



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

Energy Future Communities

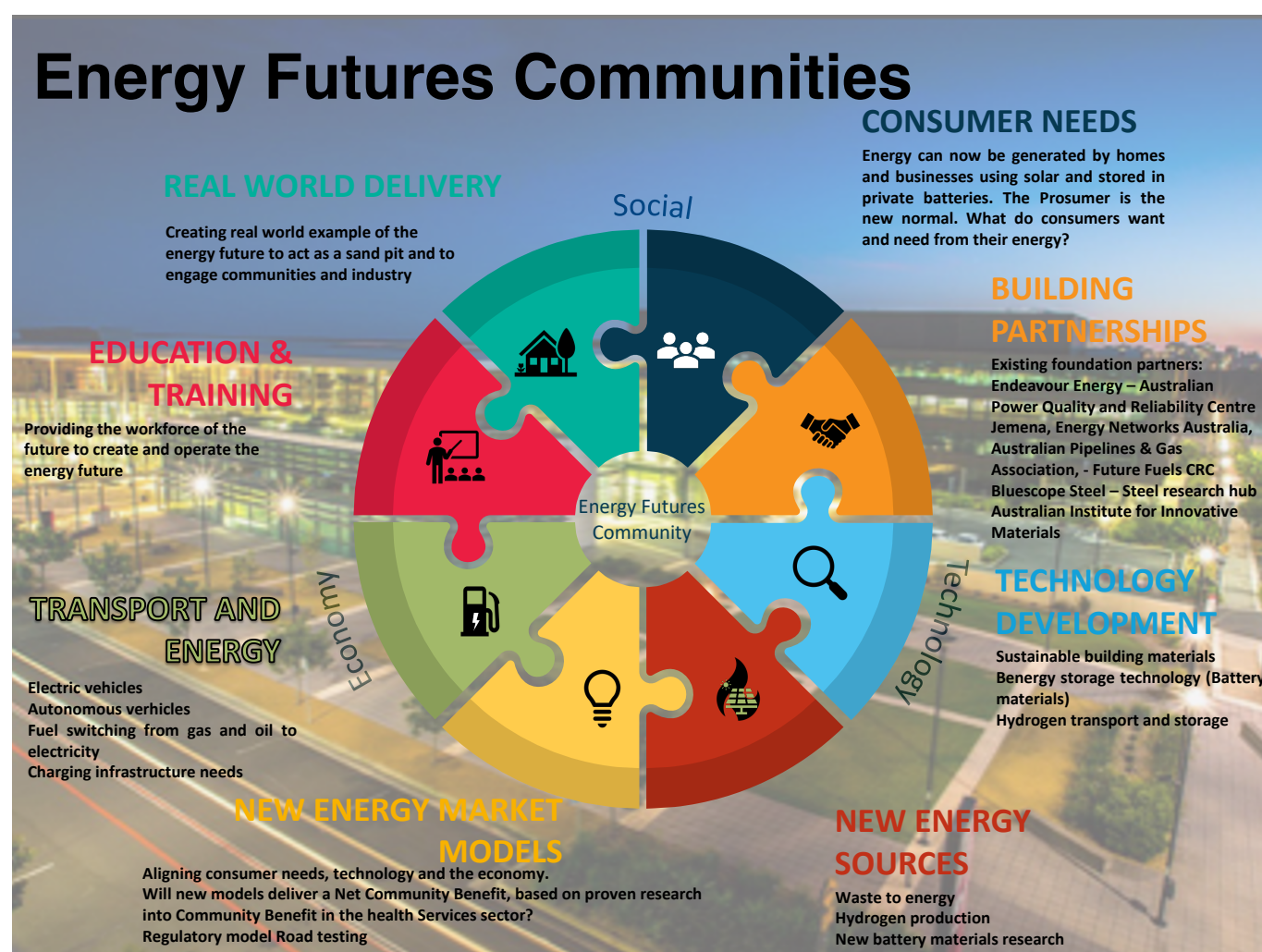
WOLLONGONG, NSW

Energy Future Communities

- New technologies for energy supply, distribution and storage, and their associated pricing and policy regimes, including for electricity, gas, hydrogen and renewables are available now.
- These new technologies now need to move from the pilot stage into larger scale implementation.
- Larger scale technology implementation will inevitably interact with social and economic imperatives.
- Historical processes for developing policy settings for energy separated these Social, Economic and Technical issues into **silos** and in addition were set up for an energy system which is rapidly becoming obsolete as new cost-effective technologies are deployed.
- Current businesses and industries, equipment suppliers, developers, transport operators, utilities, energy infrastructure owners and operators and customers are only able to deal piecemeal with the very small part of the whole picture that they are in control of- this cannot produce optimal overall transition strategies for Australia.
- The University of Wollongong is uniquely able to be an **independent** and **objective** voice, applying a **multidisciplinary** team to understand the complex interactions between Social, Economic and Technical issues and create a **road map** from the current state to an energy future which supports employment and positive community outcomes.

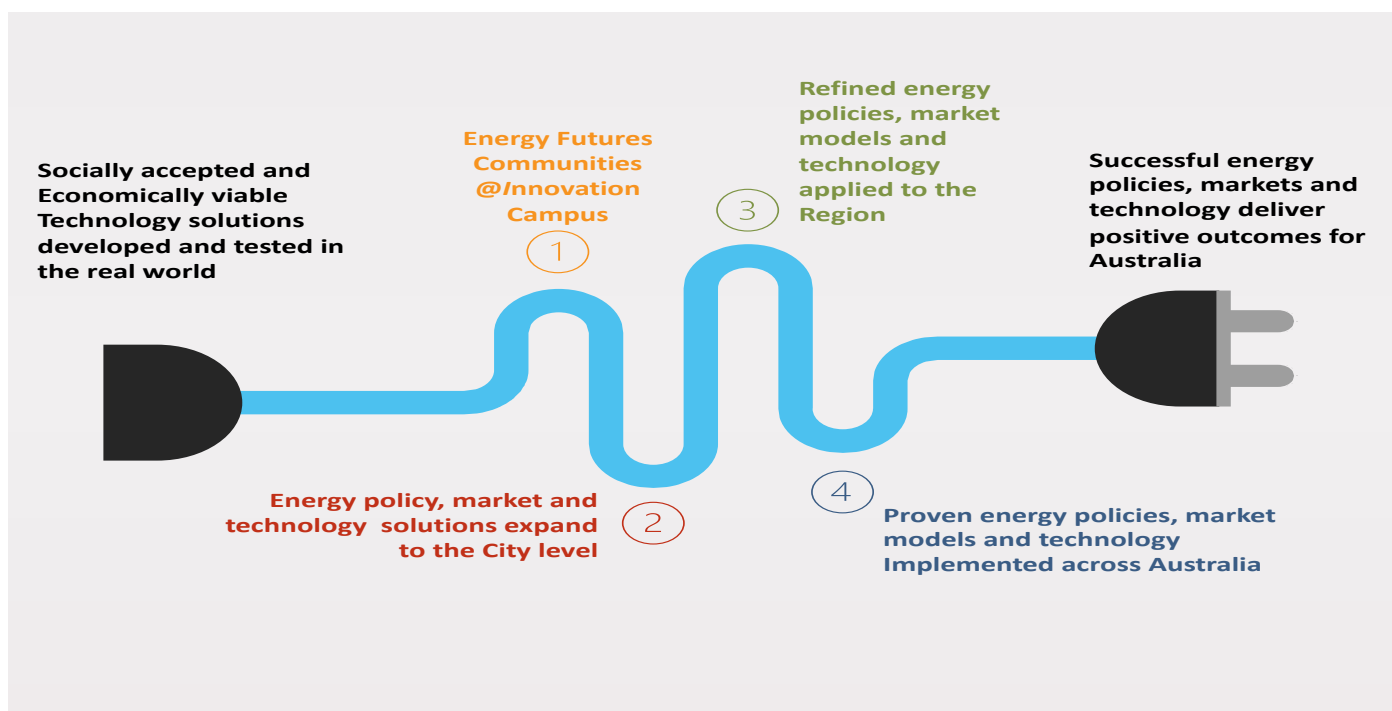
Implementing affordable, reliable and sustainable energy solutions

- The **Energy Future Communities** initiative would build on the established Innovation Campus (IC) which with appropriate funding provides a **living laboratory** comprising a range of residential, commercial and social centres.
- This enables the implementation **at scale** of advanced and innovative energy technologies and policies and the comprehensive monitoring and studying of the behavioural and social effects of different technologies and different pricing and energy policies.



- The Energy Future Communities initiative would be open to communities and industry (such as asset owners and managers and new technology companies), both as an engagement mechanism and as a ‘sand pit’ for new ideas and new technology implementation which can be further scaled up to involve communities across NSW and Australia.
- The Energy Future Communities initiative would draw in research investment from the private sector, leveraging the presence of existing and new infrastructure for greatest community benefit.
- The Energy Future Communities initiative would operate as an energy outreach centre, engaging Industry and communities in the development and implementation of the road map to an equitable energy future for NSW.
- Leading edge technology such as Internet of Things (IoT) will be used to obtain a deep understanding of how communities engage with new energy technology and how social systems and economic markets can be used to deliver what consumers need in their energy supply.
- The Energy Future Communities initiative would also carry out research to inform Government and Industry investments and policy making, providing trusted, independent and evidence based advice.

Policies, social behaviours, and technologies implemented in the Energy Future Communities initiative can be relatively easily scaled up via the city of Wollongong which surrounds the Innovation Campus precinct. The instrumentation and control infrastructure to facilitate this has already been built, consisting of a LoraNet network covering 300,000 people. Once further refined, the policies, behaviours and technologies will then be expanded to the Regional level, and then State wide. The Energy Futures Communities initiative could be informed by an Advisory Group comprised of NSW Government nominated representatives from key energy policy bodies, UOW leaders and energy industry representatives.



Delivering for NSW

The Energy Futures Communities initiative will create a real world example of safe, reliable, sustainable and affordable energy solutions, informing Energy policy by engaging communities and industry and understanding Social, Economic and Technical dimensions. Specifically, the Energy Futures Communities will deliver:

1. Informed communities who understand their energy needs and whose future energy needs are understood by industry stakeholders.
2. A pathway for society to transition from the current energy state to low carbon state which encompasses employment and other social issues.
3. Usable solutions for new technology, which have been tested and understood by industry and communities and are scalable into the broader energy supply chain and across communities generally.
4. Technical and economic solutions which meet the amenity needs of energy consumers and are informed by the social aspects of energy supply.
5. New energy market solutions that are tested and based on a deep understanding of customer needs and customer behaviour and leading edge technology.
6. New approaches for the supply of integrated energy solutions to residential, commercial and community buildings.
7. Education and new qualifications for the people who will deliver the energy future.
8. An example of how a successful integrated energy supply system using up to date technology and innovative economic approaches can deliver energy to commercial, residential and office based populations on a meaningful scale.
9. An expandable suite of social, economic and technology solutions for energy supply which can expand to apply to the City of Wollongong, the broader Illawarra region and readily scaling up to other communities Australia wide as required.