



## **Alternative Purchase Methods**

### **Market purchase of electricity**

- Spot Market (Day ahead)
- Forward purchase

### **Purchase power agreements**

- Unit entitlement – Allocated percentage of electricity from a specific generator, essentially a partnership
- Cost plus fuel – Purchase of electricity with the cost based on a benchmark fuel/heat rate equivalent

### **Full requirements agreement**

- A single entity provides all of the CAP electric requirements for a portion of the load or even the whole load

### **Ownership of generation**

- Purchase an existing facility or build a new facility

## Typical Time Frames

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These are general time frames and are provided as a reference, most of these are negotiable

- Market Purchase
  - Spot Market – purchase on a day-ahead basis
  - Forward Purchase, Fixed Price – typically 0-3 years in advance of the delivery period
- Purchase Power Agreement
  - Typically for periods greater than 3 years
- Full Requirements
  - Greater than 10 years
- Ownership
  - Life of plant

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## Market Purchases

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### Spot Market

- Bilateral trades of electricity for agreed upon hours, specific quantities, and point of delivery
  - Currently there are the historical trading periods of On-peak (Monday-Saturday 0600-2200) and Off-peak (the remaining hours/days)
  - June, July, and August have a higher priced market from 1:00 to 9:00 pm
  - Spring and Fall months have a substantially reduced market from 10:00 am to 5:00 pm due to the solar oversupply
  - Can result in substantially lower cost for variable load
- CAWCD is currently active in this market and trades on a daily basis

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## Market Purchases

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### Forward purchase

- Bilateral trades of electricity for agreed upon hours, specific quantities, and point of delivery
  - Typically the purchases are for a month or longer
  - The prices are firm
  - Could be for the standard On-peak or Off-peak periods but there may be flexibility
  - Delivery could be immediate or generally up to three years
  - These transactions would be governed by the Western System Power Pool standardized sales contract
- Process
  - CAWCD or its Agent would send solicitations to potential counterparties detailing quantity, delivery point and schedule, bid closing time, and other standard information
  - Within **one hour** of the closing time the selected party is notified

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## Purchase Power Agreement

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A Purchase Power Agreement (PPA) is the typical instrument used in the electricity market for longer term arrangements. It is a contract between two parties, one who generates electricity for the purpose (the seller) and one who is looking to purchase electricity (the buyer). The PPA defines the commercial terms for the sale of electricity between the two parties, including the schedule, location, and quantity for delivery of electricity, financial security requirements, term of the agreement, penalties for under delivery, cost/terms, and termination. The PPA could be originated through the RFQ/RFP process and may require Board consideration and approval prior to execution.

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## Purchase Power Agreement

### Purchase Power Agreement considerations

- Pros
  - No capital expenditure or development risk associated with the construction of generation
  - No generation operation requirements or risks
  - Scalable and schedulable
  - Firm electric delivery would not be subject to unit outages
  - May allow a fuel hedging strategy to minimize future risk
- Cons
  - Unit contingent agreements will have exposure to lost electricity replacement
  - Could pay Return On Investment (ROI) to the supplier which would increase cost
  - Long term agreements require specific financial obligations by both parties and may cause exposure to credit risk
  - Must have a reliable and financially stable **partner** to ensure the delivery of the energy over the term of the Agreement

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## PPA Specific Generator

### PPA – Unit entitlement

- Electricity would be supplied from a specific generator
- Would not require an up-front capital investment
- No direct operational challenges
- Would be operated as a Base Load source
- Costs not subject to electricity market spikes
- CAP could institute a fuel hedging strategy to control some of the fuel risks
- No electricity when the unit is off-line due to unscheduled outages so replacement power would have to be procured in the market
- Must have a reliable and stable partner with similar long range goals

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## PPA Non-designated Source

### PPA – Cost plus fuel

- The supplier would have the contractual obligation to provide electricity based on the cost of the fuel and a predetermined heat rate (generator efficiency) from any source in its portfolio, essentially it is a heat-rate purchase
- This electric source could be scheduled into the portfolio as determined by CAWCD and not subject to unit outages
- Could be used as a Base Load resource
- Supplied from another entities portfolio with the same diversifications
- Costs not subject to electricity market spikes
- Costs could be subject to ROI
- CAP could have minimal if any fuel hedging options

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## General PPA Cost Components

### Capacity payment

- Fixed annual payment based on the agreed maximum capacity
- Typically have annual escalations

### Fixed Operation and Maintenance

- Costs for having the generator available
- Labor – operating and G&A
- Infrastructure costs – fuel delivery, land, taxes
- Spare parts
- Maintenance costs
- *Peak Reliability* and *WECC* compliance
- Typically have annual escalations

**Payments required regardless of electricity delivery (MW)**

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## General PPA Expenses - Variable

### Variable O&M

- Costs experienced for operation such as water, supplies and labor
- Environmental expenses

### Start Charge (if applicable)

- Payment for future overhaul and additional start costs

### Fuel Cost

- Based on an agreed upon fuel price index plus delivery
- A fuel manager could be required to minimize risk and determine day-to-day operations
- Exposure to associated fuel volatility

### Payments based on the quantity of electricity delivery (MWh)

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## Full Requirements Agreement

### Negotiated Agreement with a Supplier

- Term of agreement can be highly variable
- May contain cost elements of PPAs, use index pricing or wholesale rates of a utility
- May provide opportunity to reduce transmission costs and/or administrative costs
- Potential to provide long term stable pricing
- CAP could claim the same diversity as the supplier's portfolio
- Depending on the size of the allocation could require a long-term agreement
  - If a substantial portion of the CAP load was allocated to one supplier the supplier may have to acquire additional generation to serve the load and they would require a long-term agreement to ensure that the generation did not become a stranded investment

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## Ownership of Generation

- Large capital investment is paid up front
- Would require the purchase of a substantial portion of the generator – could exceed the Board’s diversity guidance
- Additional financial risk of capital investment and long-term ownership obligations
- Subject to compliance and/or other regulations pertaining to ownership
- Would have to interconnect into the CAP transmission system at strategic locations to provide energy to all of the CAP facilities
- CAP does not have the personnel to operate generation

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## Questions?



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