



# A passion for clean energy

## Lighthouse Community Energy Project

Smart Future Cities 2015 Presentation

*Thursday 1 October 2015*



CLEAN ENERGY  
ASSOCIATION OF  
NEWCASTLE AND  
SURROUNDS



## A not-for-profit association

- creating community-focussed viable clean energy projects
- providing education, resources and project services
- partnering with other community and business groups



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BRIGHTER FUTURE



# Lighthouse Community Renewable Energy

*"a model to make it easier for community groups to own and profit from solar installations which generate clean energy for direct use by local businesses"*



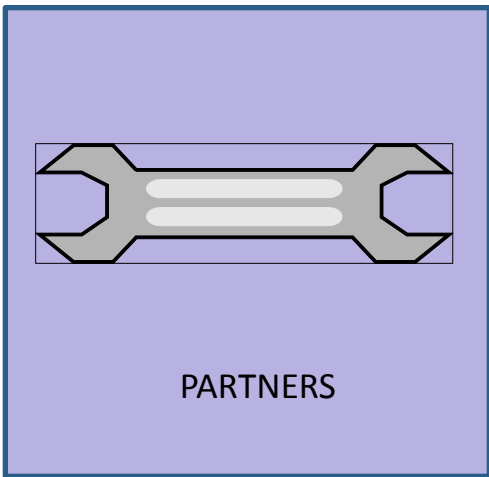
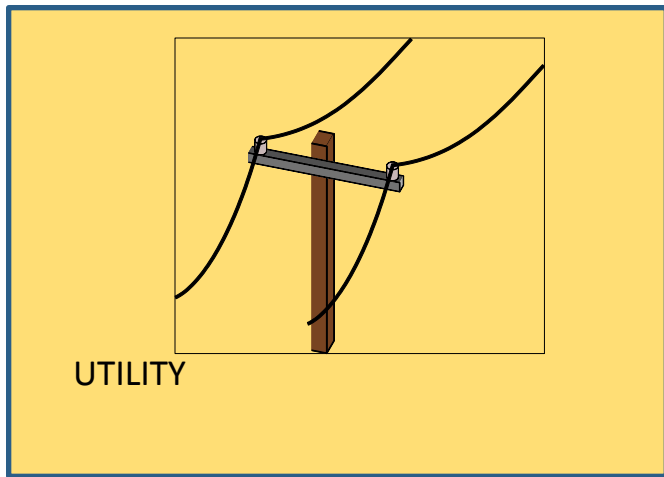
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# NSW Govt Support for Community Renewables - Grant Funded Project

\$52k - Local expert consultants and CLEANaS members created a toolkit containing:

- Solar Power Purchase Agreement (SPPA)
- Investment Prospectus
- Corporate Structure and Documents
- Site Suitability Toolkit
- Financial Analysis Model
- Metering and Communication Systems
- Options Analysis Report
- Development Documents





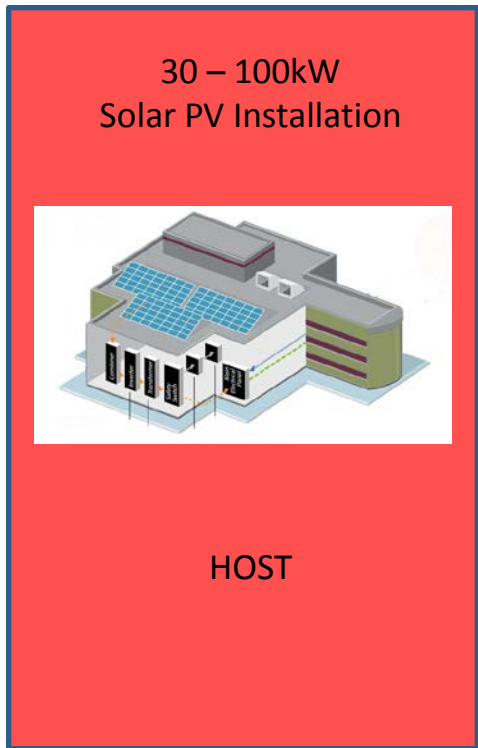
Grid Connection



Toolkit, Advice



Services,  
Equipment



Capital,  
Upkeep



ROI



Project Consultant

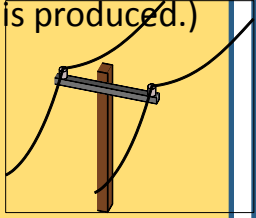
Business Entity



COMMUNITY GROUP

- Continues providing kWh service.
- Provides PV interconnection to grid.
- Interfaces with Service Provider and Host in case of service interruption.
- Provides net metering credit to Host customer (when excess PV is produced.)

UTILITY



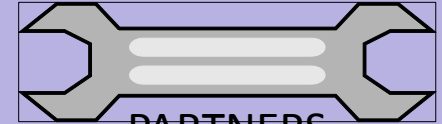
Grid Connection

- Analyses project profits, advises and provides contact to Contractors for Community Groups
- Provides Toolkit
- Receives margin from installations

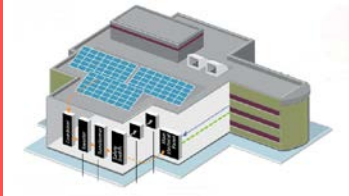


Toolkit, Advice

- Engineer, procure, construct, operate and maintain
- Equipment Manufacturer
  - Installer
  - Maintenance



Services, Equipment



HOST

- Receives power from on-site system under long term SPPA.
- Provides roof space and access but does not own array.
- No capital required.
- May own or rent building.

Capital, Upkeep



ROI



COMMUNITY GROUP

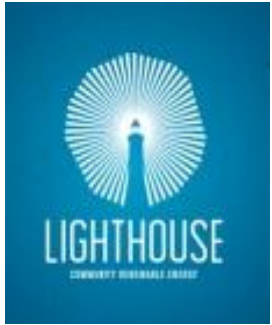
- Contracts Project Consultant
- Provides Investors
- Selects Host
- Steers Project

### Project Consultant

- Designs the installation and finances
- Tenders, negotiates and prepares all contracts with Host, Equipment Manufacturer, Installer, Investors ...
- Drives the installation project
- Creates SPV
- May provide services for operation phase
- Receives a fee for services

### Business Entity

- Owns the installation, sells the power and RECs
- Legal counterparty for all contracts with Host, Equipment Manufacturer, Installer, Investors ...
- Manages cash flows and bookkeeping for the operation phase
- Responsible to manage Investor relations
- Responsible to arrange operation and maintenance
- Responsible to arrange decommissioning
- Pays profit to Investors or finances new projects



# Limitations of Lighthouse Model

## Crowd Sourced Equity Funding:

- debt or equity crowdfunding (e.g. Mosaic) not currently available in Australia
- current regulations restrict the number of investors (20)
- limited to “sophisticated, experienced or professional investors”

Federal Government has announced it will legislate to enable crowdsourced equity funding



# Alternatives

Financing and leasing schemes for solar PV

- available for households and commercial customers

Crowdfunding:

- raise money through donations and sponsorships.

Establish funding facility (Rolling fund):

- establish for those customers not able to access finance (social sector organisations, etc)

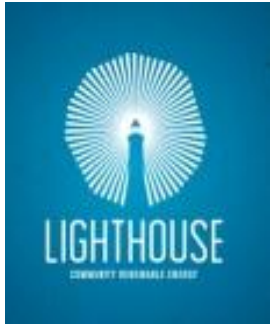




# Growing Community Energy - Grant Funded Project

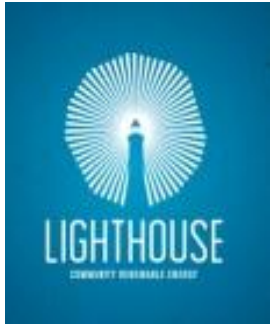
\$40k - Lighthouse Community Energy Project:

- Develop an effective community energy financing mechanism
- Community Engagement - identify potential investors and project hosts
- Establish a critical mass of viable and appropriate project sites



# Community energy financing mechanism

Establish a community energy fund - investigate a new business model involving collaboration with local member owned banks/credit unions to overcome restrictions to community participation typical of traditional finance models



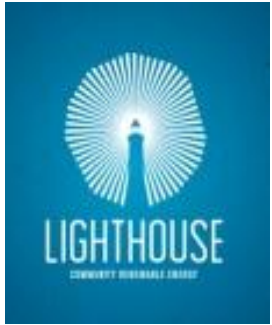
# Community Engagement

Seek feedback from and educate the public  
about the benefits of community owned clean  
energy and offer an opportunity to participate  
Identify prospective host sites for projects



# Establish a critical mass of project sites

- Facilitate feasibility study (rooftop solar and energy efficiency) of prospective host sites
- Select priority sites, prepare business cases, establish finance mechanism, and facilitate tenders for system installation and ongoing maintenance.
- Review potential value adding measures such as Virtual Net Metering and Environmental Performance Upgrade Agreements



# Best Host Organisations

A social sector (public or private) entity with:

- well defined and large supporter group,
- good visibility/contribution to region,
- flexible and motivated building owners
- no access to discounted energy contracts

Technical requirements:

- flat day-time energy demand of 500 kWh per day
- available roof space with N-NW aspect and good access and safety.
- long term tenure (>10 years)

# Current Project: Hunter Wetlands Solar

Hunter Wetlands Centre (HWC) is a community owned, not-for-profit local charity that is going solar and 100% renewable energy



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# Future/Pending Projects

## Hunter Surf Lifesaving Clubs (SLSC)



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# Future/Pending Projects

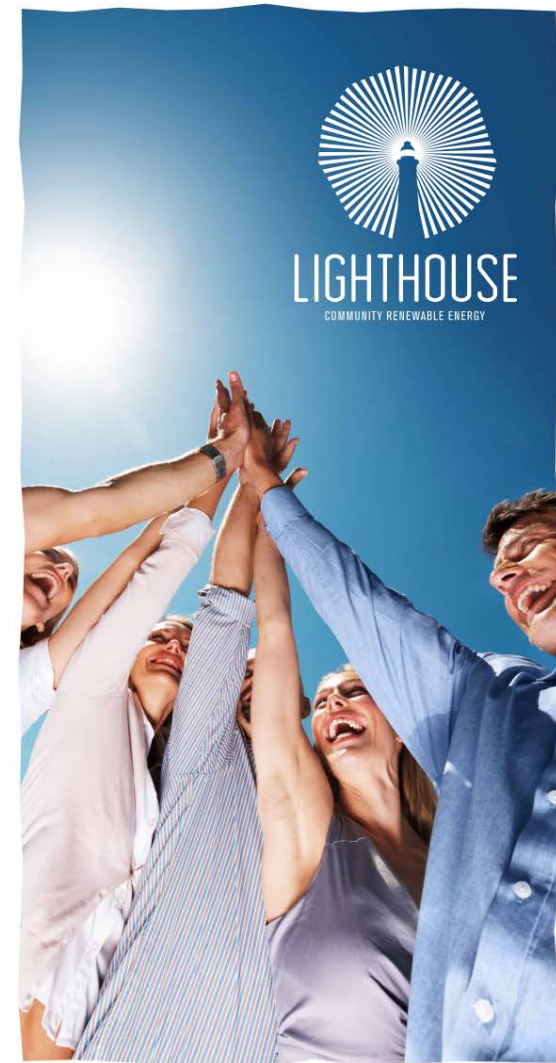
## Compass Housing



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# CLEANA S - Get More Involved

CLEANA S projects will require the combined efforts of individuals in the community, business and clean energy partners.



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# Hunter Wetlands Solar

*Lower power bills, practical climate action,  
community energy leadership*

**Dr Stuart Blanch**  
**CEO**  
**Hunter Wetlands Centre Australia**





An aerial photograph of the Hunter Wetlands Centre Australia. The image shows a large, irregularly shaped wetland area with several interconnected ponds and a network of waterways. The wetland is surrounded by a dense forest of trees. To the left of the wetland, there is a residential area with many houses and a road. To the right, there is a large, open field with some trees and a road. In the bottom right corner, there is a large, white, lattice-structured tower. The text "Hunter Wetlands Centre Australia" is overlaid in white, and "Solar installation on roof of Visitors Centre" is overlaid in yellow with a yellow arrow pointing to the Visitors Centre building.

# Hunter Wetlands Centre Australia

**Solar installation on roof of Visitors Centre**







# Solar array specifications

- 12 kW solar array (2 or 3 times size of standard residential solar array)
- 48 250 watt Tier 1 SunTech panels
- 56kWh daily power production (est.)
- M215 Micro-inverters by Enphase
- ACS Solar is installer
- Risks, opportunities, strategy....

# Solar economics

- Build cost \$16,400
- \$4,145 savings on power bill each year (est.)
- Produce 15-20% of average daily power use
- 4 to 5 year payback period (est.)
- 270% Return on Investment over 10 years (est.)
- No Feed-in-Tariff for any exported power



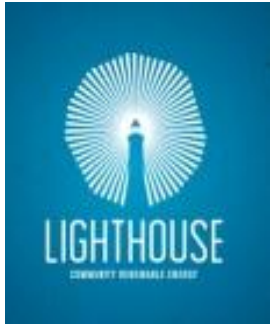
# Community fundraising campaign

- Community members have raised \$20,000 to date...community energy!
- Sponsor a panel for \$500
- Tax deductible receipt to reduce tax liabilities
- Acknowledgements in HWCA Visitor Centre / Spoonbill Café
- Be part of ongoing community ownership and support of Hunter Wetlands Centre, which celebrates 30 years on 7 November 2015
- HWCA helping community members show environmental leadership



# Future investments?

- Wetland conservation dividends out of savings eg, environmental education displays, threatened wildlife re-introduction
- Energy efficient lights, lamps, fridges, air conditioners, heaters, fans
- Additional solar panels (up to 40kW)
- Battery storage (highest energy load is at night)
- Electric vehicle charge station
- Community solar project on our other roof spaces
- Solar powered lights around wetlands for night safaris, safety, security
- Currently carbon neutral for stationary energy (Momentum Energy)



# Questions

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