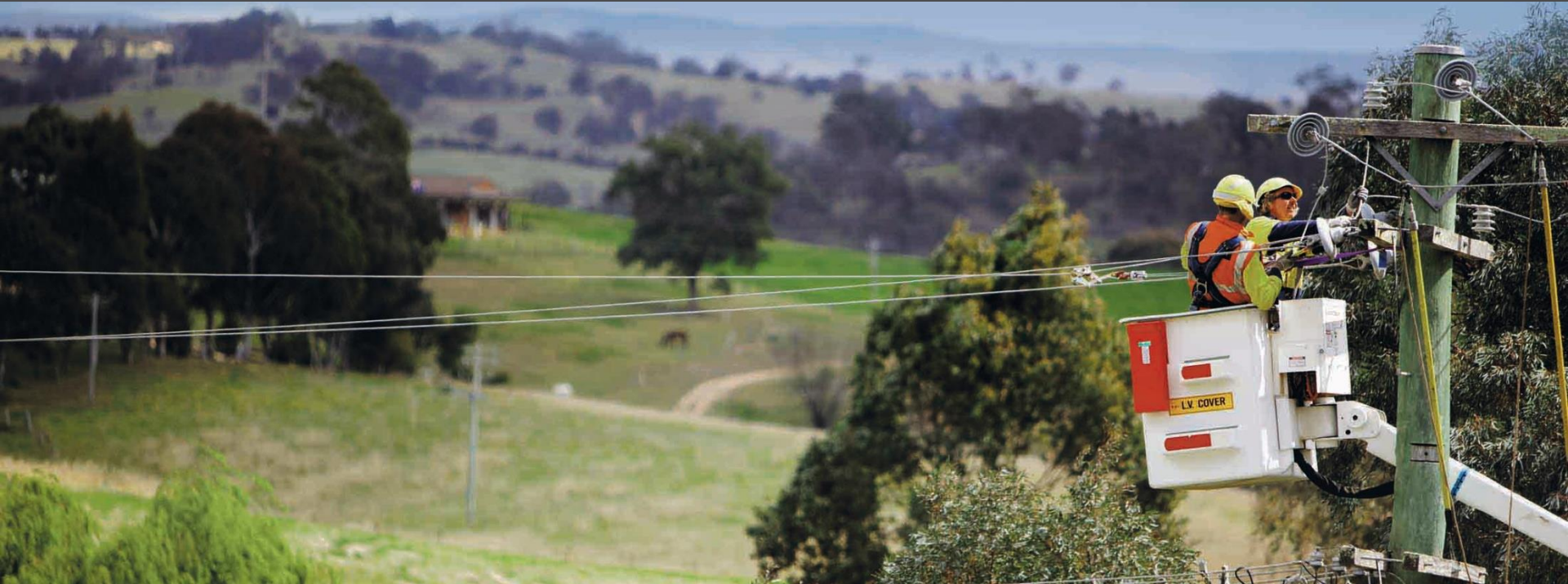


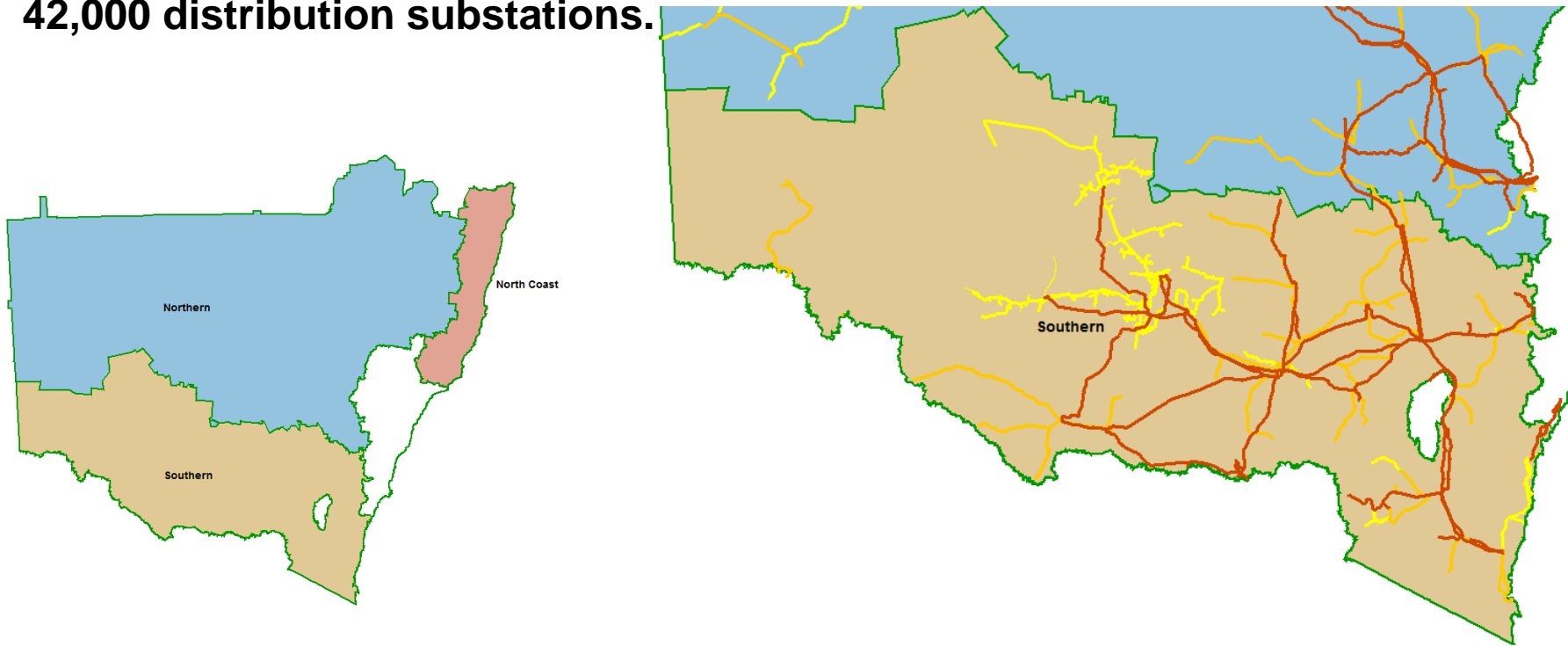
Local Distribution Networks – Present and Future Opportunities.



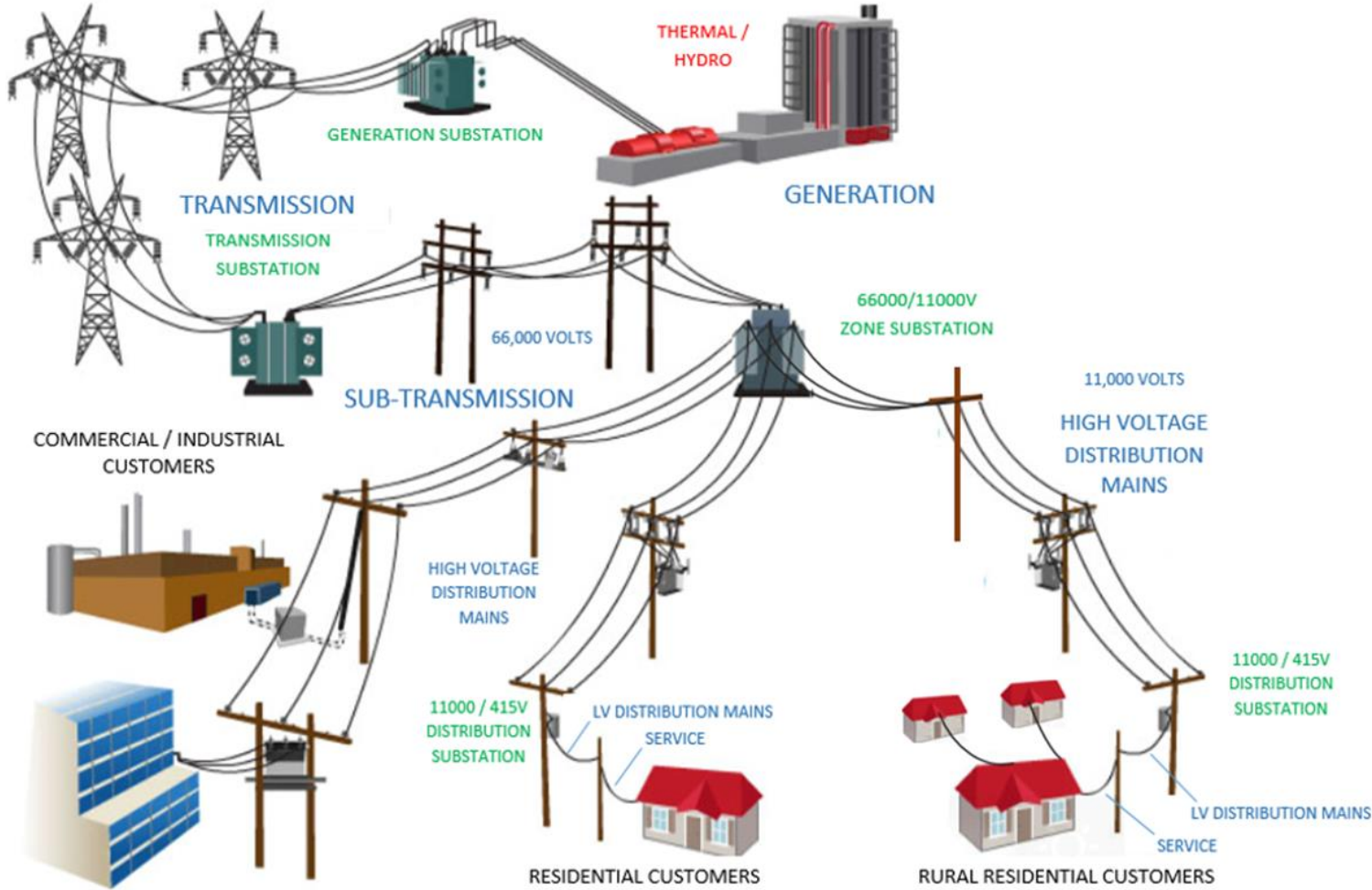
Essential Energy - Southern Region

Covers Approx. 25% of NSW & has a Distribution Network of

- > 0.49 million poles.
- > 513 distribution feeders incorporating 63,000km of lines.
- > 124 zone substations.
- > 42,000 distribution substations.



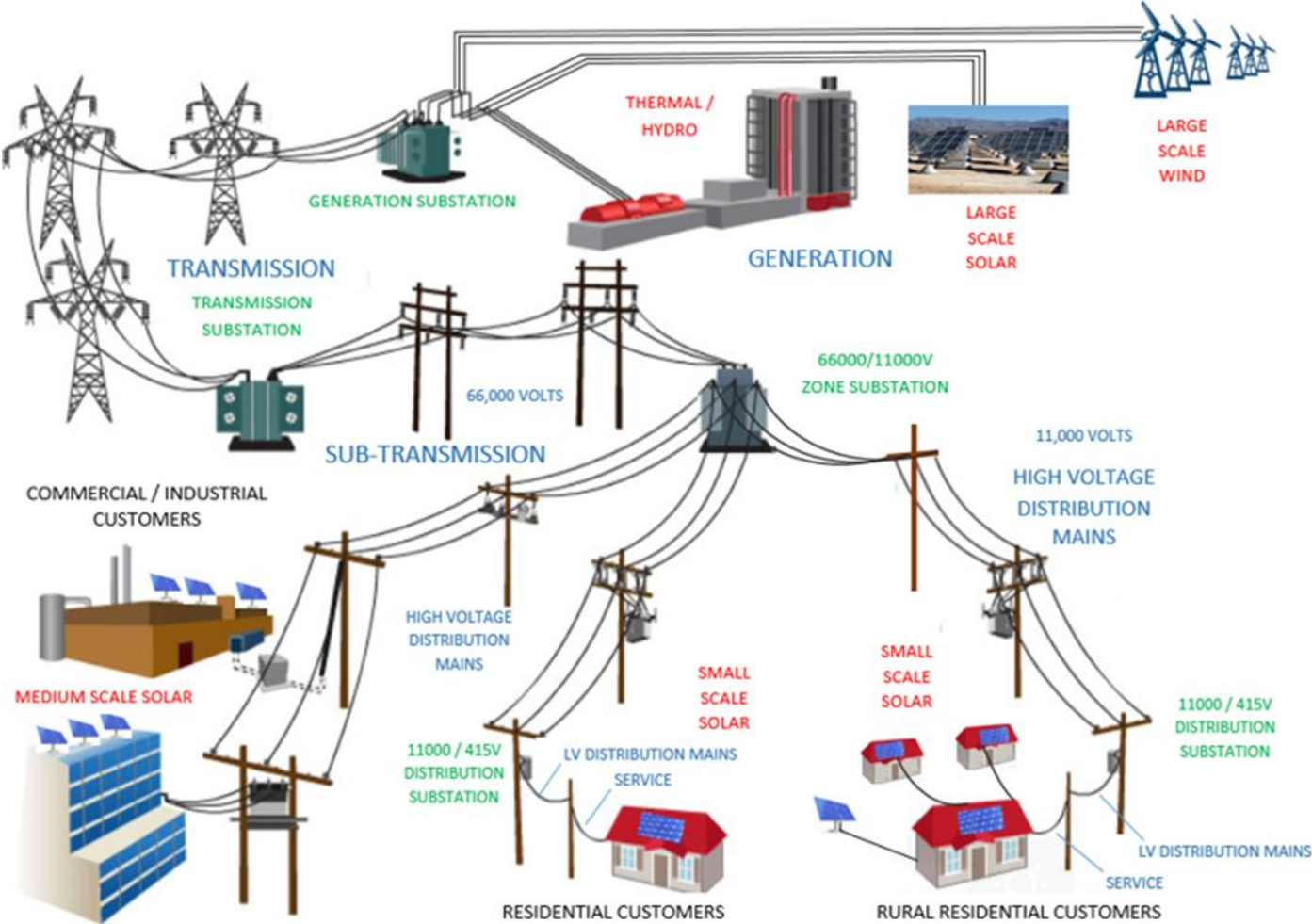
Electricity Network developed during the 20th Century



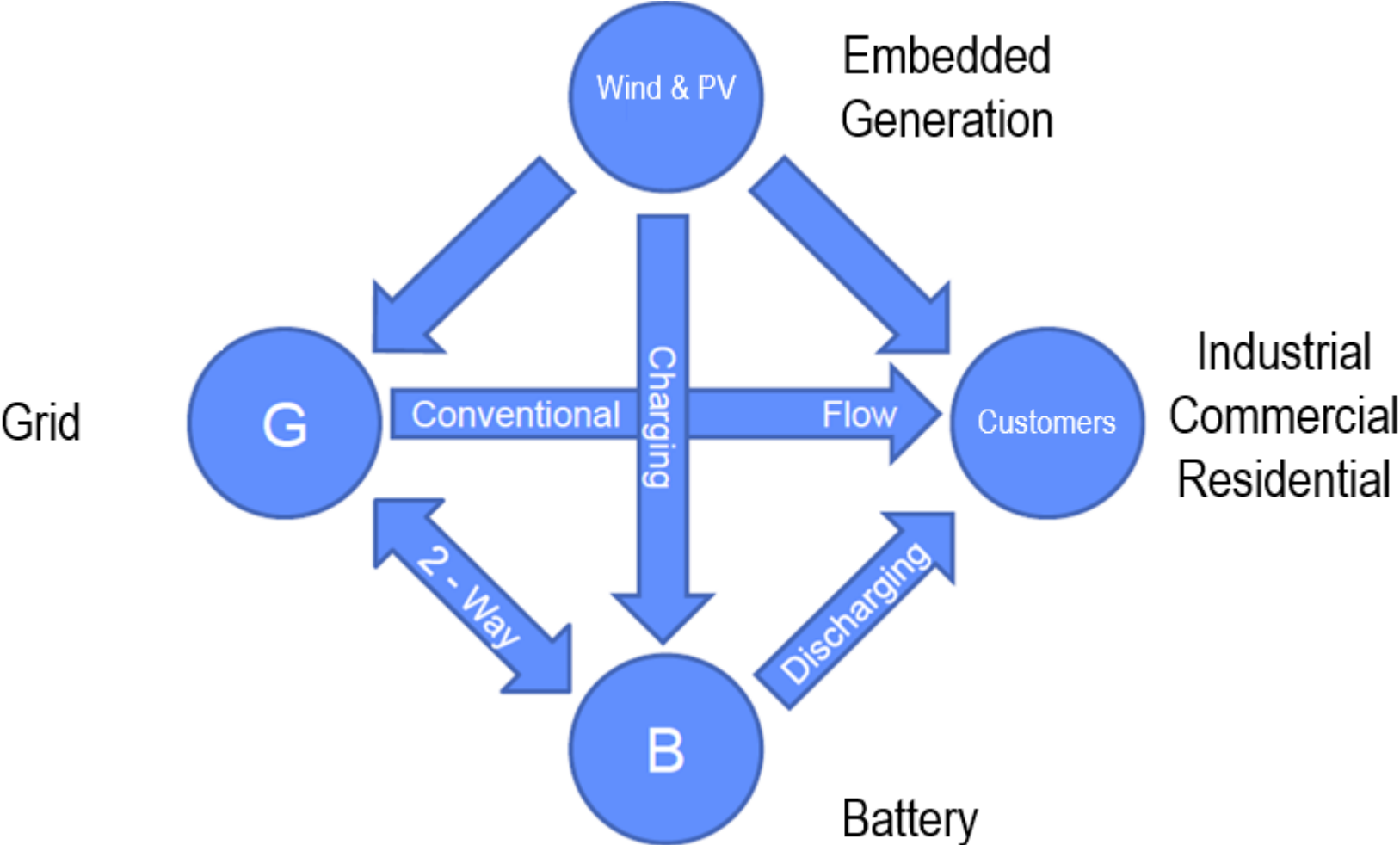
Traditional Network Power Flow



Today's Network



Today's Network Power Flows



Our Challenge – where to from here?

- > Develop a Network that is efficient and will cope with new Innovation and Technology.**
- > Encourage the use of energy efficient plant and equipment by all customers.**
- > Build and maintain relationships with all stakeholders in that have an interest to meet the above aims.**

Reduce connection charges and energy costs by

- > **Connection of new loads close to supply points to minimise connection charges.**
- > **Ensure proper consideration is given for timing of Network augmentation. (Can take years dependant on requirements)**
- > **Use of efficient appliances and commercial plant (AC, lighting, motors etc.) to reduce energy usage.**
- > **Use of Power Factor correction (Capacitors) to reduce energy usage and demand (Dependant upon tariff)**
- > **Use of smart metering and load control to manage energy use to establish usage during lower tariff periods.**
- > **Use of embedded generation to offset energy usage (PV, wind, co-generation etc.)**
- > **Develop and implement the use of LED Street Lighting.**

LED Street Lighting

THE NORTHERN LIGHTS PROJECT

- > Collaboration between Regional Development Australia – Northern Inland NSW, Councils and Essential Energy provided for the installation of LED street lights across 7 councils: Armidale, Glen Innes, Guyra, Gwydir, Inverell, Tenterfield and Walcha Councils
 - The Northern Inland Regional Councils secured Commonwealth funding through the Community Energy Efficiency Program (CEEP) for high efficiency luminaire upgrades
 - Program consisted of replacement of traditional category P lights (minor/residential roads) with LED luminaires
 - Installation commenced August 2015 and was predominantly complete by February 2016
 - Total of 4,819 LED lights were installed across 7 councils
 - Two LED light types
 - 18W and 25W LED Lights, with the lights evenly distributed across all areas
 - Feedback has generally been positive from the councils and local customers affected by the light changes

TRANSITION TO LED LIGHTING



- > Procurement now complete with contracts awarded for traditional lights and LED's
 - Category P - P4 /P5 Residential Roads – Transition to LED
 - Category P - P3 Intermediate Roads – Transition to LED's in short term
 - Category V - Main Roads – Continue with traditional lights with trials initiated for LED's
 - Floodlights – Traditional lights only – no LED Floodlights selected as part of tender process

- > Decorative lighting
 - No decorative LED light fittings will be included on the updated standard materials listing; traditional decorative fittings available for maintenance only
 - We are moving standardised fittings to improve maintenance processes and reduce timeframes to repair lights moving forward
 - Essential Energy will work with Councils on transition strategies for decorative light fittings

TRANSITION TO LED LIGHTING

- > LED SLUOS pricing to be negotiated with customers
 - Due to timing of the AER submissions and completion of procurement process Essential Energy does not have an AER approved price for LED lighting
 - Essential Energy is working on negotiating pricing with Councils/RMS over the coming months
 - Transitional pricing arrangements offered in the interim
 - Where councils / RMS do not approve transitional or negotiated pricing they will not be able to install LED street lights that form part of Essential Energy's inventory
 - Letters will be issued over the coming weeks regarding pricing arrangements
- > Standard Material List update
 - LED fittings will be added to standard materials listing for Cat P 4/5
 - Council / RMS approval will be required prior to using LED lights – where these lights will only be used where pricing is agreed with Essential Energy

TRANSITION TO LED LIGHTING

- > Trials Cat V LED's
 - Further trials will be completed for Category V (major roads)
 - Trials will be completed in Goulburn and Lismore
 - Following completion of trials, Essential Energy will determine the timing of further implementation of Cat V LED's
- > Essential Energy will work with councils on LED upgrade strategies, options include:
 - Bulk upgrade in place of lamp replacement program
 - Bulk upgrade at agreed time
 - Progressive upgrade at end of life of existing lights

“LED's may continue to be installed as metered installations
maintained by Council / RMS”

Considerations for LED Street light Conversion

- > At present EE has a 4 year HPS/CFL lamp replacement program (lamps replaced like for like).
- > The luminaires can be replaced with LEDs as part of this 4 year replacement program however the local council will need to fund the additional cost.
- > EE only funds luminaire upgrades to LEDs if the existing HPS/CFL luminaire fails (progressive upgrades). Failed HPS/CFL lamps will be replaced like for like with HPS/CFL lamps.
- > Maintenance for LED SL likely be pushed out to 8 years due to the increased reliability of the LED SLs.
- > CFL 42W = 18W or 25W LED, HPS 70W = 36W LED, reduction in energy usage would be 50% approx.



**Individual council public lighting information is available
at your dropbox portal at:**

<http://www.essentialenergy.com.au/content/council-dropbox>