



How much solar are we actually talking about?

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Overview



- Motivation for OEH study
- Who is Epho Pty Ltd?
- Approach
- Conclusion and Discussion

Motivation

Background:

- The NSW Office of Environment and Heritage (OEH) promotes Environmental Upgrade Agreements as a financial solution for solar power systems.
- The OEH & Parramatta City Council wanted to explore the market potential of EUAs for large commercial solar systems.
- The OEH & Parramatta City Council needed some certainty of the opportunity before investing any more time and effort.



Objective:

- Eppo Pty Ltd was engaged to evaluate the potential of commercial and industrial solar systems within the boundaries of the Council's area.
- How many kWp of solar power could be sensibly installed and how much clean energy would be generated?

Epho is about serving our clients



Epho provides consulting services and delivers turn-key **commercial solar** systems solutions, making Australian businesses more profitable.

The Offer: We serve a broad range of companies from regional SMEs to multi-national corporations who turn to Epho when they are looking for a high quality, flawlessly executed solar solution

Offices: Sydney / Central NSW / Northern NSW / Melbourne / Brisbane

Typical clients:

Governments



Corporations



SMEs



Epho is about credibility

Epho is a trusted name for commercial solar in Australia.

- Fully accredited ISO 9001(Quality), ISO 14001 (Environment), AS 4801 (WHS)
- NSW Gov. WHS guidelines 5th ed. Accredited
- Highly involved in education and the Australian Solar Industry

Accreditation



Memberships



green building
council australia
MEMBER



R&D and Education

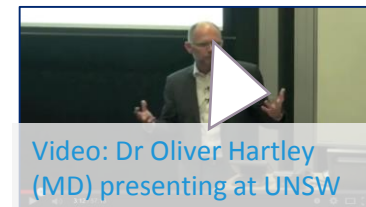


Seminars with OEH
and NSW Biz Cham.

Solar PV for business

Have you considered installing
to reduce your operating costs?

Find out how your business can benefit
solar at a free information session pres-
ented by the NSW Office of Environment & Heri-
tage. Learn from local case studies, finance &
industry experts.



Video: Dr Oliver Hartley
(MD) presenting at UNSW

External Advisory Committee
for the School of Photovoltaics
and Renewable Energy
Engineering at the UNSW

Our Approach



Framework:

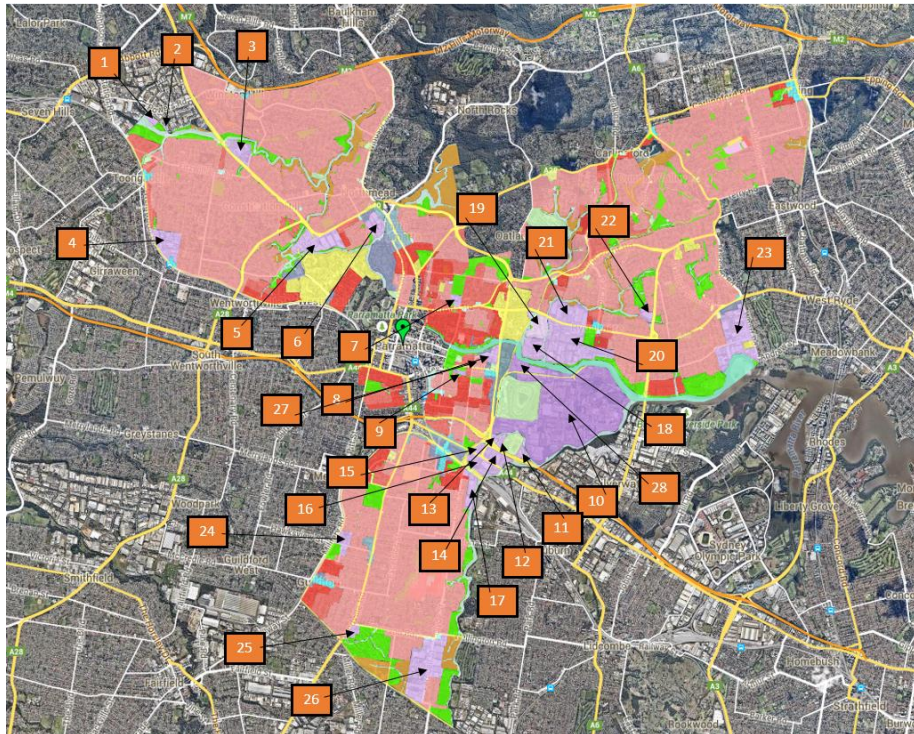
- Because EUAs are more suitable for larger solar systems, the evaluation was focused on industrial zones only.
- It was accepted that any final figure would, therefore, understate the potential of commercial solar power rather than overstate.

Methodology:

- Epho Pty Ltd developed a 5 step approach
 - i. Indexation
 - ii. Factorisation
 - iii. Categorisation
 - iv. Evaluation
 - v. Reporting

(i) Indexation

Parramatta Local Environmental Plan 2011



Zone/s	Typical development allowed
R2	Single dwelling houses
R3	Townhouses & villas
R4	Apartments
B1 & B2	Shops & offices
B4	Shops, offices and apartments
IN1 & IN3	Industrial development
RE1 & RE2	Parks & recreational facilities

(iii) Categorisation

Process

- Categorisation involved assigning an area type to each area or sub-area (i.e., whether it was considered to be 'Large Industrial', 'Medium – Large Industrial' or 'Small – Medium Industrial' for the purpose of the calculations).
- Each of the indexed areas were assessed and an area type was assigned and recorded.
- Each identified area was analysed and the appropriate factor was applied.

(iv) Evaluation

Assumptions:

- The PV module area (i.e., surface area of the solar panel) was assumed to be 1.63m² (60 cell solar panel).
- The PV module power class: 260Wp (commonly used for industrial projects).
- Our approach enables flexibility to assume higher efficient modules.
- The specific performance (kWh/kWp/annum) used to calculate the potential yield of the total solar power systems was calculated by taking the average of the specific performance of 3 x 99.84 kWp solar systems located in Camellia, NSW, facing East, North and West respectively.
- PV Syst - System simulation: 3 x ABB TRIO-27.6-TL-OUTD string inverters, ReneSola Virtus II 260Wp solar modules, mounted roof-parallel at a pitch of 10° from the horizontal.
- The CO₂ conversion factor for NSW is based off 'National Greenhouse Accounts Factors' by the Department of Environment (The Australia Government). The CO₂ conversion factor for NSW is 0.86.

(v) Results

92 MWp of solar power

129 GWh per yr of solar electricity

111,245 tones of CO₂ per yr saved

Conclusions and discussion

Conclusions:

- The potential to install solar power on industrial zones within Parramatta City Council is almost equivalent to the largest utility-scale solar farm in Australia.
- Assuming additional commercial system outside industrial zones the **potential exceeds 100 MW**.
- Considering, only one council area was evaluated the CO₂ abatement is significant.

Discussion:

- Structural and economical feasibility has not been taking into consideration.
- The potential is unrelated to type of finance (direct investment, lease, PPA or EUAs)
- What share of the potential could and would be executed depends on many factors.

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