

# DRAFT SMUD Feed-In Tariff Design

## Background

SMUD's *feed-in tariff* (FIT) refers to a schedule of prices posted on our internet site for buying electricity that is "fed into" our distribution grid from eligible generation units at customer locales. SMUD offers separate feed-in tariffs for two types of customer power generation:

- *Combined Heat and Power generation* units which use the waste heat from the power plant to replace other on-site energy use, and
- *Renewable power* sources such as photovoltaic or biogas generation units, which carry higher prices.

## Structure of Tariff

The FIT prices vary according to the year when the project becomes operational, the selected length of the contract and the season and time of delivery. SMUD offers contract terms of 10, 15 and 20-year lengths, with correspondingly higher prices for longer periods and later start dates. The prices remain fixed during the full contract period.

Time-of-delivery for the tariff correspond to standard electric utility market contracts, modified to include a high-priced "super-peak" during SMUD's most costly hours of operation, between 2 and 8 on weekday afternoons. Table 1 presents the FIT's time-of-delivery periods.

Table 1 SMUD Time-Of-Delivery Periods For Feed-In Tariff

| Period        | Months   | Super Peak       | On Peak                    | Off Peak  |
|---------------|--|------------------|----------------------------|-----------|
| Summer        | June - Sept  | 2-8 PM Mon – Sat | 6 AM – 2 PM & 8 PM – 10 PM | All other |
| Fall & Winter | Oct - Feb  | except holidays  | Mon-Sat except holidays    | hours     |
| Spring        | Mar - May  |                  |                            |           |
| Holidays      | New Years, July 4 <sup>th</sup> , Memorial Day, Labor Day, Thanksgiving, Christmas |                  |                            |           |

## How We Set Our Prices

SMUD's FIT prices represent the cost we would expect to pay for comparable energy in future markets including the capital costs for a natural-gas power plant, as well what we avoid in transmission expenses for having the power delivered to our service territory. SMUD takes the present value of these future costs and converts them to fixed amortized prices over the selected contract period much like a mortgage payment recovers the cost of a home loan over its term.

The FIT for renewable generation includes two premiums added to the base prices to reflect the enhanced value of this preferred source of power. The first premium represents the expected mitigation fees for greenhouse gas compliance, based on the most current estimates from the California Public Utilities Commission.

The second price premium for renewable power purchases represents the avoided risk to SMUD of future natural gas price volatility. In this case, the SMUD assumes a price risk equivalent to 15% of the market price of energy.

Table 2 FIT Price Premium Adders for Renewable Generation

| Premium Adder                          | 2009 Start Year |                 |                 | 2010 Start Year (\$2010) |                 |                 | 2011 Start Year (\$2011) |                 |                 | 2012 Start Year (\$2012) |                 |                 |
|--|-----------------|-----------------|-----------------|--------------------------|-----------------|-----------------|--------------------------|-----------------|-----------------|--------------------------|-----------------|-----------------|
|  | 10-Year         | 15-Year         | 20-Year         | 10-Year                  | 15-Year         | 20-Year         | 10-Year                  | 15-Year         | 20-Year         | 10-Year                  | 15-Year         | 20-Year         |
| Avoided Greenhouse Gas Compliance Cost | \$0.0046        | \$0.0080        | \$0.0111        | \$0.0060                 | \$0.0095        | \$0.0128        | \$0.0077                 | \$0.0112        | \$0.0146        | \$0.0096                 | \$0.0132        | \$0.0165        |
| Gas Price Hedge Value*                 | \$0.0105        | \$0.0109        | \$0.0115        | \$0.0106                 | \$0.0111        | \$0.0118        | \$0.0107                 | \$0.0113        | \$0.0120        | \$0.0108                 | \$0.0115        | \$0.0123        |
| <b>Total Premiums</b>                  | <b>\$0.0151</b> | <b>\$0.0189</b> | <b>\$0.0227</b> | <b>\$0.0166</b>          | <b>\$0.0206</b> | <b>\$0.0246</b> | <b>\$0.0183</b>          | <b>\$0.0225</b> | <b>\$0.0266</b> | <b>\$0.0203</b>          | <b>\$0.0247</b> | <b>\$0.0289</b> |

Table 2 presents the renewable generation price premiums. Table 3 presents the basic FIT which would apply to non-renewable generation sources such as distributed gas-fired cogeneration. Table 4 presents the FIT for renewable generation, which includes price adders from Table 2.

Table 3 SMUD Feed-In Tariff for Combined Heating and Power Generation

| Start Year | Term    | Time of Delivery Period |                |                   |                 |                |                   |                 |                |                   |
|------------|---------|-------------------------|----------------|-------------------|-----------------|----------------|-------------------|-----------------|----------------|-------------------|
|            |         | Winter Off-Peak         | Winter On-Peak | Winter Super-Peak | Spring Off-Peak | Spring On-Peak | Spring Super-Peak | Summer Off-Peak | Summer On-Peak | Summer Super-Peak |
| 2009       | 10-Year | \$0.0659                | \$0.0825       | \$0.1020          | \$0.0545        | \$0.0704       | \$0.0758          | \$0.0681        | \$0.0783       | \$0.2517          |
|            | 15-Year | \$0.0684                | \$0.0860       | \$0.1061          | \$0.0564        | \$0.0727       | \$0.0782          | \$0.0709        | \$0.0811       | \$0.2605          |
|            | 20-Year | \$0.0721                | \$0.0906       | \$0.1114          | \$0.0595        | \$0.0764       | \$0.0823          | \$0.0746        | \$0.0854       | \$0.2706          |
| 2010       | 10-Year | \$0.0662                | \$0.0833       | \$0.1031          | \$0.0551        | \$0.0709       | \$0.0763          | \$0.0688        | \$0.0783       | \$0.2543          |
|            | 15-Year | \$0.0694                | \$0.0874       | \$0.1079          | \$0.0574        | \$0.0737       | \$0.0793          | \$0.0721        | \$0.0820       | \$0.2645          |
|            | 20-Year | \$0.0735                | \$0.0926       | \$0.1137          | \$0.0609        | \$0.0780       | \$0.0840          | \$0.0762        | \$0.0869       | \$0.2751          |
| 2011       | 10-Year | \$0.0666                | \$0.0841       | \$0.1042          | \$0.0553        | \$0.0709       | \$0.0763          | \$0.0693        | \$0.0785       | \$0.2577          |
|            | 15-Year | \$0.0705                | \$0.0889       | \$0.1097          | \$0.0583        | \$0.0746       | \$0.0803          | \$0.0733        | \$0.0831       | \$0.2690          |
|            | 20-Year | \$0.0751                | \$0.0947       | \$0.1162          | \$0.0622        | \$0.0795       | \$0.0855          | \$0.0779        | \$0.0887       | \$0.2800          |
| 2012       | 10-Year | \$0.0676                | \$0.0854       | \$0.1058          | \$0.0559        | \$0.0714       | \$0.0768          | \$0.0703        | \$0.0791       | \$0.2615          |
|            | 15-Year | \$0.0720                | \$0.0910       | \$0.1121          | \$0.0594        | \$0.0759       | \$0.0816          | \$0.0749        | \$0.0846       | \$0.2737          |
|            | 20-Year | \$0.0771                | \$0.0971       | \$0.1189          | \$0.0637        | \$0.0812       | \$0.0873          | \$0.0799        | \$0.0905       | \$0.2849          |

Table 4 SMUD Feed-In Tariff for Eligible Renewable Generation

| Start Year | Term    | Time of Delivery Period |                |                   |                 |                |                   |                 |                |                   |
|------------|---------|-------------------------|----------------|-------------------|-----------------|----------------|-------------------|-----------------|----------------|-------------------|
|            |         | Winter Off-Peak         | Winter On-Peak | Winter Super-Peak | Spring Off-Peak | Spring On-Peak | Spring Super-Peak | Summer Off-Peak | Summer On-Peak | Summer Super-Peak |
| 2009       | 10-Year | \$0.0810                | \$0.0976       | \$0.1170          | \$0.0696        | \$0.0855       | \$0.0909          | \$0.0832        | \$0.0934       | \$0.2668          |
|            | 15-Year | \$0.0874                | \$0.1049       | \$0.1250          | \$0.0754        | \$0.0916       | \$0.0972          | \$0.0898        | \$0.1000       | \$0.2795          |
|            | 20-Year | \$0.0948                | \$0.1133       | \$0.1341          | \$0.0822        | \$0.0991       | \$0.1049          | \$0.0973        | \$0.1081       | \$0.2933          |
| 2010       | 10-Year | \$0.0828                | \$0.0999       | \$0.1197          | \$0.0717        | \$0.0875       | \$0.0929          | \$0.0854        | \$0.0949       | \$0.2709          |
|            | 15-Year | \$0.0900                | \$0.1081       | \$0.1285          | \$0.0780        | \$0.0943       | \$0.1000          | \$0.0928        | \$0.1026       | \$0.2851          |
|            | 20-Year | \$0.0981                | \$0.1172       | \$0.1383          | \$0.0854        | \$0.1026       | \$0.1085          | \$0.1008        | \$0.1115       | \$0.2997          |
| 2011       | 10-Year | \$0.0850                | \$0.1024       | \$0.1225          | \$0.0736        | \$0.0892       | \$0.0946          | \$0.0877        | \$0.0968       | \$0.2760          |
|            | 15-Year | \$0.0930                | \$0.1114       | \$0.1323          | \$0.0808        | \$0.0971       | \$0.1028          | \$0.0958        | \$0.1056       | \$0.2915          |
|            | 20-Year | \$0.1017                | \$0.1214       | \$0.1428          | \$0.0888        | \$0.1061       | \$0.1122          | \$0.1045        | \$0.1153       | \$0.3066          |
| 2012       | 10-Year | \$0.0880                | \$0.1058       | \$0.1262          | \$0.0762        | \$0.0918       | \$0.0972          | \$0.0907        | \$0.0994       | \$0.2819          |
|            | 15-Year | \$0.0967                | \$0.1156       | \$0.1368          | \$0.0841        | \$0.1005       | \$0.1063          | \$0.0996        | \$0.1093       | \$0.2984          |
|            | 20-Year | \$0.1059                | \$0.1259       | \$0.1478          | \$0.0926        | \$0.1100       | \$0.1161          | \$0.1088        | \$0.1193       | \$0.3138          |