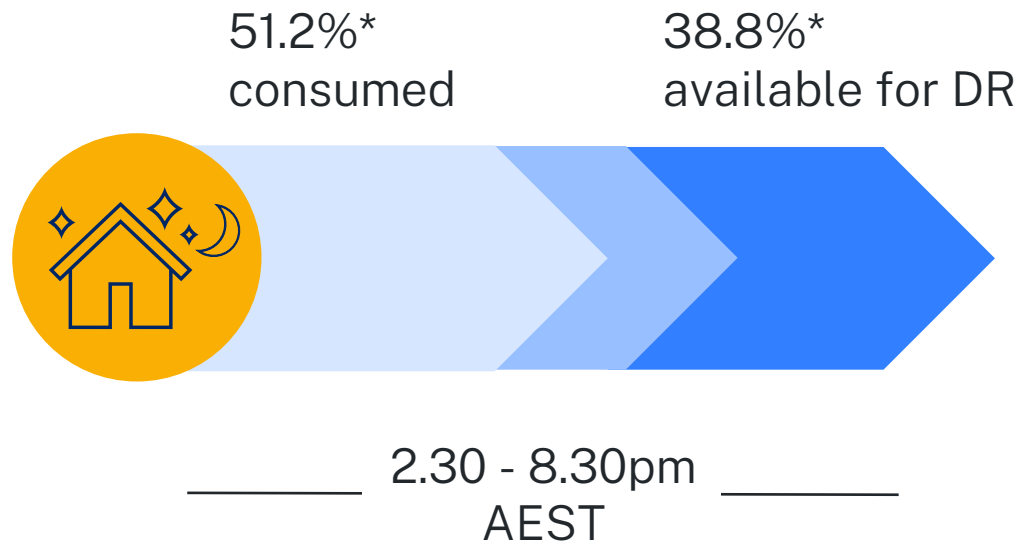


Installer accredited with CER scheme



Purchaser paid at least \$200 (excl. GST)

Residential Battery Energy Storage Systems (BESS)



*NextGen dataset of 3,000 solar/battery installations in the ACT

*Data selected for > 30°C days during peak demand months

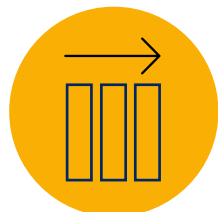
BESS1 Example



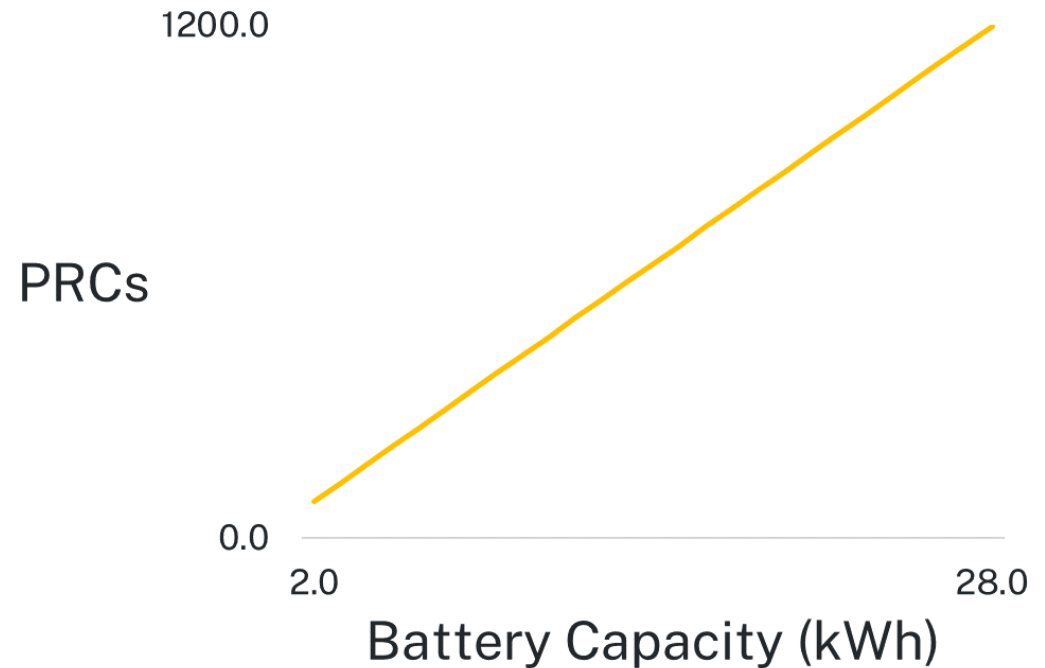
51.2% of battery usable capacity is demand shifting capacity



1 kWh battery = 0.512kWh demand shifting capacity



Averaged over 6-hour period = 0.0853 kW/kWh demand reduction factor



Demand shifting capacity
= Battery usable capacity x 0.0853 kW/kWh



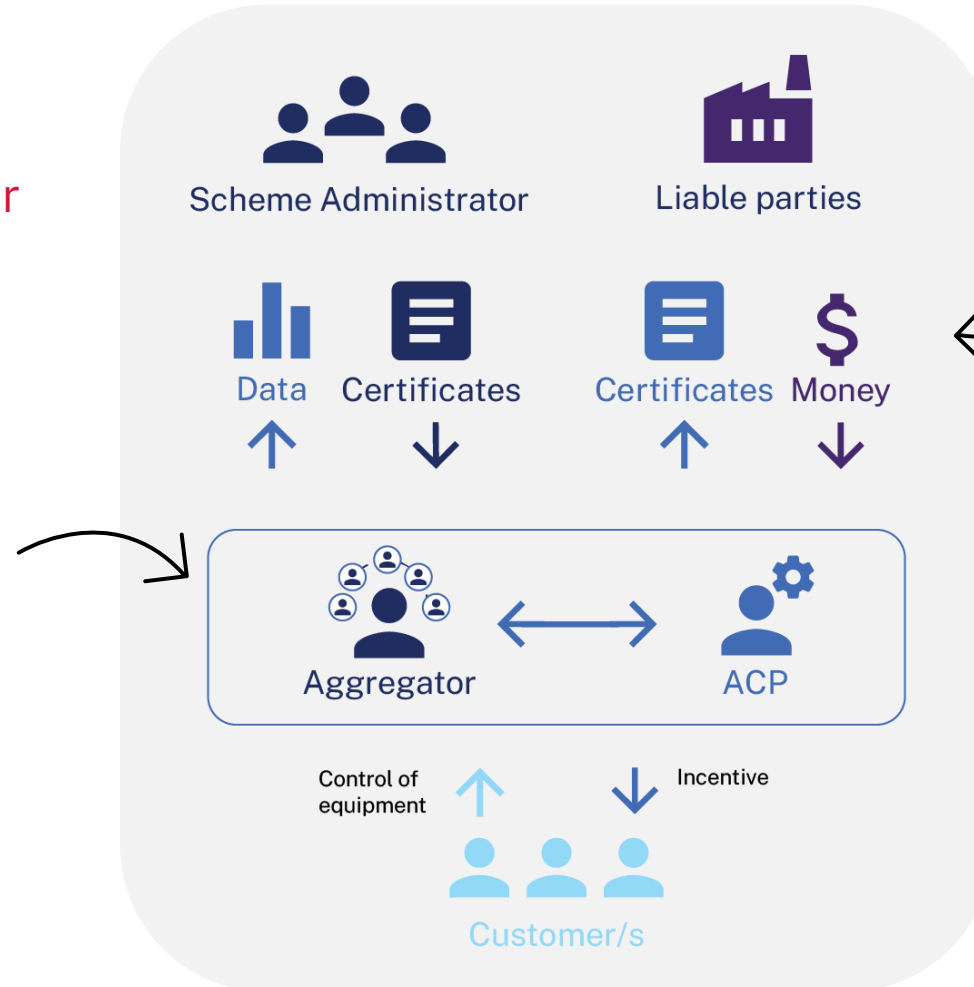
Residential demand response

PDRS rule change 2

Residential demand response

Introduces new term:
Demand response aggregator

Aggregator needs to demonstrate control of equipment



Can only access incentives once every 12 months per NMI

Leverages the NETCC to ensure good outcomes for consumers

BESS2

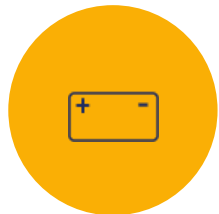
How it works



Sign up activity



Open to new and existing residential behind the meter batteries where solar PV is installed



Capacity
2 – 28 kWh



Listed on approved battery list as specified by scheme administrator

BESS2 Example



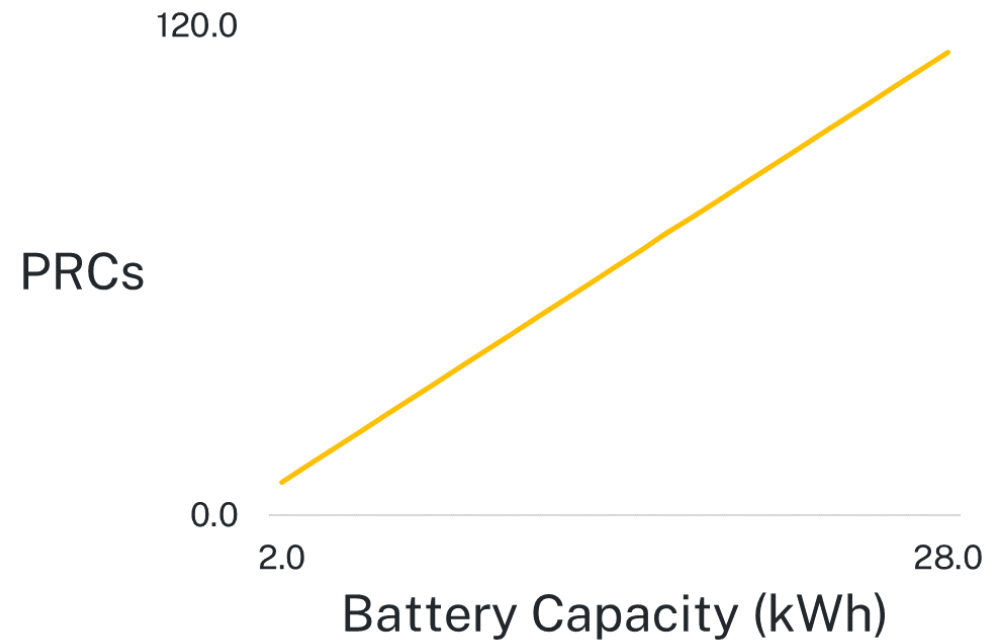
38.8% of battery usable capacity
is demand response capacity



1 kWh battery = 0.388kWh
demand response capacity



Averaged over 6-hour period
= 0.0647 kW/kWh demand
reduction factor



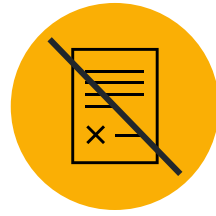
BESS2 rewards additional capacity that is
unlocked through enrolling in a VPP

HVAC3

How it works



Incentives for demand response of high efficiency air conditioners



Opt-out and safety considerations

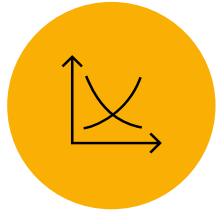


Set point temperature change of 4°C, up to a max of 26°C

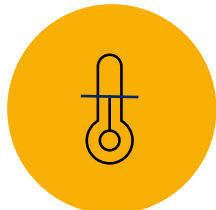


Incentives are already available for older air conditioners to be upgraded through the ESS/PDRS

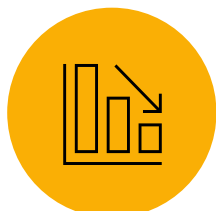
HVAC3 Example



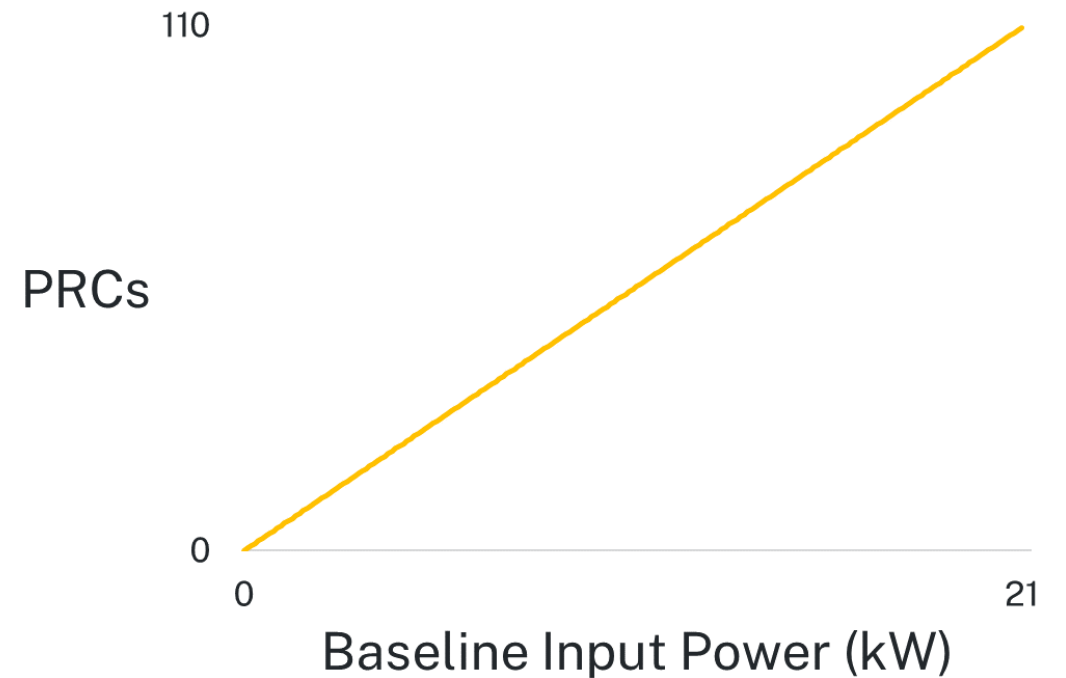
7.5% demand reduction
per 1°C increase



Capped at 4°C increase



30% demand reduction in
total based on power input



Next steps



Where to go for accreditation information

IPART Energy
Sustainability
Schemes

PDRS >>



<https://confirmsubscription.com/h/t/814A50117EFA22BA>

Key dates

Estimated date

15 November 2023	Public consultation period closes – submissions due
December 2023	Review of submissions and drafting of final changes
Jan/Feb 2024	Finalise rule and publish in NSW Gazette
1 April 2024	Rule commences

Next Steps



Read consultation paper and draft rule

www.energy.nsw.gov.au/nsw-plans-and-progress/regulation-and-policy/energy-security-safeguard/peak-demand-reduction-consultation



Discuss proposed changes with retailers, service providers, manufacturers, suppliers and installers



Help us identify improvements that support activity implementation and provide us with data that supports your submission



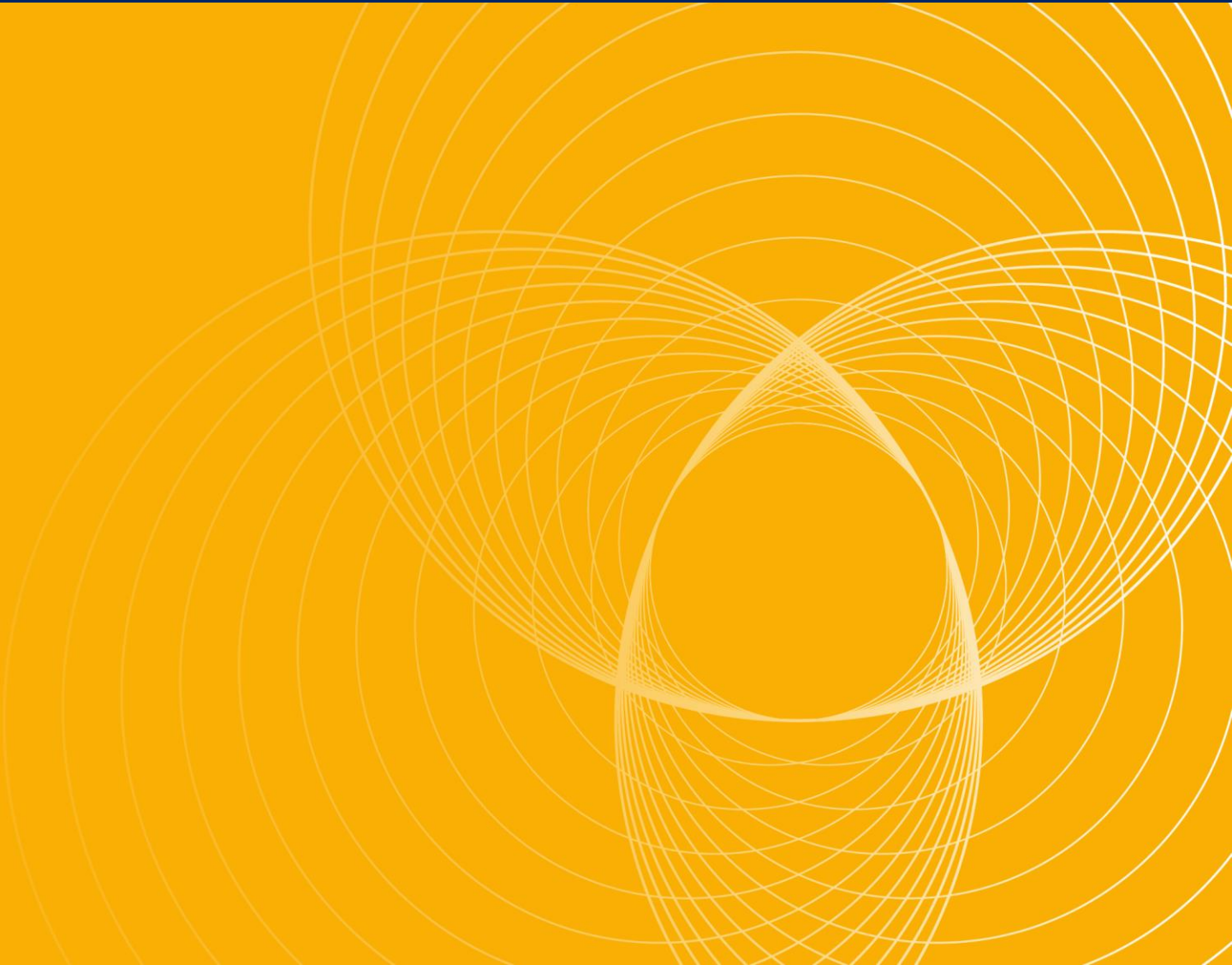
Provide written submissions to sustainability@environment.nsw.gov.au (even if you're happy with the changes!)



**Submissions due by 5:00PM,
Wednesday 15 November**

Q&A

Slido: #2567287



Thank you

