



# Solar Power Purchase Agreement

# Agenda

09:00 am – Guest arrival & Registration

09:30 am – Welcome

09:45 am – BRC-A presentation

10:00 am – UNSW PPA case study

10:20 am – Tool presentation

10:40 am – Tool demonstration

11:00 am – Morning tea

11:30 am – Hands on with the tool

12:30 pm – Lunch to be served

01:00 pm – Event to conclude

# UNSW Solar PPA



**The Solar Farm Developer**



**The National Electricity Market (NEM)**



**The Transmission and Distribution Grids**



**The Energy Retailer**



**The Customer**



**Large-scale Generation Certificates (LGC's)**

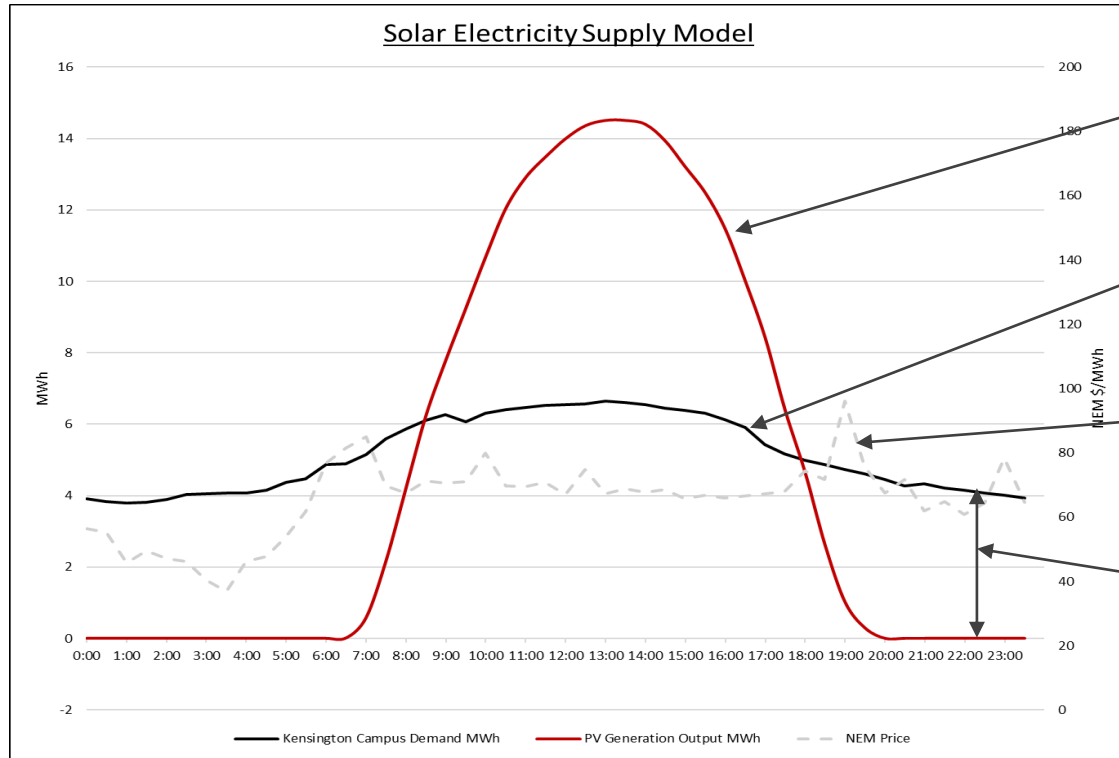
# PPA Objectives

- Renew the UNSW electricity supply contract from 01/01/2018
- Seek emissions reduction/carbon neutrality, by procuring 100% of our electricity from renewable energy
- Cost of RE to be comparable with 'standard' electricity costs
- Ideally to use PV technology developed by UNSW
- From a new generation source (additionality)
- Carbon offsets were to be fully verifiable by audit (traceable)

# Tender process (very short summary)

- UNSW used a pre-selected developer and retailer lists
- RFT issued and managed via Tender Link (with a large quantity of information)
- Compliant tenders required (non compliant tenders were considered only if submitted together with a compliant tender)
- Evaluation process
  - No consortium tenders were submitted (Too risky? Too new?)
  - Tender interviews were carried out independently
  - Tender short list identified
  - New interviews carried out to select preferred consortiums
- Selected preferred suppliers and entered final negotiations

# UNSW PPA basic requirements



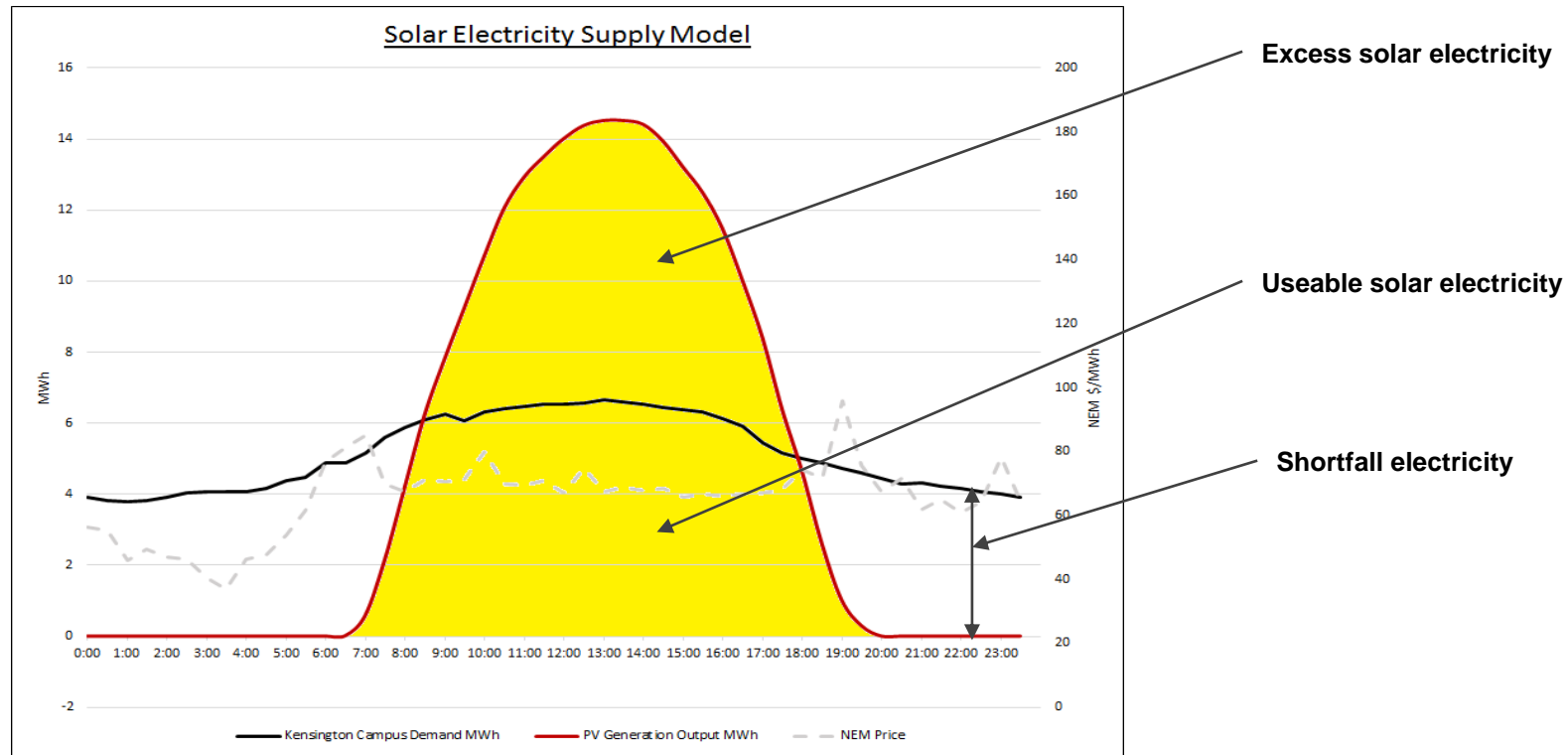
This is the volume of electricity and associated LGC's we buy from the Developer on a CFD basis to match our total 24 hour requirement

This is the volume of electricity we need on a half hourly basis during a 24 hour period

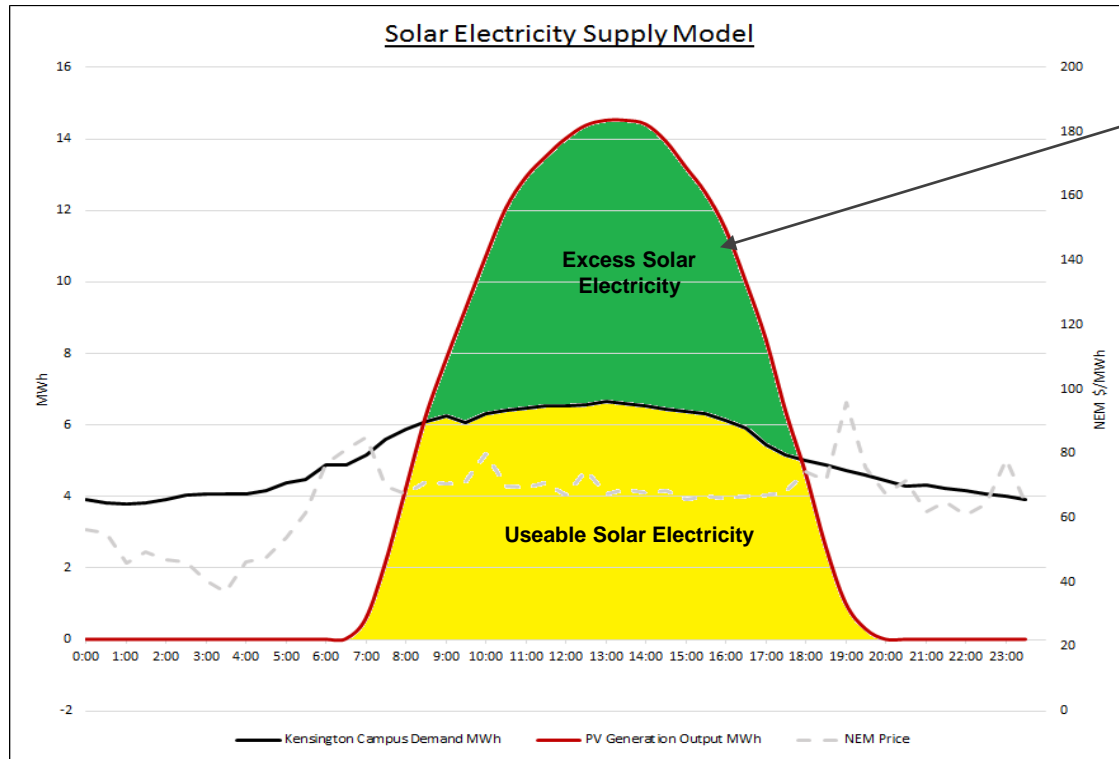
This is the Spot price of electricity in the NEM wholesale market determined by AEMO on a half hourly basis during a 24 hour period and paid to the solar farm

This is the volume of electricity we need to source for our "overnight" use

# UNSW PPA mechanics



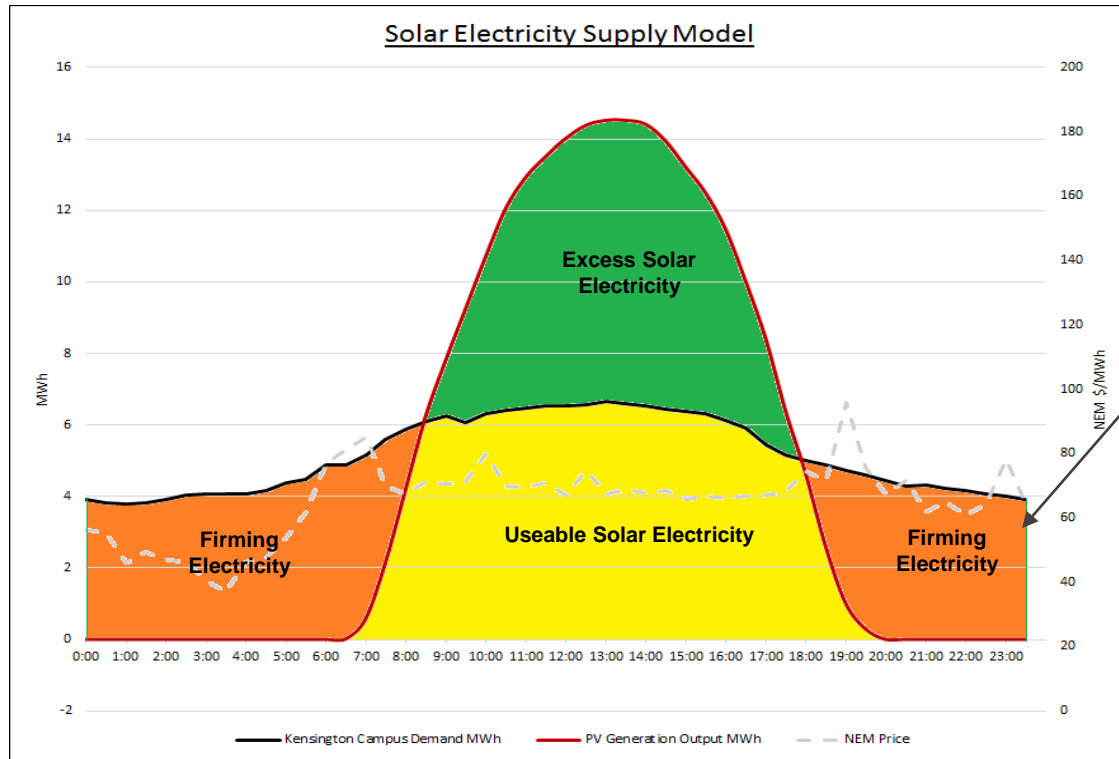
# UNSW PPA mechanics



**Excess solar electricity is bought by the Retailer from UNSW. UNSW retains the LGC's**

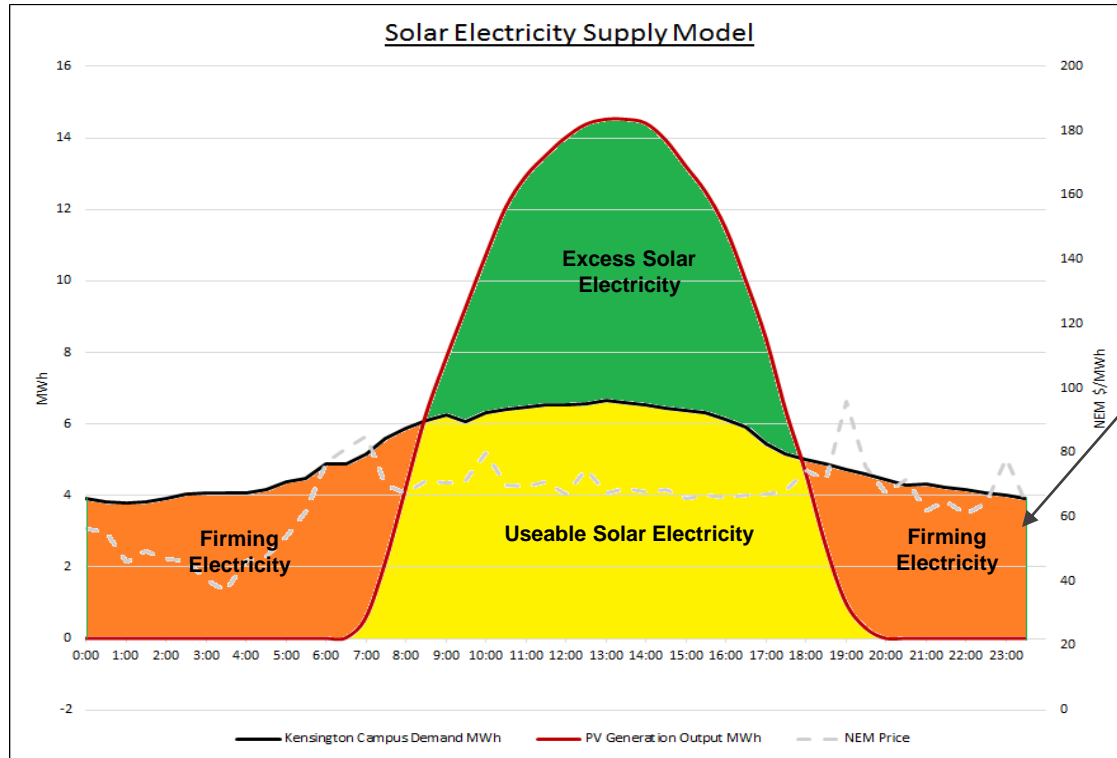


# UNSW PPA mechanics



Shortfall (firming) electricity is bought by UNSW from the Retailer under a “standard” supply contract

# UNSW PPA mechanics

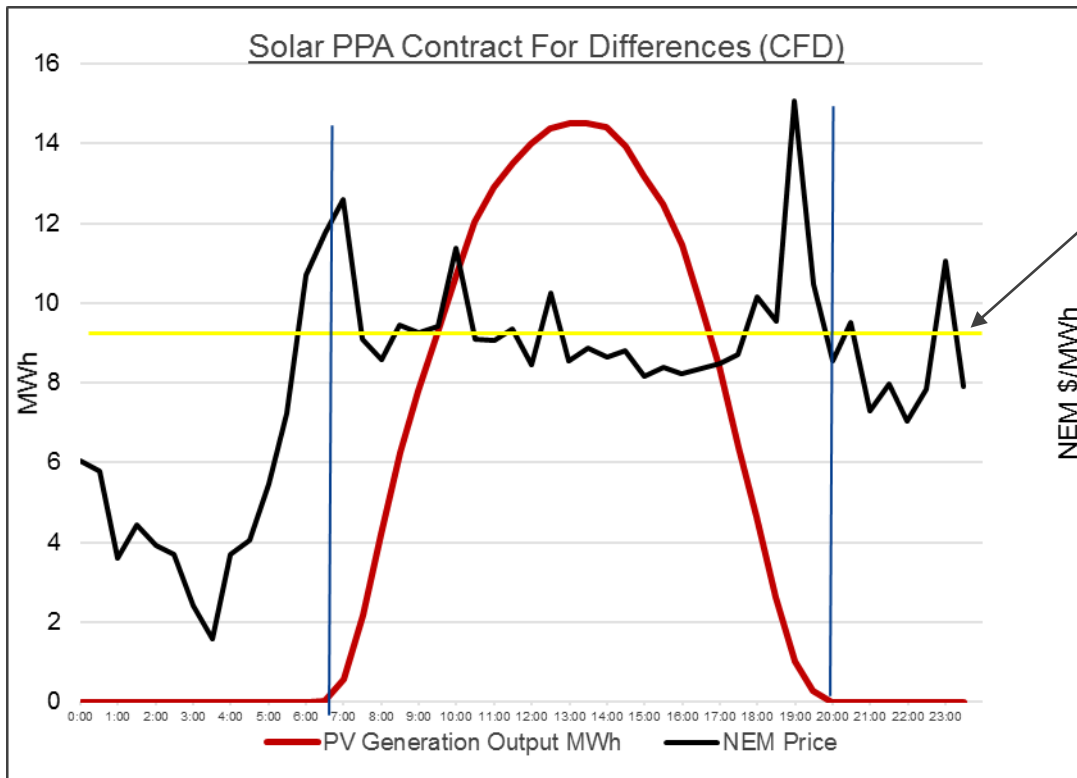


Shortfall (firming) electricity is bought by UNSW from the Retailer under a “standard” supply contract

The proceeds from the sale of excess solar electricity are used to offset the cost of the firming electricity.

The retailer submits a net invoice to UNSW.

# UNSW PPA contract for difference



This is the PPA's CFD "Strike" Price for electricity and LGC's

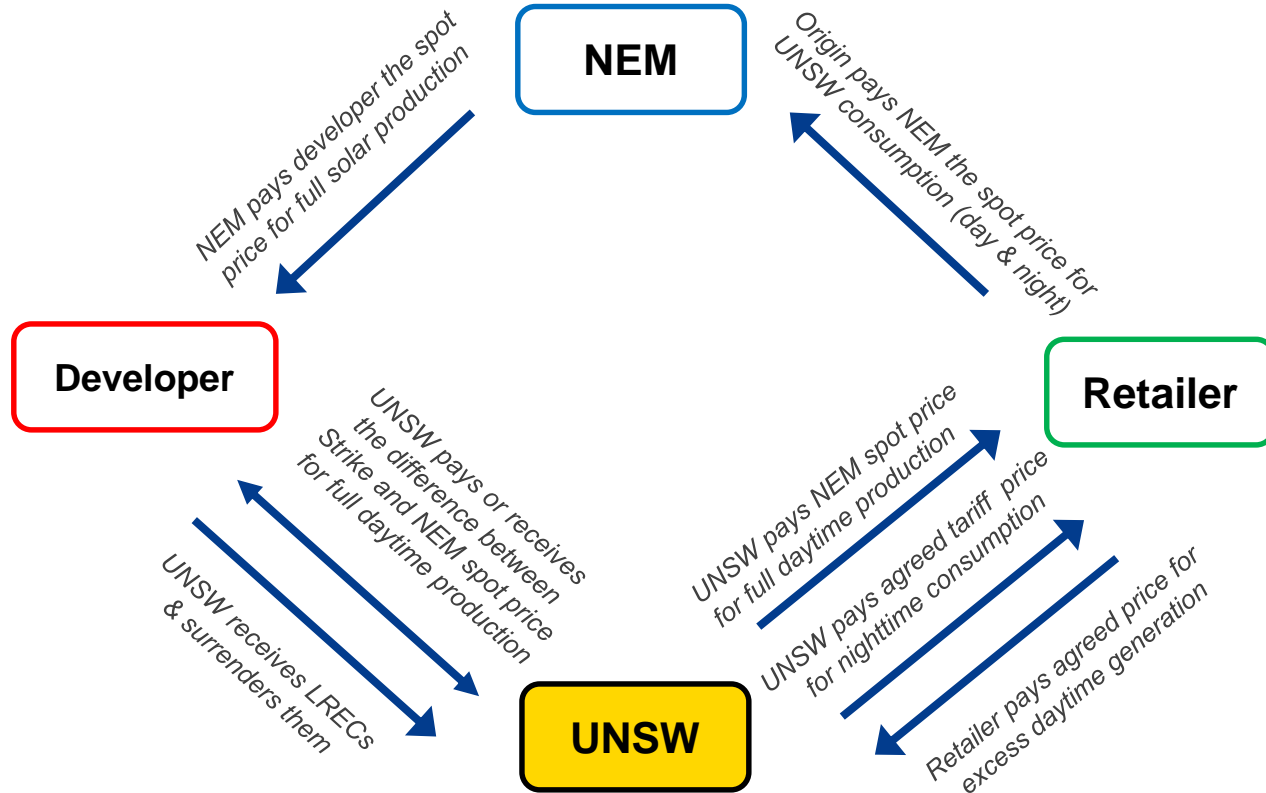
If the NEM Spot Price Is Less Than The Strike Price When The Solar Farm Is Generating, then UNSW Pays The Developer The Difference.

If the NEM Spot Price Is More Than The Strike Price When The Solar Farm Is Generating, Then The Developer Pays UNSW The Difference.

The Retailer Charges UNSW the NEM price For Solar Power.

The Net Outcome Being that UNSW always Pays the Strike Price for the Solar Power

# UNSW PPA Cashflows



# Critical success factors and lessons learned

- Involve executives from the beginning and agree in clear project objectives
- Communicate often and freely with internal stakeholders (executive, legal, treasury, finance, procurement .....)
- Engage an experienced and knowledgeable legal team
- Engage an experienced and knowledgeable energy procurement team
- Select a developer and retailer willing to work together
- Clearly identify risks and risk mitigation measures (I wish I had a model and tool that could do that!)