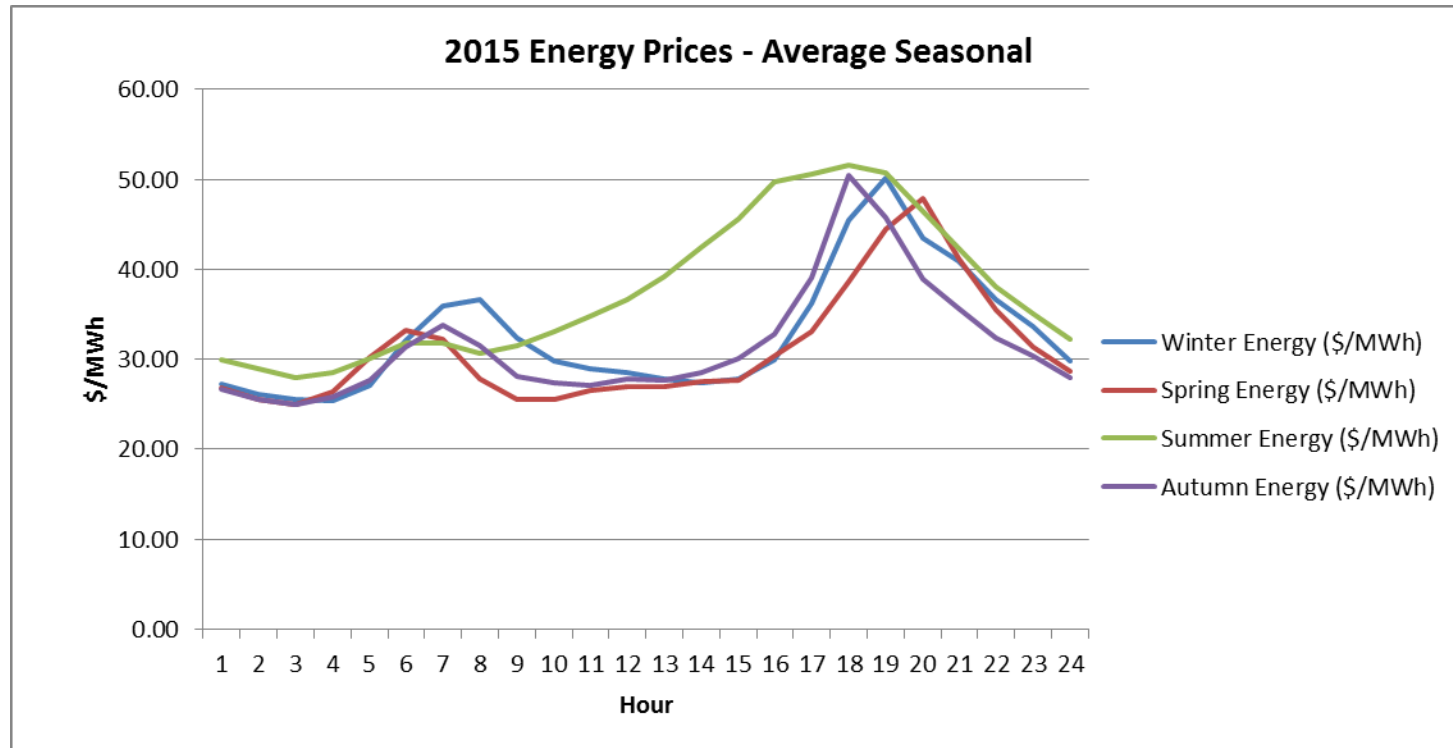


# Value of Renewable Energy thru 2030

Facilities Committee Meeting  
March 2, 2016

# Background

- Effect of solar on price curve
- As solar capacity increases, price during solar production hours may continue to decrease
- How will this affect value of solar through 2030?



## Assumptions and Calculations

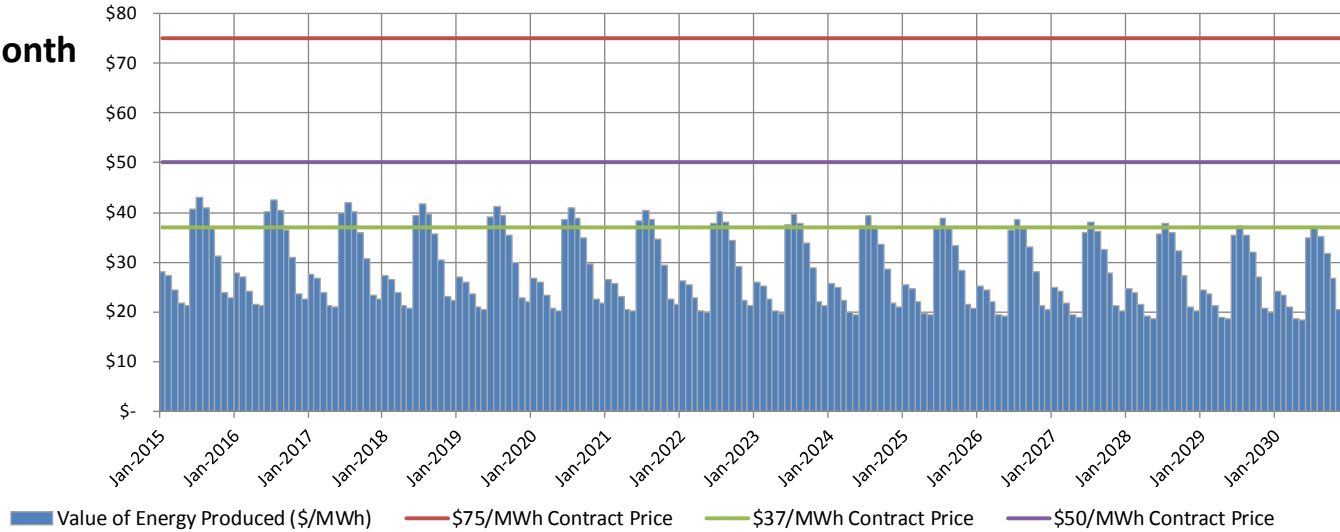
- Use 2015 as Basis
  - Hourly day-ahead Locational Marginal Price (LMP) for Solar Site
  - Data for example hour-by-hour solar production for 2015 provided by Palo Alto
- Projection thru 2030
  - Assumed that hour-by-hour generation profile of example solar production does not change from 2015
  - Assumed annual price decrease due to increased solar generating capacity only applies to hours when solar is generating
  - Monthly Value of Energy Produced based on total generation for a given hour during the month, and the average LMP for a given hour during the month, divided by total generation for the month
  - Yearly Value of Energy Produced based on summation of the monthly values.

# 2015-2030 Contract Cost vs. Value of Energy Produced

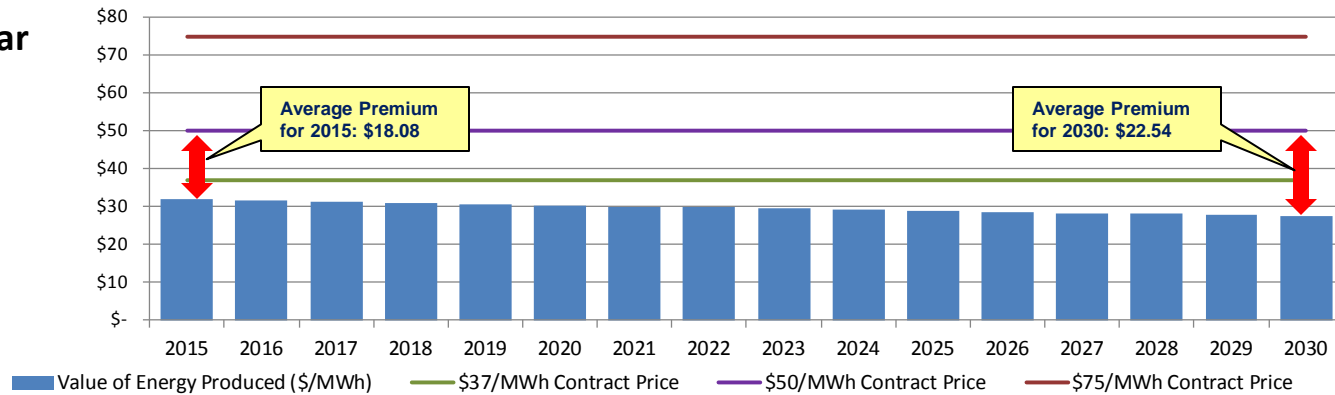
1% LMP Decrease/Year for Solar Generating Hours Only

Annual Price Decrease, Solar Hours Only (%): -1%

By Month



By Year

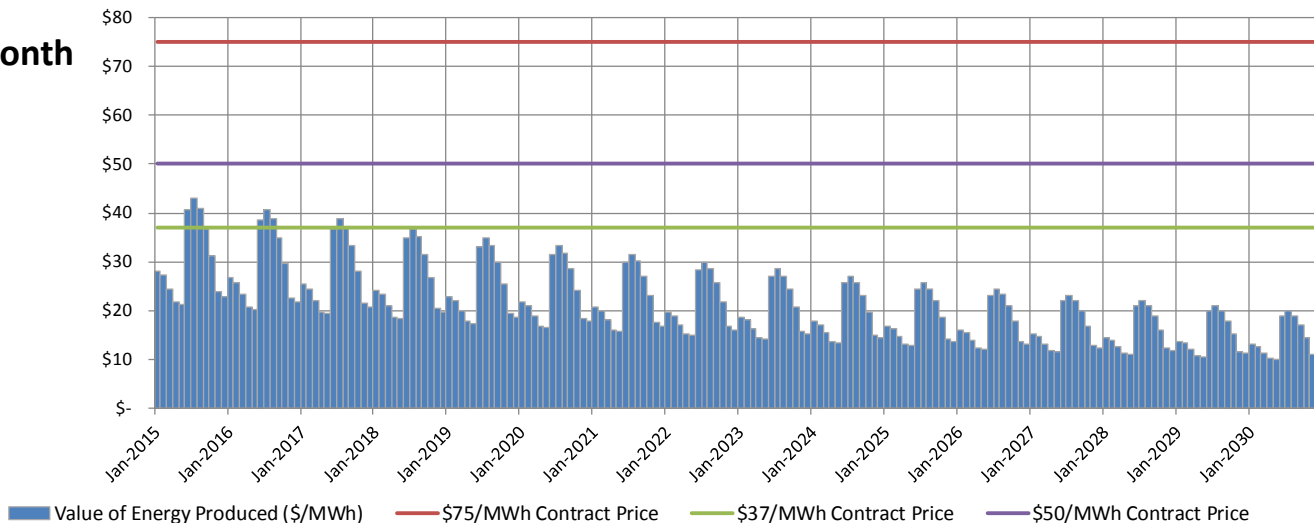


# 2015-2030 Contract Cost vs. Value of Energy Produced

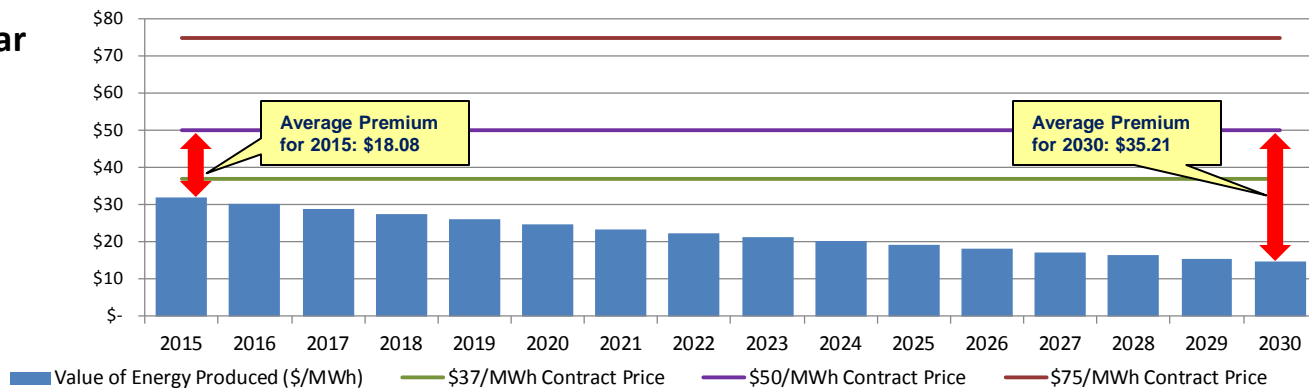
5% LMP Decrease/Year for Solar Generating Hours Only

Annual Price Decrease, Solar Hours Only (%): **-5%**

## By Month



## By Year

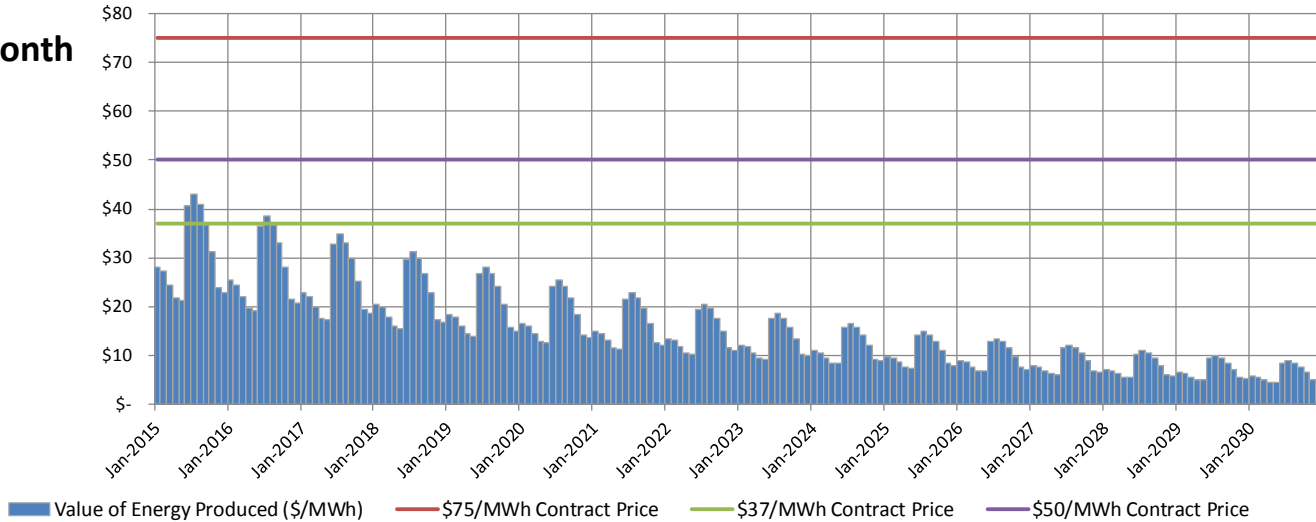


# 2015-2030 Contract Cost vs. Value of Energy Produced

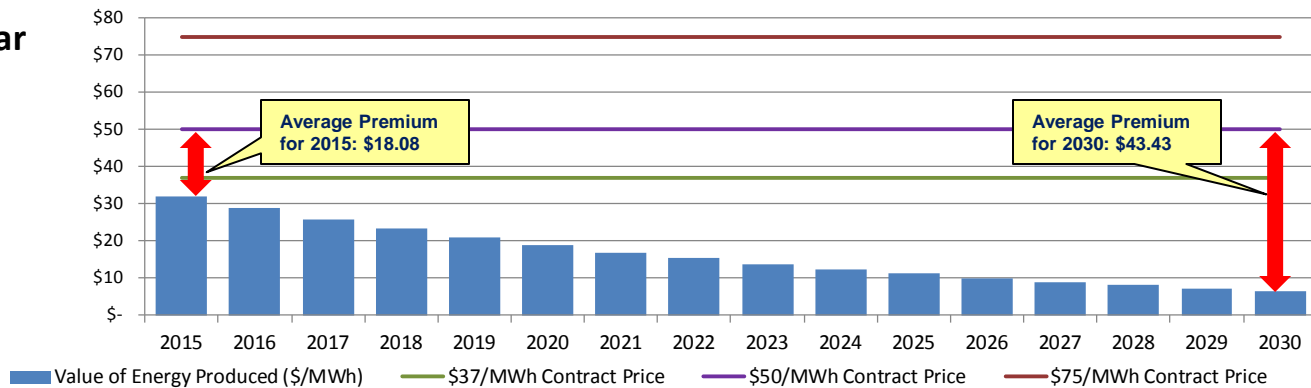
10% LMP Decrease/Year for Solar Generating Hours Only

Annual Price Decrease, Solar Hours Only (%): **-10%**

**By Month**



**By Year**



## REC Bucket 1 Current Prices

Duration	Price
1 Month	\$12.75/MWh
1 Year	\$13.25/MWh
5 Year	~\$15.00/MWh
20 Year PPA Includes Hedge and REC	~\$18.00/MWh

- NCPA Geothermal
  - Production Cost: \$25/MWh
  - 2015 Premium for Energy: -\$7.59/MWh
- Staff recommendation: \$15/MWh for REC Premium