

# A concept paper to incorporate a circular economy precinct into the Hunter Energy Hub

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This presentation builds upon my submission to a [NSW Government Committee](#) (2019), (amended update Attachment 1), a conference held in October 2022 entitled 'Innovation in the Circular Economy 2022' (Attachment 2 ) and a project coordinated by the Hunter Joint Organisation to delineate 'A Circular Economy Hub and Precincts in the Hunter Valley' (Attachment 3 kindly provided by Tim Askew, Hunter Joint Organisation).

The Hunter Energy Hub has been planned as a project to replace fossil fuel power generation with energy production and storage, resulting in considerably reduced emissions. The proposal below seeks to further reduce overall emissions, targeting an additional emission reduction by capturing value from the development of circular economy principles. It will result in the decarbonisation of industrial processes by the recovery of materials and energy from waste which would otherwise be lost to landfill. AGL could lead the transformation of the Hunter into a region with zero landfill and with a considerable reduction in methane emissions. **Waste from the Hunter, and from Greater Sydney and beyond, should be viewed as a resource to provide feedstock for a major Circular Economy Precinct located at AGL Bayswater/Liddell power station sites.**

## Background to the Circular Economy Precinct concept

Before moving on to this concept paper's specific proposal for a major Circular Economy Precinct located at Hunter Energy Hub, it will be helpful to consider what is already being done, both globally and in Australia, as well as the existing proposals for the site.

### 1. Global precincts

There are excellent examples of precincts incorporating circular economy principles in:

1. Germany: [Remondis Lippe Plant](#)
2. United Arab Emirates [Beeah Group](#)
3. Hong Kong [Eco Park Hong Kong](#)



# New CE proposals for location at Hunter Energy Hub

- Existing feasibility study in Queensland

The Gold Coast Advanced Resource Recovery Centre (ARRC) provides an excellent example of what could be achieved at Hunter Energy Hub. It envisages a proposed investment of \$1.6 Billion over the course of 2026-2031. The feasibility study (2024-25) has an allocation of \$28m. The facilities to be located on the Gold Coast site include:

- (i) Recycling facility for commingled material
- (ii) Construction and demolition waste processing facility
- (iii) Organics processing facility
- (iv) Waste to Energy facility
- (v) Community education centre

The [EPBC Act Referral Report](#) for ARRC was lodged in January 2024.

- The same proposal can be replicated at Hunter Energy Hub

All of the facilities proposed for the Gold Coast precinct could be included in an enhanced CE Precinct at Hunter Energy Hub as described below, with possible involvement of the following major companies to treat resources arising from waste materials in the Hunter Valley and ultimately from Greater Sydney:

- (1) [Bingo Industries Limited](#)
- (2) [Cleanaway Waste Management Limited](#)
- (3) [Remondis Australia](#)
- (4) [ResourceCo](#)
- (5) [Sims Limited](#)
- (6) [Veolia ANZ](#)

The technologies to be used in the areas comparable to the Gold Coast ARRC are:

- (i) Materials Recovery Facility for plastics, paper and cardboard, glass and cardboard with companies 2,3,4 & 6 above as well as [iQRenew](#).
- (ii) Construction and demolition waste can be recycled by companies 1,2,3,4 & 6, but inert material unsuitable for treatment (amounting to 3 million cubic metres pa from Greater Sydney) might be considered for rehabilitation of mining voids. A waste levy waiver could facilitate this operation.
- (iii) Anaerobic Digestion with company 6 and [Kanadevia INOVIA](#) possibly in conjunction with Energy 360. This would provide energy production into the grid, or biogas. Heat and carbon dioxide can be used to feed intensive horticultural glasshouse operations ([Sundrop Farms](#)).

- (iv) Waste to Energy facility (subject to EPA approval review in 2025) with Veolia (6) and Kanadevia INOVA
- (v) A Community Education Centre in conjunction with University of Newcastle or TAFE NSW. This would be comparable to the [visitor centre at Eco Park Hong Kong](#), with the addition of educational and training facilities.

- Hunter Energy Hub can take it even further

Other waste streams which may be considered for treatment (and to augment existing proposals):

- E-waste – [ReSource Pty Ltd](#) (including batteries) and [Sircel Limited](#)
- Plastic waste – [Close the Loop](#)
- Solar panels – [PV Industries](#) and [Second Life Solar](#)
- Tyres – [Revyre](#) and [Terracycle](#) with emphasis on end-of-life tyres from mining operations
- Oils (for renewable fuels) – [Cleanaway/Neste JV](#) and [Graincorp/IFM Investors/Ampol](#)
- Multiple – [Licella](#), [Seata](#) and [ARC Ento Tech](#)

Some of these smaller companies may be suitable as joint ventures or acquisitions. They may also be provided with funds by companies such as [Tanarra](#). There may also be an opportunity to develop these companies and others in conjunction with the [Trailblazer for Recycling and Clean Energy](#).

Hunter Energy Hub may also be an ideal location for a data centre, with a requirement for continuous power supply, ample land and water, such as those developed by [NEXTDC](#). The proposed [Hunter Gas Pipeline](#) could easily be integrated with a data transmission connection to link with traffic between Sydney and Brisbane.

- Validation

In commencing this addition to the activities of the Hunter Energy Hub it will be necessary to validate the logistics and economics of aggregating and transporting the respective waste streams from the Hunter and from a supraregional area. Confidence in the likely success of this validation can be derived from:

- (i) The operations of Veolia at [Woodlawn Eco Precinct](#) which receives waste from Sydney by 250km of rail/road transport. There is also a proposal to construct, at this same site, an [Advanced Recovery Centre](#) to receive 380,000 tonnes of residual waste feedstock and produce up to 30 megawatts of electrical energy.

- (ii) The plant operated by [Cleanaway, Pact and partners](#) which processes plastic bottles from 'Return and Earn' throughout NSW in Albury.
- (iii) The transport of waste from NSW to Queensland, reported to be 900,000 tonnes in 2016/2017 ([Transforming Queensland's Recycling and Waste Industry](#)). This was largely construction and demolition waste and resulted from the wide disparity in waste levies between NSW and Queensland.

It is likely that [MRA Consulting](#) could provide the level of expertise to complete this validation task.

- Drawing on existing knowledge and government initiatives

The knowledge gained from the operation of existing CE precincts already referred to will assist in the preparation for a similar operation at Hunter Energy Hub. This operation would also benefit from Federal and State initiatives to further the development of such activities, as described in:

- (i) [Place Delivery Group Program for Central Coast and Hunter](#) and the [Hunter Regional Plan 2041](#), confirming that the Liddell and Bayswater power station sites qualify for Place Delivery Group Status.
- (ii) The [Regional Precincts and Partnerships Program](#), providing funding for precinct development and planning of up to \$5 million. An additional amount of up to \$50 million of funding is available for project delivery for enabling infrastructure (roads, pathways, underground infrastructure), public infrastructure, or open spaces between elements.
- (iii) [Future Jobs and Investment Authorities](#), including a consideration of power generation sites after closure.
- (iv) The *Inquiry into beneficial and productive post-mining land use* including a reference to Bayswater/Liddell as Case 4 in [NSW Government submission to the Legislative Council](#).

## An exciting opportunity ready to be developed by AGL

The concept outlined above, for a major Circular Economy Precinct incorporated into the Hunter Energy Hub, presents an opportunity for AGL to become both a national and global leader in the circular economy space, while expanding its operational and profit base and enhancing its ESG credentials.

*Granville Taylor*

