



A2EP – 2xEP Energy Productivity Summit
04-05 April, 2017
Australian National Maritime Museum
Darling Harbour, Sydney

Session 08

2xEP & governments: Policy and programs

Margaret Sewell

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Stephen Bygrave > presentation follows

Nick Smith

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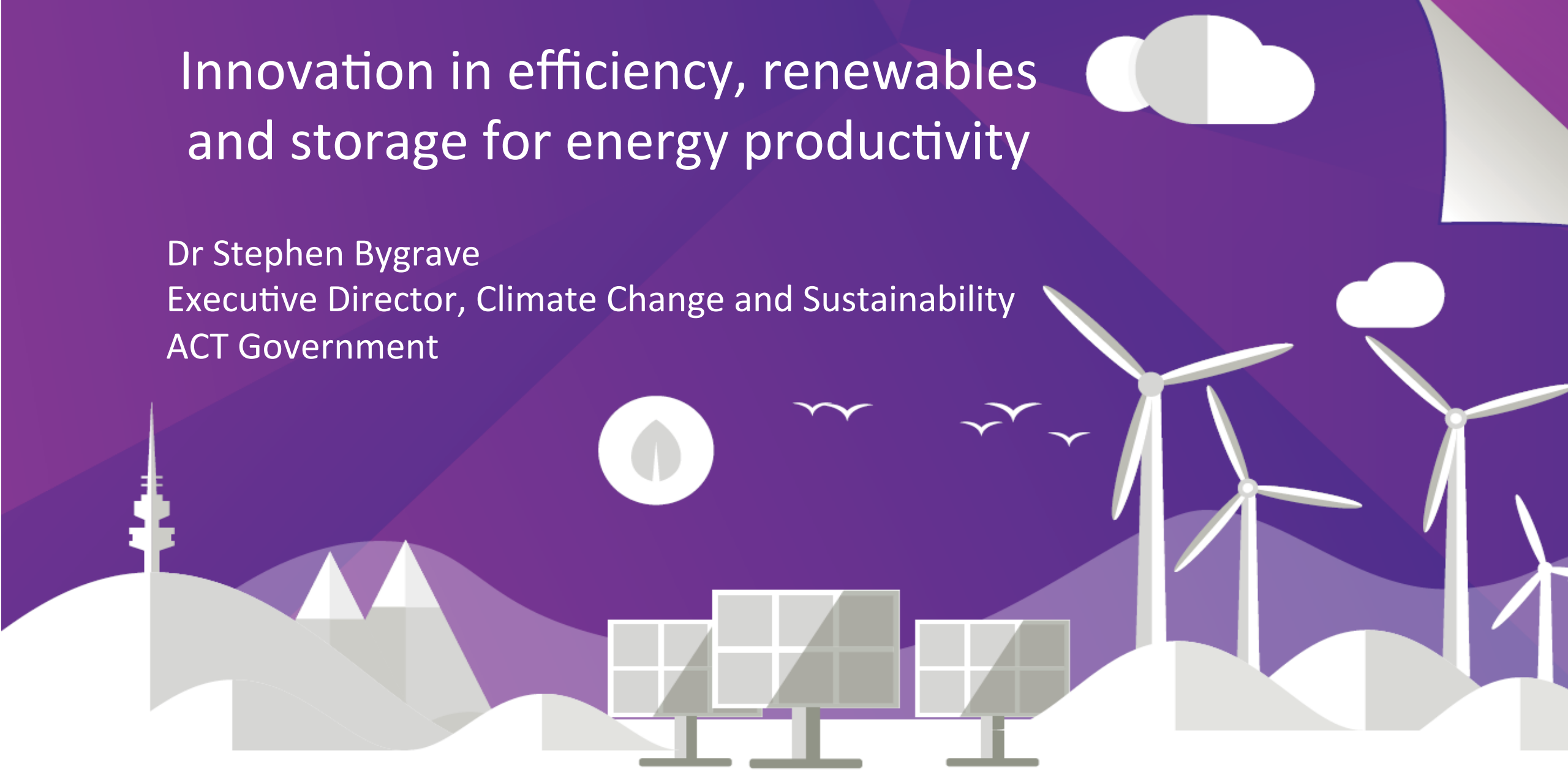
Chair: Chris Dunstan



Doing more. Using less.

Innovation in efficiency, renewables and storage for energy productivity

Dr Stephen Bygrave
Executive Director, Climate Change and Sustainability
ACT Government



Australian Capital Territory



Canberra is the renewable
energy capital of Australia

World leading targets and policies to decarbonise
improve energy productivity and innovate.

- 40% emissions reduction from 1990 level by 2020.
- Net zero emissions by 2050 (at the latest).
- 100% Renewable Electricity + 36MW Storage by 2020
- Transforming ACT building sector to zero carbon high performance including transitioning from gas
- Integrated policy & programs to retrofit buildings
- Carbon Neutral Government by 2020 + Street Lighting
- Decarbonise and electrify transport
- ACT Renewable Innovation Hub + Industry Development

Address Energy Trilemma via Energy Productivity “Trifecta”

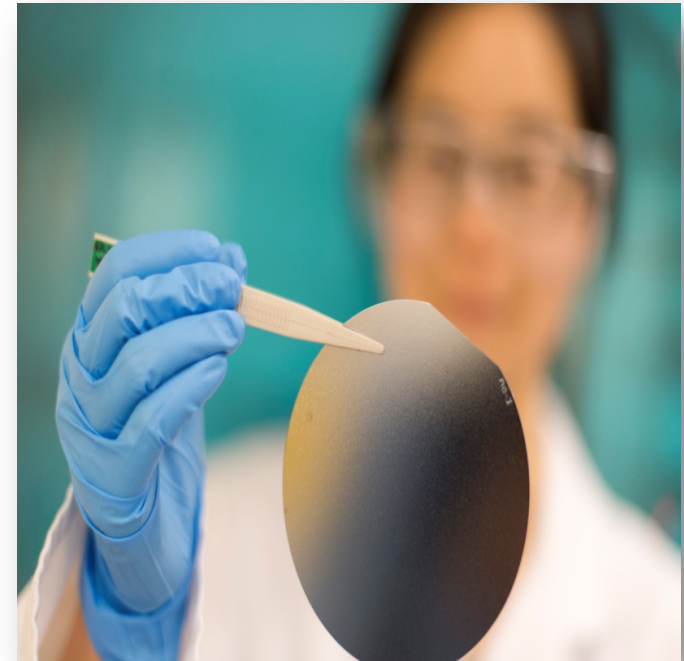
Affordability, Security, Zero Emissions + Innovation/Industry Development

1. Dramatically improving energy efficiency as first priority
2. 100% renewable energy by 2020 with reverse auctions + FiT
3. Reduce exposure to gas prices via efficiency + fuel switching
4. Energy storage for energy security
5. Intelligent systems to optimise efficiency, renewables + storage
6. Integrated sustainable transport strategy
7. Walk the talk – Carbon Neutral Government program
8. Encourage industry development and innovation

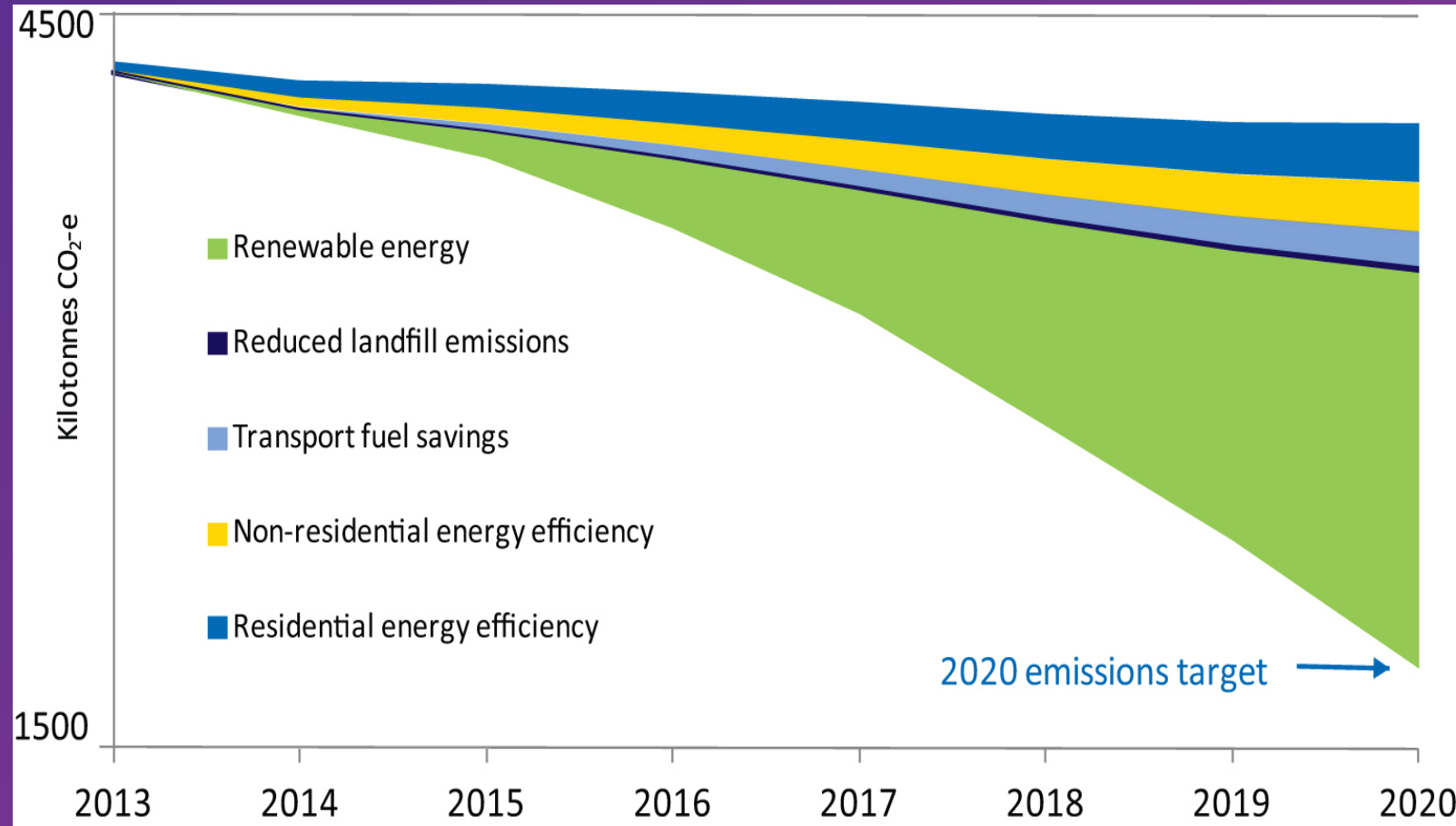


An economic, innovation and industry development story: over \$800 million in local economic benefits

- > \$300 million in reduced energy bills from energy efficiency through Energy Efficiency Improvement Scheme + Actsmart by 2020 (EEIS RIS, 2015)
- > \$61-220 million in reduced peak infrastructure and supply costs through ACT next gen battery storage program (AECOM, 2015).
- > \$400 million in local economic benefits from renewable energy policies and targets already created via
 - Four national and international company HQs.
 - ACT Renewables Innovation Hub - Helping to innovate and commercialise enabling technologies
 - Trades training and use of local contractors.
 - Tertiary research and education.
 - New technology demonstration:
 - solar battery storage
 - hydrogen.



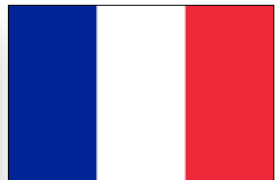
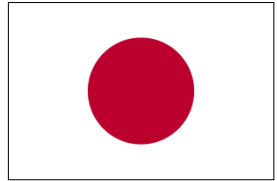
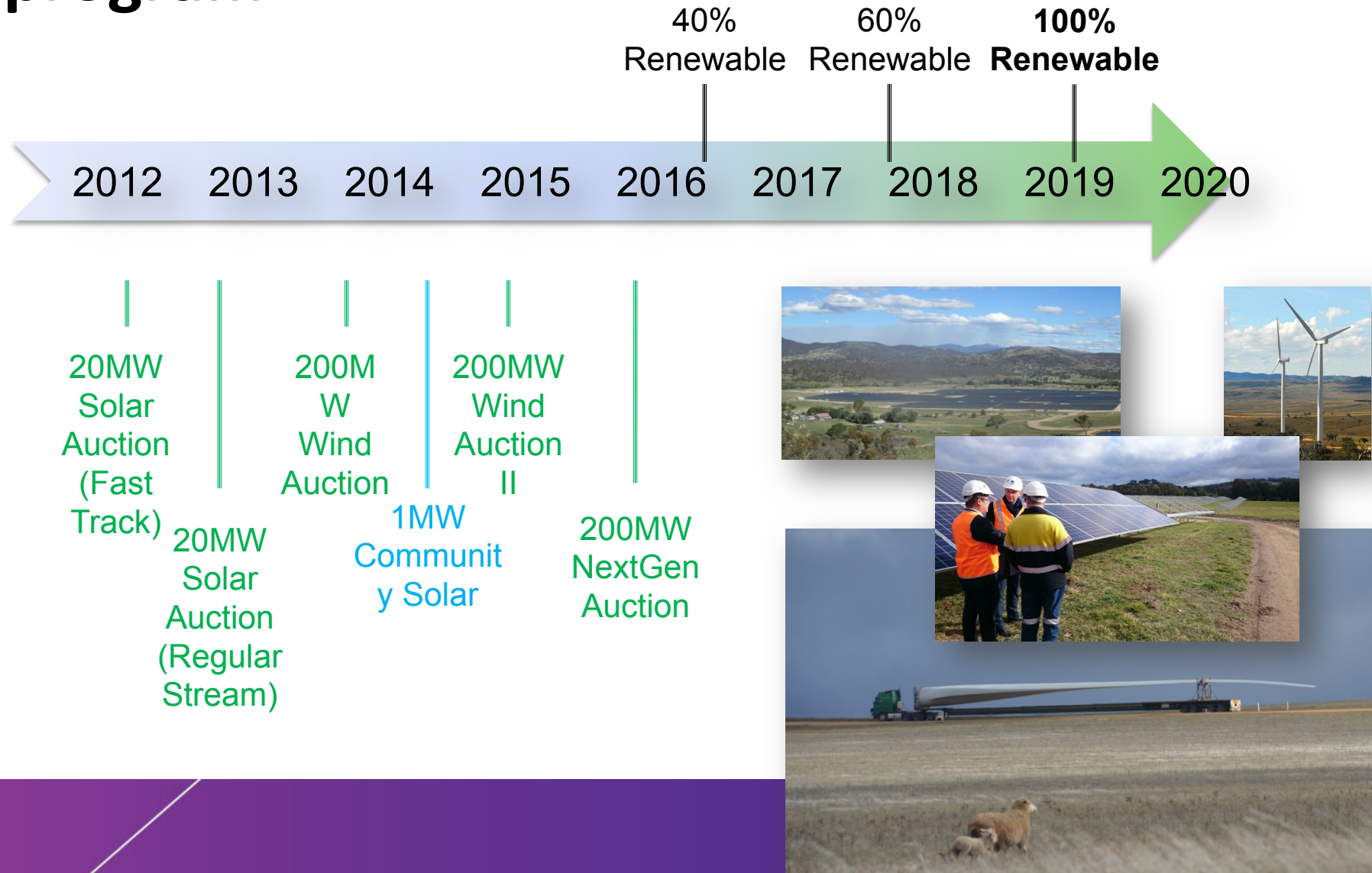
Energy productivity through efficiency, renewables and storage



Energy Efficiency

100% renewable electricity

Renewable energy reverse auction and FiT program



Buildings and the Built Environment Sector

- Transforming building sector to zero carbon high performance including transitioning from gas
- Setting trajectory for building performance
- Reviewing application of national building & appliance standards to new & existing ACT buildings & building services
- Review mandatory energy efficiency disclosure scheme
- Review of sustainable bonds, to fund infrastructure.
- Building retrofits to ~ ½ ACT households – Energy Efficiency Improvement Scheme + Actsmart
- Labor/Greens Agreement (9th Assembly).

Parliamentary Agreement for the 9th Legislative Assembly for the Australian Capital Territory

By Charlotte Harper - 30 October 2016 0

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Examples of efficient net zero emission buildings and built environment



Next Gen battery roll-out

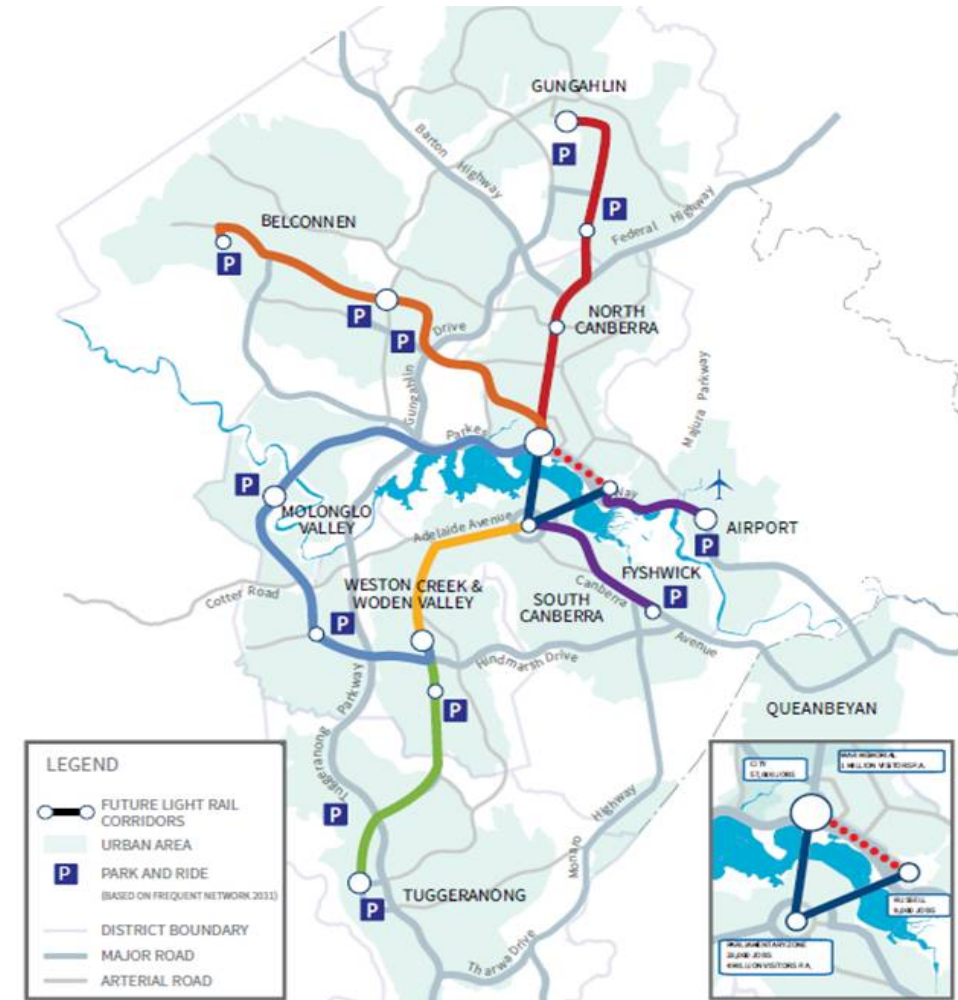
- 5,000 homes and businesses by 2020
- \$25M, currently \$825 per kW rebate
- Installers selected through a competitive process
- 36MW by 2020
- Focus on 'peak sustained output'
- Grant is currently for \$825 per kW rebate
- Data platform to host and share interval data

Brand	Chemistry
Tesla	Lithium-ion
LG Chem	Lithium-ion
Pylontech	Lithium-ion
Samsung	Lithium-ion
Fusion	Aquion salt water
Panasonic	Lithium-ion
Sunverge	Lithium-ion
SolaX	Lithium-ion
AlphaESS	Lithium-ion
Ecoult	Hybrid lead acid

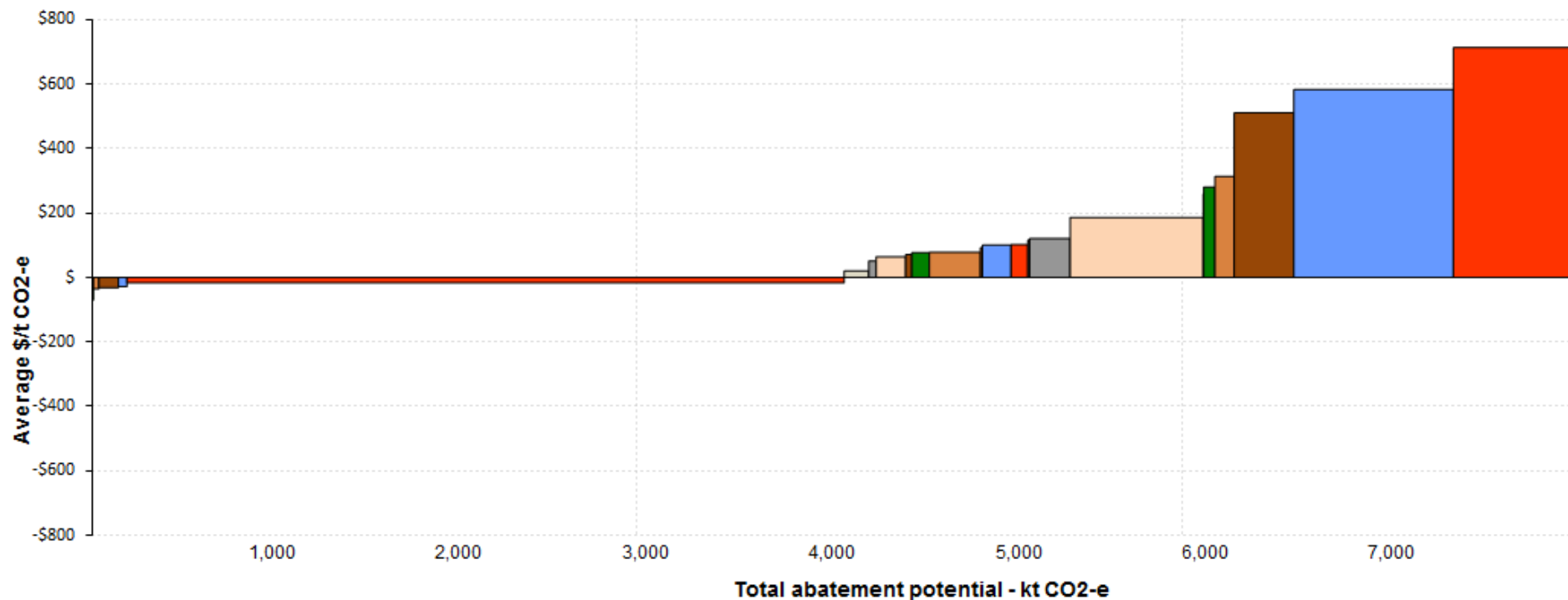
Current eligible battery systems

Next Steps – fuel switching ACT transport sector

- Zero-carbon electricity supply by 2020 creates a platform to decarbonise ACT transport sector
- Developing new light rail network
- Expand car sharing schemes
- Developing a low emission vehicles strategy
- Government fleets



EEIS activities that save gas have the best marginal cost of abatement



EEIS activities with marginal cost below \$0

- Replace compact fluorescent lamp (22W) with equivalent LED lamp (13W), in air conditioned office building
- b) HE central heat pump replacing central electric slab/ducted
- e) HE gas ducted (baseline ducted gas)
- Building sealing activities
- c) HE central heat pump replacing central gas ducted

To conclude;

1. ACT is world #1 for emissions targets (CDP)
2. Half of Canberra households have had energy efficiency upgrades including 19,000 low income households
3. Secured 100% renewables by 2020
4. Australia's best (cheapest, most effective) renewables policy
5. We helped drive down prices for wind and solar
6. Set new benchmark for wind industry community engagement
7. World-leading distributed storage roll-out
8. Fast growing renewable energy industry cluster
9. Community acceptance of cost of abatement
10. Targets are bipartisan and popular with the community

