

LADWP SOLAR PROGRAM

Solar Photovoltaic Incentive Program



GUIDELINES

Effective: September 1, 2011

**LADWP Solar Photovoltaic Incentive Program Guidelines
TABLE OF CONTENTS**

1.0 Introduction	4
2.0 Program Description, Funding and Requirements.....	6
2.0.1 Program Requirements	6
2.1 Renewable Energy Reporting Option.....	6
2.2 Funding Categories and MegaWatt Triggers	7
2.3 <i>Affordable Housing</i> Projects Incentive	8
2.4 How are incentive payments calculated?	9
2.4.1 Examples.....	11
2.5 Funding Sources	14
2.5.1 System Size Incentive Limitation	14
2.6 Do Incentives from Other Outside Funding Sources Affect the Amount I Can Receive?	16
2.7 Who Can Reserve the Incentive Payment?	16
2.8 Customer Exclusions from Incentive Program	17
2.9 Suspension of New Reservations	18
2.10 Net Energy Metering Limitations	18
2.11 Equipment Leasing.....	19
3.0 Incentive Amount	21
4.0 Eligible Systems and Materials	22
4.1 Eligible Costs.....	25
4.2. Costs NOT Eligible	25
4.3 Permanent Installations.....	26
4.4 System Size.....	26
4.4.1 Feasibility Review.....	27
4.5 Certified Components or Systems.....	27
4.6 Contractors and Installation Codes and Standards.....	27
4.7 Warranties	28
4.8 Qualified Technologies	28
4.8.1 Crystalline Modules:	28
4.8.2 Amorphous “Thin Film” Modules:	29
4.8.3 Building Integrated Photovoltaic (BIPV)	29
5.0 Energy Efficiency Requirements.....	31
5.1 Newly Constructed Buildings.....	31
5.2 Existing Buildings	33
5.3 Commitment Agreement	34
5.4 Exceptions	35
6.0 Solar Power Incentive Process.....	37
6.1 Processing Reservations.....	37
6.3 Expiration of Reservation	38
6.4 Reservation Request Form – Instructions	40
6.4.1 Submitting Supporting Documents.....	44
6.4.2 PV System Inspections	45
6.4.3 Inspection Telephone Numbers	45
6.5 Claiming the Solar Power Incentive	46
6.5.1 Incentive Payment Claim Form (IP)	46
7.1 Installation Process	49
7.2 Maximizing Electricity Production – Shading Analysis	49
8.0 Los Angeles Manufacturing Credit (LAMC).....	50
8.1 Introduction and Background	50
8.2 Unqualified Technologies	50
8.3 Minimum Requirements to Qualify for LAMC	50
8.3.1 Manufacturing Location and Controls	50
8.4 LAMC Payment of Funds	51
9.0 Signatures.....	52
10.0 Indemnification.....	53
11.0 Definitions.....	54

- Appendix 1 – Summary of Changes
- Appendix 2 – Process Flow Chart
- Appendix 3 – EPBB Calculation
- Appendix 4 - Supporting Forms and Documentation

SB1-California Solar Initiative (CSI) Requirements

Former Governor Schwarzenegger signed the California Solar Initiative (CSI), outlined in Senate Bill One (SB1), on August 21, 2006. The CSI mandates that all California Electric Utilities, including Municipals, implement a solar incentive program by January 1, 2008. The goal of the CSI is 3,000 megawatts of net-metered solar energy systems over 10 years with expenditures not to exceed \$3,350,800,000. Expenditures for local publicly owned electric utilities shall be \$784,000,000. The LADWP cap amount is \$313,000,000 based on its serving 39.9% of the municipal load in the state, representing 280MW of the 3,000MW goal. Funding may be less than the cap amount provided that the funding is adequate to provide an incentive of at least \$2.80 per installed Watt.

1.0 Introduction

The LADWP Solar *Photovoltaic (PV)* Incentive Program (Incentive Program) provides financial incentives to LADWP customers who purchase and install their own *solar power systems*. LADWP currently also provides an additional incentive payment for systems using *PV* modules manufactured in the City of Los Angeles.

The application and installation process flow chart can be found in Appendix 1 of these guidelines.

To receive an incentive payment from the LADWP, customers must apply for and receive a Confirmed Reservation from LADWP prior to installing their solar system. **Individual *solar power systems* must meet the requirements contained in these guidelines, including all installation requirements identified in Section 7.0, as well as all applicable Electric Service Requirements in order to be eligible for an incentive.** These requirements are system level specifications that must be met before an incentive payment can be issued. If after reading these guidelines you require additional information about the Incentive Program, please visit the LADWP Solar Program web site at www.ladwp.com/solar where there is a list of Frequently Asked Questions.

The LADWP estimated performance-based incentive is a one-time payment calculated by multiplying the proposed system output by the ratio of the expected solar production of the proposed solar system over the simulated solar production of an optimal reference system in optimal conditions (See Section 2.2 Funding Categories and Section 2.4 Payment Calculation).

The LADWP will also periodically review the results of the Incentive Program to determine if modifications or changes to the level of incentives or other program terms and conditions are necessary to achieve the overall program goals. The goal of the Solar Incentive Program is to reduce the net cost to the end user of such systems, thereby stimulating the installation of reliable, well designed generating systems located throughout the City, and assisting in the establishment of a commercially viable solar *PV* industry.

LADWP reserves the right to modify or discontinue the Solar Incentive Program at any time at the discretion of the LADWP Board of Water and Power Commissioners (Board). The Solar Incentive Program is subject to funding availability.

In furtherance and not in limitation of the forgoing, the Solar Incentive Program is subject to funds made available annually, beginning in July. The inspection order is determined based upon the date the completed Incentive Payment Claim Form is uploaded to PowerClerk (see section 6.1 for a description of PowerClerk). The payment order is then determined by the date the solar power system passes inspection by the LADWP solar inspector (not based on reservation date). If current-year funds are not available when a system passes the LADWP solar inspection, payments will be made in the next fiscal year for which funds are made available, based on the date the solar power system passes the LADWP solar inspection. Appropriation of funds beyond the current fiscal year is at the discretion of the Board.

Throughout the document, certain terms are shown in *italic* typeface. These terms are defined in Section 11.0 Definitions.

2.0 Program Description, Funding and Requirements

The Incentive Program provides financial incentives to LADWP customers installing *solar power systems* in accordance with these guidelines and is only available to LADWP electric customers.

Additionally, the LADWP currently provides a Los Angeles Manufacturing Credit (LAMC) for qualifying *PV* equipment manufactured in Los Angeles as approved by the LADWP according to Section 8.0 of these guidelines. The goal of the LAMC is to promote local economic development through manufacturing and job creation within the City of Los Angeles and to reduce costs through increased volume and competition.

2.0.1 Program Requirements

In addition to requirements detailed throughout these Guidelines, an installation must also meet the requirements listed below in order to be eligible for the incentive program:

1. The solar system is owned by the building owner who is also the owner of the roof space or demonstrates in writing exclusive rights to the roof space for the duration of the incentivized period (not applicable to leased solar systems).
2. The electric bill is paid by the owner.
3. The total of any submetered charges to tenants may not exceed the amount of the owner's electric bill.
4. The solar equipment is being connected to the customer's billing meter, which will be the only meter that is converted to a net meter.
5. Each system has a minimum size of 1 kW AC.

2.1 Renewable Energy Reporting Option

The customer may elect to have ownership of the Renewable Energy Credits (RECs). If the customer chooses to have ownership of the RECs, the customer will receive the incentive at the lower REC Ownership level. By accepting the higher incentive payment from LADWP, the customer sells the REC to LADWP. Furthermore, LADWP may count 100% of the renewable energy and associated renewable attributes generated by the *PV* system for reporting purposes, including environmental attributes. (See Table 2 of Section 2.2 for REC ownership option).

2.2 Funding Categories and MegaWatt Triggers

The available funding for the Incentive Program will be allocated among the following categories:

Table 1

Board Approved Funding and MegaWatt Allocations by Customer Sector
(SB1 Program 7/1/2007 – Present)

Category	Funding Allocation	Funding Amount (\$ Millions)	MegaWatt Allocations
Residential	46%	144	93.2
Non-Residential	46%	144	186.8
Administration and Outreach	8%	25	
Total	100%	313	280

Incentive payment levels will automatically be reduced over the duration of the Solar Program in 10 steps when the MW triggers are reached. Projects are counted towards the MW trigger once a reservation of funds is issued. See Tables 2 and 3 below.

Table 2

Incentive Levels
(LADWP Owns RECs)

Steps 1-10	MW Trigger in Step	MW Trigger Residential	MW Trigger Non-Residential	Residential Incentive (\$/W)	Taxable Non-Residential Incentive (\$/W)	Government & Non-Profit Incentive (\$/W)
1	20*	6.7	13.3	---	---	---
2	10	3.3	6.7	---	---	---
3	10	3.3	6.7	---	---	---
4	15	5	10	---	---	---
5	25	8.3	16.7	\$2.20	\$1.95	\$2.70
6	30	10	20	\$1.62	\$1.50	\$2.25
7	35	11.7	23.3	\$1.05	\$1.05	\$1.80
8	40	13.3	26.7	\$0.75	\$0.75	\$1.50
9	45	15	30	\$0.65	\$0.65	\$1.30
10	50	16.7	33.4	\$0.60	\$0.60	\$1.10
Total	280	93.2	186.8			

Table 3

Base Incentive Levels
(Customer owns RECs)

Steps 1-10	Residential Base Incentive (\$/W)	Taxable Non- Residential Base Incentive (\$/W)	Government & Non-Profit Base Incentive (\$/W)
1	---	---	---
2	---	---	---
3	---	---	---
4	---	---	---
5	\$1.55	\$1.55	\$2.30
6	\$1.10	\$1.10	\$1.85
7	\$0.65	\$0.65	\$1.40
8	\$0.35	\$0.35	\$1.10
9	\$0.25	\$0.25	\$0.90
10	\$0.20	\$0.20	\$0.70

**The LADWP solar incentive program has encouraged the development of 34 MW of solar capacity from 1999 through June 2011. As of the time of this revision, Residential and Commercial customers are on Step 5.*

The purpose of establishing these categories is to equitably distribute incentive payment funding and to encourage utilization of solar PV technology across all customer segments. Within each category, funds will be available on a first-come first-serve basis, unless otherwise approved by the Board. If less than 50% of the funds in a category have been reserved by issuance of a Confirmed Reservation by December 31, of any fiscal year, the unreserved funds may be reallocated to another category during the remainder of that fiscal year.

See Section 3.0 for additional information on Incentive Amounts.

2.3 Affordable Housing Projects Incentive

As part of the residential funding listed in Section 2.2, incentive funding of \$1,000,000 per fiscal year will also be available for qualifying *Affordable Housing* projects consistent with all other provisions of these guidelines.

Qualifying *affordable housing* projects can include single and multi-family housing, including single-room occupancy projects, and may be owned or rented in accordance

with policies in use by the Los Angeles Housing Department. Specific requirements to qualify for a solar incentive under this category include:

- A minimum of 50% of the units in either ownership or rental multi-family housing projects must be reserved as affordable.
- For ownership units, affordability is defined as reserved for families earning 120% or less of the Area Median Income (AMI).
- For rental units, affordability is defined as reserved for families earning less than 80% of Area Median Income and with rents not exceeding 30% of 60% of the area median income as set forth on a rent schedule prepared by the Los Angeles Housing Department.
- Long-term affordability of qualifying *affordable housing* units must be maintained through deed restrictions or other covenants for a period of not less than 10 years.

2.4 How are incentive payments calculated?

The incentive payment will be calculated using the Estimated Performance Based Buydown (EPBB) incentive formula, which allows for a lump sum upfront incentive payment. EPBB bases the incentive payment on the system's expected performance and the effect of factors such as system orientation, location, mounting method, and shading. The incentive will be rounded to the dollar.

The EPBB incentive calculation will be integrated into PowerClerk, so that as applicants enter information into PowerClerk the anticipated incentive amount will be provided automatically. The EPBB incentive formula is as follows:

Incentive Amount = Incentive Rate x Design Factor x System Rating (kW_{CEC-AC})

The Incentive Rate is the (\$/Watt) payrate that will be used to calculate the incentive.

The System Rating is the CEC-AC capacity of the system adjusted to consider inverter and module losses. To calculate the System Rating simply multiply the quantity of modules by the module PTC rating (KW) times the inverter efficiency rating.

The Design Factor is a product of three ratios comparing the estimated output of the proposed system to the simulated output of an optimal reference system. This captures the effect of the orientation, shading, mounting method, and location of the proposed solar system.

See Appendix 3 for a detailed explanation on the EPBB incentive formula. See Section 2.4.1 for examples of how the incentive amount is calculated.

1. Incentives from other sources such as rebates, grants etc. will be subtracted from the total cost to determine the eligible amount, except as noted in Section 2.6.
2. Field verification of the system's tilt, orientation, mounting method, and location will be conducted in accordance with Section 6.5 prior to approval of the incentive payment. Verification of shading may be done. **Those systems that deviate from the information provided in the application will have the incentive payment reduced or denied. If a solar power system is found with 10 or more hours of use on the inverter prior to approval from the LADWP solar inspector, the application will count as 1 of the 3 deficient applications allowed per applicant (see Section 2.8).**
3. LADWP may conduct periodic or ongoing monitoring of *PV* systems receiving incentive payments.
4. **The final incentive payment is determined by, and is solely within LADWP's discretion.**

2.4.1 Examples

Examples of how the incentive amount is calculated appear below.

Example 1 – Residential System

System Description:

PV Modules: 22 BP Solar (BP170B) 170W Polycrystalline Modules *does not qualify for LAMC*

Inverter: SunPower Corp. SPR-4000x 4.0 kW, Grid Tie Inverter

STC Rating: 170 W

PTC Rating: 152.6 W

Inverter Efficiency is 0.955

Pathfinder Analysis: 100% unshaded

System Rating = $152.6 \times 22 \times .955 = 3,206 \text{ W}$

Design Factor = 100%

Step 5 Incentive Rate = \$2.20/W

Located in ZIP Code 91304, Tilted 17°, facing South

Calculated annual kiloWatt-hour output: 5,753 kWh

Incentive = $3206 \times 1.00 \times \$2.20 = \$7,053.20$

Installed Cost is assumed at \$8.50/W-STC or \$31,790

Customer Qualifies for Federal Tax Credit: \$7,421.04

Net Customer Cost: \$17,315.76

Therefore, in this example, Incentive and Tax Credit cover approximately 46% of system cost.

Example 2 – Commercial Building

System Description:

PV Modules: 100 Mitsubishi Electric Corporation, Model PV-MF170EB4, 170W Polycrystalline Modules, *does not qualify for LAMC*

Inverter: Xantrex Technology, Model PV20-480, 20kW 3-Phase Inverter

STC: 170W

PTC: 150.7W

Inverter Efficiency: 0.92

Pathfinder Analysis: 100% unshaded

Located in ZIP Code 90716, Tilted 17°, facing South

System Rating = $150.7 \times 100 \times .92 = 13,864 \text{ W}$

Design Factor = 100%

Step 5 Incentive Rate = \$1.95/W

Calculated 1st Year Output: 24,506 kWh

Incentive = $13864 \times 1.00 \times \$1.95 = \$27,034.80$

Installed Cost is assumed at \$8.00/W-STC or \$136,000

Customer Qualifies for Federal Tax Credit of 30%: \$40,800.00

Net Customer Cost After Tax-Credit/ Incentive: \$68,165.20

Therefore, in this example, Incentive and Tax Credit cover approximately 50% of system cost.

Example 3 – Large Governmental or Non-Profit Building

System Description:

PV Modules: 160 Solar Integrated Technologies, Model SI-G1 720, 720W Thin Film Roofing Membrane, *qualifies for LAMC*

Inverter: 2 SatCon Power Systems, Model AE-75-60-PV-A, 75 kW 3-Phase Inverters

STC: 720 W

PTC: 649.9 W

Inverter Efficiency: 0.955

Pathfinder Analysis: 100% unshaded

Located in ZIP Code 91367, installed flat

System Rating = $649.9 \times 160 \times .955 = 99305 \text{ W}$

Design Factor = 96.184%

Step 5 Incentive Rate (w/LAMC) = \$3.30/W

Calculated 1st Year Output: 160,691 kWh

Incentive = $99,305 \times .96184 \times \$3.29 = \$315,201.22$

Installed Cost is assumed at \$8.00/W-STC or \$921,600

Customer Does Not Qualify for Federal Tax Credit

Net Customer Cost After Incentive: \$606,398.78

Therefore, in this example, Incentive covers approximately 34% of system cost

2.5 Funding Sources

LADWP will budget an average of \$30M per fiscal year to fund the Solar Incentive Program for direct incentive payments. Approximately \$2.6M will be budgeted for administration of and outreach for the program. These funds will come entirely from the Public Benefits Program.

2.5.1 System Size Incentive Limitation

LADWP will allow incentive payments for up to *One MW-AC^{CEC}* per billing meter, per fiscal year (except as noted in this Section) although actual system size may be larger based on historic annual usage. **In no case will LADWP provide an incentive of more than 75% for residential systems and government/non-profit systems, or 50% for commercial systems, of the gross installed system cost, regardless of system size or incentive level.** Customers are required to investigate interconnection requirements prior to installing *PV* systems greater than 10 *kW-AC^{CEC}*. These restrictions are related to net metering constraints described in Section 2.10.

All otherwise eligible generating systems installed during the term of this Incentive Program must be interconnected to a particular billing meter that serves the electrical needs of all real and personal property located at a *site*. Each billing meter requires a separate application and a separate interconnection agreement, if applicable.

The maximum incentive amount will be limited to 100% of the annual historical consumption as shown on the LADWP billing record for the two years previous to the issuance of the Confirmed Reservation. If the customer's account has less than two years of history, the average will be prorated with available data. (Also see Section 4.4 System Sizing). **Be aware that there is a minimum monthly charge for customers that is not offset by the solar production.**

The above-mentioned *One MW-AC^{CEC}* cap may be raised up to *Two MW-AC^{CEC}* if funding is available as shown in the table below. However, the incentive funds for installed capacity beyond *One MW-AC^{CEC}* to *Two MW-AC^{CEC}* will be paid at the next lower step, regardless of whether there is MW capacity remaining in that step or not. For information on steps see Table 2, Section 2.2 of these Guidelines. Please refer to Section 2.10 of these Guidelines for details on Net Energy Metering Limitations.

As an example, in computing the maximum incentive eligibility for a Two MW-AC^{CEC} system, if in October of any fiscal year, a customer submits an incentive request for a typical Two MW-AC^{CEC} photovoltaic solar system and the amount of existing reservations from other customers through October of that fiscal year is \$4 million, then the maximum amount this customer will be eligible for is \$6 million (\$10 million minus \$4 million) for this fiscal year.

Month reservation issued	LADWP Incentive Funding Available
July	\$2.5 million minus other existing participants' reservations
August	\$5 million minus other existing participants' reservations
September	\$7.5 million minus other existing participants' reservations
October	\$10 million minus other existing participants' reservations
November	\$12.5 million minus other existing participants' reservations
December	\$15 million minus other existing participants' reservations
January	\$17.5 million minus other existing participants' reservations
February	\$20 million minus other existing participants' reservations
March	\$22.5 million minus other existing participants' reservations
April	\$25 million minus other existing participants' reservations
May	\$27.5 million minus other existing participants' reservations
June	\$29 million minus other existing participants' reservations

The maximum reservation eligibility for any customer shall be \$7 million per fiscal year. However, actual payments in any fiscal year may exceed \$7 million based on accumulated eligibility from prior fiscal years. Incentive eligibility to corporations and institutions, including Corporate and Government Parents, school systems, and other similar types of organizations, are limited to \$7 million per fiscal year.

Furthermore, the \$7 million fiscal year cap can be accumulated over multiple fiscal years retroactive to Fiscal Year 2007-08. For example, if a customer was paid \$3 million in a prior fiscal year, that customer will be eligible for up to \$11 million in the subsequent fiscal year. This \$11 million eligibility represents \$4 million from the prior fiscal year and \$7 million for the subsequent fiscal year. Only prior fiscal years in which payments of less than \$7 million are received can be accumulated. Reservations will only be granted

for up to \$7 million per fiscal year. Any amounts exceeding the \$7 million per fiscal year cap must be applied for during the next fiscal year and if approved, such amount will be paid at the current step that LADWP is in during the time the reservation application is approved. LADWP will only provide a reservation during the current fiscal year and does not guarantee payments for future fiscal years.

LADWP reserves the right to further limit the amount of incentive payments available to systems larger than 10 kW-AC^{CEC}. The maximum solar system size allowed to be installed is 5 MW regardless of incentive amount.

2.6 Do Incentives from Other Outside Funding Sources Affect the Amount I Can Receive?

LADWP will pay a customer an incentive that is the lesser of either the incentive calculated by the formula set forth in Section 2.4 or the net installed cost of the system after any tax benefits and other outside funding sources are subtracted from the gross cost of the system.

For purposes of this section, *other outside funding sources* are defined as grants, rebates, incentives, cost-sharing program funds, or any cost reductions a customer receives towards its installed system costs from a source other than LADWP's Incentive Program. *Tax benefits* are defined as any Federal, State or local government income tax incentives or credits.

2.7 Who Can Reserve the Incentive Payment?

Incentive payments may be reserved for LADWP customers. The customer may designate a contractor to complete and submit the incentive application. The incentive payments can be made to the customer or the customer can choose to have the incentive payment made to the contractor, manufacturer, or installer. For the incentive payment to go to the contractor, manufacturer or installer, customers must complete and submit a Payment Assignment Form (form LADWP-PA (09-2011)) to LADWP prior to submitting the Incentive Payment Claim Form. If a customer changes contractor, a new application for reservation is required. The reservation priority will be based on the new application date.

Reservation of incentive payment for customers on Schedule R-1, Rate B, Schedule A-1, Rate B, Schedule A-2, Rate A, Rate B, and Schedule A-3, Rate A is contingent on LADWP's ability to purchase, install and read meters capable of measuring electricity flow in both directions for the base, low and high rating periods.

2.8 Customer Exclusions from Incentive Program

The Incentive Program is not applicable to any service other than those expressly set forth above in Section 2.7, including, but not limited to, service established on Residential Service Rate C, Rate D or Rate E, service established on experimental rates, or if expressly prohibited from an existing Special Service Contract. Customers who receive an incentive payment and enroll in one of the above ineligible electric services within the 20 year or lease duration the incentive was based upon will be required to reimburse LADWP, on a pro rated basis, for the remaining portion of the incentive.

Contractors who submit incomplete applications will be notified and provided corrective guidance. Those who submit 3 deficient applications will be given a three month exclusion from submitting additional applications for any solar installation project. Omission of the following from the incentive application will constitute a deficient application:

- Purchase and/or lease agreement.
- Energy Audit and Disclosure Agreement (required for applications for existing buildings only).
- Documentation demonstrating 15% above Title 24 Standards signed by a Certified Energy Plans Examiner (required for applications for newly constructed buildings).
- Deposit Check for 0.5% of the anticipated incentive amount (required for projects 20 kW CEC-AC and greater).

In addition, the following action will constitute a deficient application:

- System found with more than 10 hours of operation prior to inspection and approval from the LADWP solar inspector.

Customer locations that are covered under a long-term energy service contract or special rate with the LADWP may not be eligible to participate in the Incentive Program and should review the terms of the existing contract prior to making commitments. Customers on any rate other than the (R-1, A) Residential rate are urged to request a rate analysis to make sure they understand that installation of the *solar power system* may result in a rate or rider change and/or may void their current rate. This change may have financial impacts that require consideration prior to installation. Customers may request a rate analysis from their Account Manager or from Customer Services. Rate ordinances and service rider information are available at www.LADWP.com for review.

2.9 Suspension of New Reservations

If at any time during the term of the Incentive Program the amount of confirmed and unclaimed reservations exceeds the expected availability of program funds to honor these reservations in a timely manner, the program will be suspended until additional funds are available.

2.10 Net Energy Metering Limitations

Residential and commercial customers are required to investigate interconnection requirements prior to installing *PV* systems greater than 10 kW-AC^{CEC}. **Solar power systems greater than 1 MW- AC^{CEC} are NOT eligible for Net Energy Metering.** These systems will be placed on the appropriate Parallel Generation rate, either Schedule CG-2 or CG-3. This rate information is available at www.ladwp.com/electricrates for review.

Any energy generated by the *solar power system* must be either utilized on *site* by the customer or credited back to LADWP in accordance with the Net Metering Ordinance. **Energy cannot be sold to any other entities.** As required by the interconnection agreement, all systems must be owned by the customer except as allowed in section 2.11. **PV system owners who fail to keep their system operational for the entire duration that the expected performance based incentive was paid from this incentive program will be required to reimburse the LADWP (on a pro rated basis) for the portion of the incentive received during which time the system was not operational.**

Interconnection agreements for all other rate schedules and all systems larger than 10 $kW-AC^{CEC}$ are handled by the ESD Distribution Systems Engineering Co-generation Coordinator and can be obtained by calling **213-367-2726**. For such projects, a signed Interconnection Agreement with a single line electrical diagram shall be returned to the ESD Distribution Systems Engineering Co-generation Coordinator before equipment installation, in order for a LADWP Distribution Engineer to be assigned to assist in this more detailed interconnection process. In addition, an engineer must be assigned and the single line diagram approved before an Electrical Service Representative can assist with meter and disconnect spotting. An Interconnection Agreement must be submitted before a Reservation Confirmation can be issued.

2.11 Equipment Leasing

As an alternative to customer ownership of the photovoltaic system, the customer may choose to lease a new photovoltaic system on the customer's property from a third party, provided that the following conditions are met:

1. The lease is guaranteed for at least ten years. Lease terms will receive incentives based on the duration of the lease up to 20 years. Leases with buyout provisions that reduce the operating life of the system to less than the amount of time the incentive was based upon must provide provisions to reimburse LADWP for the incentive amount paid over the time that the operating life of the system was reduced by.
2. The lessor guarantees the photovoltaic system is operational and operated at the expected generation capacity for at least the term of the lease.
3. The lease provides customer with an ownership option by the end of the lease term.
4. The lease payments may not be based on energy production from the equipment, which could be interpreted as the sale of electricity. The lease may include escalator or reduction clauses unrelated to energy production. The sale of energy by anyone other than the LADWP is prohibited.
5. The incentive payment will be paid directly to the customer, but the customer may assign its incentive payment directly to a third party provided that the

customer identifies the third party on the Payment Assignment Form (Form LADWP-PA (09-2011)).

6. The lease explicitly states who is acquiring ownership of the RECs.
7. The lease includes terms requiring incentive recipients who fail to keep the system operational and in place for the entire duration that the expected performance based incentive was paid from this incentive program to reimburse LADWP (on a pro rated basis) for the portion of the incentive received during which time the system was not operational.
8. Notification of modifications to a lease after LADWP review must be provided in writing to the LADWP Solar Incentive Program Manager along with a copy of the amended lease.

All incentives for leased solar systems will be paid at the “Taxable Non-Residential” incentive rebate level, based on the current step at the time of application. Incentive funding for leased solar systems will be based on the respective customer classification funding allocation.

If the customer chooses to lease the equipment from a third party, the lease agreement shall be provided to LADWP for review. The LADWP will determine whether the lease agreement is acceptable as a condition of providing the incentive payment to the customer. The determination of acceptability of the lease agreement for incentive payment is at the sole discretion of the LADWP and the Los Angeles City Attorney. This review is provided only to determine if the lease complies with these guidelines and the City Charter and in no way is intended to provide advice or guidance to the customer. Average turnaround time for review is 3 weeks.

3.0 Incentive Amount

The incentive amount in Step 5 for systems confirmed after the effective date of these Guidelines is \$1.95 to \$2.70 per installed *kiloWatt AC^{CEC}*, up to the maximums allowed in these guidelines. The applicable incentive payment will be dependent on where the *PV* modules were manufactured, system size, *inverter efficiency*, *shading percentage*, *system tilt*, *orientation*, *mounting method*, and *installation location*. LADWP reserves the right to change the incentive schedule at a later date with LADWP Board approval. In no case will LADWP pay an incentive that exceeds 75% of the gross installed system cost for residential systems and government/non-profit systems, and 50% for commercial systems.

Systems using solar modules qualifying for the Los Angeles Manufacturing Credit (LAMC) or systems using Building Integrated Photovoltaic (*BIPV*) materials regardless of manufactured location, will receive an additional incentive of \$0.30 for commercial systems and \$0.60 for residential systems per installed *kiloWatt AC^{CEC}*. Program maximums apply. See Section 8.0 for LAMC qualifications and see Section 2.5.1 for incentive limitations.

Table 4

Incentive Amounts for All Systems In Step 5

Customer Type	Base Incentive Rate (\$/W)	LAMC or BIPV Supplement (\$/W)	Maximum Incentive Rate (\$/W)
Residential	\$2.20	\$0.60	\$2.80
Govt. & Non-Profit	\$2.70	\$0.60	\$3.30
Commercial	\$1.95	\$0.30	\$2.25

Be aware that the LADWP Solar Inspection may find variations in the tilt angle, orientation, shading percentage, mounting method, or equipment used that may increase or decrease the incentive amount from the originally reserved amount.

4.0 Eligible Systems and Materials

The LADWP Solar Incentive Program is open only to LADWP customers, and the generating systems must be connected to the LADWP's electrical grid.

Systems must meet the following requirements to be considered eligible:

- System Size – Rated output capacity of not less than one $kW-AC^{CEC}$.
- Certified System Components – System components and the entire system must meet national standards. The California Energy Commission (CEC) maintains a list of components and systems that meet the required standards of the program. This list may be obtained by calling the CEC or by visiting their website at www.gosolarcalifornia.ca.gov.
- *BIPV* or custom modules are acceptable provided that they meet the standards for quality and performance as determined by LADWP, and bears applicable Underwriters Laboratories (UL) rating(s) or acceptance and approval of the Los Angeles Department of Building and Safety (LADBS) tests, and meets the current applicable Los Angeles Building Code (LABC), and Uniform Building Code (UBC), and local ordinances as determined by the LADBS.
- All systems must be installed in conformance with the system manufacturer's specifications and with applicable electrical codes and standards. Systems may be self-installed by the customer, or a licensed contractor/installer. All systems must have permits from LADBS. See Section 4.6 of this document for contractor and installation details.

All systems must be installed with a **performance meter** in addition to the net meter. The meter must be listed with the California Energy Commission (CEC) and measure the total energy produced by the system in *kiloWatt hours* (or Watt hours). Incentive applicants who retain ownership of the RECs must install a performance meter with a manufacturer's uncertainty specification of plus or minus **5%**. Incentive applicants who transfer ownership of the RECs to LADWP must install a performance meter with a manufacturer's uncertainty specification

of plus or minus **2%**. The meter must retain the *kiloWatt*hour production data in the event of a power outage and must provide a display of system output that the customer and LADWP can easily view and understand. The meter must be installed outdoors in close proximity to the LADWP billing meter and the required **AC disconnect device**. The meter shall be located so that the centerline of the meter is at a height of between 4 feet and 6 feet 3 inches. The meter must be rated for outdoor use. The meter requirement also applies to system additions if the existing system does not include a performance meter. **Residential installations require a separate 4-pin meter socket with an electromechanical meter having either an analog or liquid crystal display.** The meter must be independent of the inverter in case the inverter is replaced, removed, reprogrammed, or loses its data. This is also required to have consistency with standard LADWP meters to ensure accuracy and efficiency in the event LADWP needs to read these meters.

All commercial and residential customers installing systems larger than 10 kW-AC^{CEC} will have a LADWP engineer assigned to their job once an interconnection agreement is signed and returned. In these cases a performance meter will be installed by LADWP and customers are urged to review their interconnection agreement for information on the meter box required to be installed.

- All systems must be installed with a **disconnect device** on the alternating current side of the PV system. Disconnect devices shall provide for a visually verifiable air gap to assure circuit disconnect, and shall be lockable in the open position. Locking provisions shall have a 3/8-inch minimum hole for a LADWP standard padlock having a 1-inch locking clearance. Devices used to disconnect the PV system shall be accessible under all conditions and at all times to LADWP personnel. This may require disconnect devices to be located in a publicly accessible area or be provided with an interlock system to gain access to an installation in a security controlled area. Residential systems less than or equal to 10 kW-AC^{CEC} shall have a disconnect device no more than 8-feet from the LADWP electric meter. An authorized representative of the LADWP may direct that the disconnect device be located more than 8-feet from the LADWP meter.

In such cases the disconnect device still must be accessible under all conditions and at all times. Disconnect device requirements for residential systems larger than 10 kW-AC^{CEC} and all non-residential systems are outlined in the interconnection agreement and the LADWP Electric Service Requirements. In cases when an interconnection agreement is required, a **LADWP Distribution Engineer** will be assigned, upon submission of the signed agreement, to work with the customer to ensure proper interconnection to the LADWP grid.

- If at any time during the life of the solar power system there is not 24 hour access, the system will be physically locked out until 24 hour access is provided.
- **All grid-interconnected battery back-up systems being installed require a single line electrical diagram and an operational listing to be submitted with the incentive application. The operational listing shall detail the list of steps of what would happen if the grid were to lose power.** When installing a battery back-up system, the required AC disconnect device must be electrically connected such that when the AC disconnect device is in the open position the battery back-up system may also be bypassed using a manually operated bypass switch. This will allow for the dedicated sub-panel supplied by the battery back-up system to be fed directly from the main electrical service panel. This bypass capability ensures that in the event that LADWP locks out the PV system, and the battery back up mode initiates, the manual operation of the bypass switch will allow all loads to still be fed from the LADWP grid. In the event of a LADWP power outage the bypass feature does not affect the ability of the battery back-up system, solar panels, and inverter to be used to supply power to the critical loads connected to the dedicated sub-panel. If a battery back-up system is installed after the LADWP inspection the customer is required to notify and provide the LADWP Solar Incentive Program Administrators with a single line electrical diagram and operational listing prior to installation.
- All systems must be installed in conformance with LADWP Electric Service requirements, the interconnection agreement, and Section 7.0 of these guidelines. These requirements can be found online at www.ladwp.com, under the “Doing Business” section under the “Power Services & Construction” section.

- If a solar power system is found with 10 or more hours of use on the inverter prior to approval from the LADWP solar inspector, the application will count as 1 of the 3 deficient applications allowed per applicant (see Section 2.8).

4.1 Eligible Costs

Those portions of a *PV* generating system that convert the energy source to electricity and the related power conditioning and control systems are eligible to be covered by the Incentive Program, including:

- The costs of installation and any applicable licenses, permits, fees and sales taxes.
- Engineering and design costs, not to exceed ten percent of total system cost.
- The following specific components and equipment are eligible: the *photovoltaic* cells, modules, mounting or tracking structures, wiring, inverters, performance meter, foundation (for free-standing systems), and utility-required interconnection equipment.

4.2. Costs NOT Eligible

Some of the system costs included in the sales or installation may not be eligible. The purchaser or retailer must provide details to separate these costs from eligible costs. These ineligible costs include, but are not limited to the following:

- Equipment for the storage of the electricity produced such as batteries.
- Cost of capital.
- Cost of tools.
- Tree trimming or other landscaping.
- Roofing, re-roofing, roof repairs or reinforcement.
- Relocating vent pipes, HVAC or other equipment.
- Customer's labor on self-install. Only invoiced labor paid to other parties are

eligible costs.

4.3 Permanent Installations

Equipment that receives an incentive payment must be permanently installed and must remain in place for 20 years or the term of the lease. Only permanently installed systems are eligible for incentives. This means that the equipment must have electrical connections in accordance with industry practice for permanently installed equipment and be secured to a permanent surface. Customers who fail to maintain a valid interconnection agreement for the operating life of the system may be required to reimburse the LADWP for all or part of the incentive received.

4.4 System Size

When determining maximum or minimum system size, and funding category, the *nameplate rating* in Watts- AC^{CEC} shall be used to define system capacity.

To be eligible under this program the minimum size is one kW-AC^{CEC}. For maximum size, refer to Section 2.5.1 of these Guidelines.

Residential and commercial customers are required to fulfill interconnection requirements prior to installing PV systems greater than 10 kW-AC^{CEC}. If a home, building, or facility is under construction or renovation, an expected kiloWatt-hour load profile must be submitted with the application. The anticipated load must be verifiable at the time of application. If the customer is expanding the *site* with new construction, the anticipated load must be verifiable at the time of application. The maximum system size may be calculated at two Watts per square foot of the conditioned floor area of the building, as an alternative to doing a projected energy load calculation. Square footage must be verified with LADBS permit, Certificate of Occupancy, or other official City, County, or State issued document.

Acceptable methods of demonstrating future electrical need include: Application for service with corresponding equipment schedules and single line diagram; building simulation program reports such as eQuest, Energy Pro, DOE-2 and VisualDOE; or detailed kiloWatt-hour load calculations. A confirmed reservation number will not be issued until the projected load growth has been adequately demonstrated. The incentive payment will be limited to 100% of the historical two-year average if the projected load

growth conditions have not been provided at the time the application is submitted.

4.4.1 Feasibility Review

All systems larger than 10 kW-AC^{CEC} will require a feasibility review by the LADWP before any incentive funds are reserved. With the incentive reservation form the customer shall submit to the Solar Program a site plan, equipment and module layout, single line electrical diagram, schedule, and documents in sufficient detail for the LADWP to determine *project* feasibility. The LADWP, at its sole discretion, shall determine if a *project* qualifies for a reservation.

For systems 10 kW-AC^{CEC} and under, the LADWP reserves the right, on a case-by-case basis, to conduct a feasibility review.

4.5 Certified Components or Systems

All flat plate *PV* modules must be certified as meeting the requirements of the Underwriters Laboratory Standard 1703. All inverters must be certified by a nationally recognized testing laboratory for safe operation and must be certified as meeting the requirements of UL 1741. The LADWP reserves the right to adopt additional codes, standards and conditions, at any time, at its sole discretion.

Only *photovoltaic* modules that have been certified by a nationally recognized testing laboratory are eligible for the Incentive Program. The CEC maintains a list of certified modules which can be obtained from the CEC's website at: <http://www.gosolarcalifornia.ca.gov>.

For custom modules not certified by UL 1703, parties may seek certification by the Los Angeles Department of Building and Safety Materials Test Lab. Incentive payments will not be approved until proof of certification is received by LADWP.

4.6 Contractors and Installation Codes and Standards

In all cases, *photovoltaic* systems must be installed in conformance with the manufacturer's specifications and conform to all applicable electrical and other codes and standards. If the system is installed by anyone other than the customer, the installer shall be a properly licensed California contractor. An active "C-10" or "A" license is required for solar projects 20 kW-AC^{CEC} or greater. For all other solar projects,

acceptable licenses include a valid “A,” “B,” “C-10” or “C-46” license. **All systems must be installed in conformance with the LADWP Electric Service Requirements and Section 7.0 of these guidelines and be inspected in accordance with Section 6.4.2.**

4.7 Warranties

All systems must have a minimum 10-year warranty provided in combination by the manufacturer and installer to protect the purchaser against system or component breakdown and to protect against defects and undue degradation of electrical generation output. Warranty must provide for no-cost repair or replacement of the system or system components, including any associated labor during the warranty period. A copy of the warranty must be submitted with the incentive application. Systems eligible for incentive payments under this program shall be warranted with the following conditions:

- A minimum of a twenty-year *warranty* on modules against failure, at industry standards, and a ten-year *warranty* to the customer against breakdown on balance of system components
- The *warranty* must cover all of the components of the *photovoltaic* generating system against breakdown or degradation in electrical output of more than ten percent from their minimum power specified at time of delivery.
- The *warranty* shall cover the full cost of repair or replacement of defective components or systems.
- Where the system is professionally assembled and installed, the *warranty* shall also include the labor to remove and reinstall defective components or systems.
- Performance meters must have a minimum one-year warranty.

Be aware that LADWP does not install, maintain, or repair customer-installed PV systems. Also, LADWP does not endorse or recommend PV installers, contractors, or manufacturers.

4.8 Qualified Technologies

4.8.1 Crystalline Modules:

Crystalline *PV* modules shall require the crystalline cells to be laminated between glass or other appropriate light transmitting material and a backing material. Frames or other method of structural connection shall be attached. Electrical connection from cell groups to exterior junction box shall also be attached.

4.8.2 Amorphous “Thin Film” Modules:

Amorphous Silicon “thin film” or other similar *PV* technology material shall be laminated between a light-transmitting material and a rigid or flexible backing material. Electrical connection from cell groups to exterior junction box shall also be attached.

4.8.3 Building Integrated Photovoltaic (BIPV)

BIPV material shall meet the same manufacturing criteria as modules described above. Additionally, *BIPV* must meet the following requirements, in order to receive the same incentive payment as non-*BIPV* modules:

1. Any type of *PV* technology regardless of where it was manufactured is eligible for the *BIPV* Incentive, provided that it meets the standards for quality and performance as determined by LADWP, and bears applicable Underwriters Laboratories (UL) rating(s) or acceptance and approval of the Los Angeles Department of Building and Safety (LADBS) tests, and meets the current applicable Los Angeles Building Code (LABC), and Uniform Building Code (UBC), and local ordinances as determined by the LADBS.
2. *BIPV* systems shall have no less than 70% of their surface area composed of active *photovoltaic (PV)* material.
3. *BIPV* material shall be used as either the ultimate weather membrane of the building/structure or as an integral component of its architectural aesthetic. The *PV* material should be installed in such a way that its removal would cause a building or architectural assembly to lose its weather-tightness or seriously alter its appearance. Most common *BIPV* uses in buildings include: roofing

materials, curtain wall, façade screens, awnings, shade screens, window skylights, etc.

4. *PV* material that is added on top of a roof and that is not part of the weather membrane is not considered *BIPV*.

Alternative designs may be considered and reviewed by the LADWP's engineering staff. The LADWP retains the final determination whether such alternative technologies are acceptable under this program.

5.0 Energy Efficiency Requirements

All residential and commercial buildings, whether existing or new, are required to adhere to the following energy efficiency requirements.

5.1 Newly Constructed Buildings

Newly constructed buildings shall achieve higher energy efficiency levels than the requirements of the Building Energy Efficiency Standards (Title 24, Part 6) in effect at the time the application for a building permit is submitted.

Residential Buildings

Newly constructed residential buildings are required to meet either of the following two tiers of energy efficiency:

- Tier 1- 15 percent reduction in the residential building's combined space heating, space cooling, and water heating energy compared to the 2008 Title 24 Standards.
- Tier 2- 30 percent reduction in the residential building's combined space heating, space cooling, and water heating energy and 30 percent reduction in the residential building's space cooling energy compared to the 2008 Title 24 Standards.

For either Tier 1 or Tier 2, each appliance provided by the builder shall be ENERGY STAR[®] labeled if this designation is applicable for that appliance.

LADWP offers several rebates to residential and non-residential customers who purchase qualifying energy efficient appliances or equipment. These rebates were created to educate and encourage the installation of energy efficient appliances in both homes and businesses. More information on energy efficiency rebates and incentives can be found at <http://www.ladwp.com/energyefficiency> .

For newly constructed residential buildings, a completed CF-1R form demonstrating compliance with either of the two tiers of energy efficiency shall be required before an Incentive Application can be accepted. The CF-1R form is used to demonstrate Title 24 compliance with the current Building Energy Efficiency Standards and must be

completed and signed by a person who is a Certified Energy Plans Examiner (CEPE) by the California Association of Building Energy Consultants (CABEC).

Non-Residential

Newly constructed non-residential buildings are required to meet either of the following two tiers of energy efficiency.

- Tier 1- 15 percent reduction in the non-residential building's combined space heating, space cooling, lighting, and water heating energy compared to the 2008 Title 24 Standards.
- Tier 2- 30 percent reduction in the non-residential building's combined space heating, space cooling, lighting, and water heating energy compared to the 2008 Title 24 Standards.

For either Tier 1 or Tier 2, each appliance provided by the builder shall be ENERGY STAR[®] labeled if this designation is applicable for that appliance.

Solar water heating may be used to assist in meeting the ENERGY EFFICIENCY requirements of either Tier 1 or Tier 2 for either newly constructed residential and non-residential buildings. Solar water heating does not qualify for a solar incentive.

For newly constructed non-residential buildings, a completed PERF-1 form demonstrating compliance with either of the two tiers of energy efficiency shall be required before the Incentive Application can be accepted. The PERF-1 form is used to demonstrate Title 24 compliance with the current Building Energy Efficiency Standards and must be completed and signed by a qualified Certified Energy Plans Examiner (CEPE) by the California Association of Building Energy Consultants (CABEC).

For non-residential buildings that are constructed in phases with the shell built first and further energy systems installed in later phases as tenant improvements, an agreement shall be made between the building owner and the tenant. This agreement shall obligate future tenant improvements to install lighting, HVAC, and water heating equipment necessary to meet the overall building tier level that was committed to by the building

owner. A copy of the agreement shall be included with the solar energy system incentive application.

*Newly constructed buildings are ones for which the building permit for the solar energy system is approved prior to the original occupancy of the newly constructed structure.

5.2 Existing Buildings

The LADWP website provides ratepayers of existing residential and non-residential buildings with information on energy efficiency measures that will allow them to make well-informed decisions on their energy efficiency investments and energy consumption. This information can be found at <http://www.ladwp.com/energyefficiency>. A **disclosure agreement** stating that the ratepayer has received and reviewed this information will need to be signed and included with the incentive application. This agreement also requires that applicants obtain and review their 12 month billing history from LADWP. The disclosure form can be found in Appendix 4 of these Guidelines and on the LADWP website.

For both existing residential and non-residential buildings, an **energy efficiency audit** shall be conducted. It is vital for applicants to carefully review and understand the results from these audits as simple changes in energy usage and appliance upgrades can result in savings on their electric bill.

The residential energy audit can be found on the LADWP website at <http://www.ladwp.com/ladwp/cms/ladwp000605.jsp>. Residential applicants will use the online Home Energy Saver tool to complete their audit. A copy of the upgrade summary from this audit must be submitted with the application or it will not be accepted.

Non-Residential

Non-Residential applicants will have to contact and hire a third party to conduct an on-site energy efficiency assessment. In addition to this audit, ratepayers of existing non-residential buildings are required to benchmark their buildings' energy efficiency before they can be eligible for solar incentives. The energy use intensity (EUI) shall be benchmarked using the online tool Portfolio Manager, which can be found at <https://www.energystar.gov/istar/pmpam/>. **All non-residential customers applying for**

solar incentives must use Portfolio Manager to benchmark their building's energy efficiency. Electricity consumption data entered into Portfolio Manager must come from the most recent 12 month history of the building's energy consumption from LADWP. A copy of the benchmark report shall be submitted along with the energy audit, disclosure form, and the rest of the incentive application before a reservation confirmation is issued.

Buildings unable to receive an energy performance rating using Portfolio Manager shall be benchmarked using the equivalent performance rating system located at [<http://www.gosolarcalifornia.ca.gov/cepbenchmarking/>]. **Only building types that are unable to receive a rating using Portfolio Manager may use this website to rate their building.** A copy of the benchmark report shall be submitted along with the energy audit, disclosure form, and the rest of the incentive application before a reservation confirmation is issued.

5.3 Commitment Agreement

For buildings equal to or larger than 100,000 square feet with a benchmark or equivalent energy performance rating of less than 75, retrocommissioning shall be conducted either before or concurrently with the installation of the solar energy system through a signed commitment agreement. The commitment agreement will state when retrocommissioning will begin and end, and commit the customer to perform equipment/appliance modifications or cost-effective energy efficiency improvements identified in the retrocommissioning assessment. The commitment agreement shall be submitted along with the initial benchmark report, disclosure agreement, non-residential energy audit, and the rest of the incentive application.

Retrocommissioning shall begin no later than one year after the completion of the installation of the PV system. A copy of a retrocommissioning report detailing the list of measures taken to improve the building's benchmark rating past 75 shall be submitted before incentives are issued. Systems to be retrocommissioned include but are not limited to:

- Heating, ventilation, and air conditioning systems and controls.
- Lighting systems and controls.

- Daylighting systems and controls.
- Domestic hot water systems and controls.
- Renewable energy systems and associated equipment and controls.
- Process equipment and appliances specific to hospital, restaurant, and hotel/motel operations.
- Refrigeration in supermarket and refrigerated warehouses.

If equipment/appliance replacement is recommended during the retrocommissioning process, the replacement shall be made with **ENERGY STAR**[®] equipment or appliances, or equipment or appliances that qualify for LADWP energy efficiency incentives, whichever is more efficient.

Once the building's benchmark rating is improved to a rating of 75, further energy efficiency measures are no longer needed. A copy of the Retrocommissioning report shall be submitted to LADWP Program Administrators before incentives are issued. The report shall detail the list of measures taken to improve the benchmark rating past 75.

5.4 Exceptions

Exceptions for Existing Non-Residential Buildings

The energy efficiency requirements shown in these guidelines are not required for the following:

- Agricultural and industrial facilities which are not covered by Portfolio Manager or the California Energy Commission's equivalent benchmark rating are not required to be benchmarked.
- Energy efficiency is not required when solar energy systems are not delivering electricity to a building.
- The energy audit, benchmarking, and retrocommissioning are not required for buildings that have complied with Title 24 requirements for newly constructed

buildings during the last 12 months prior to applying for the solar energy incentive (proof of Title 24 compliance shall be included with the Incentive Application).

- Retrocommissioning is not required for existing non-residential buildings that have a current ENERGY STAR® label.

Exceptions for Existing Residential Buildings

An energy audit is not required for buildings that have complied with Title 24 requirements for newly constructed residential buildings in the past three years prior to applying for the solar energy incentive. Proof of Title 24 compliance shall be included with the solar energy system incentive application (there is no exception for the other information and disclosure requirements).

6.0 Solar Power Incentive Process

The total funds available for incentives and the level of incentives are subject to change during the course of the program as each year's funds are reviewed and approved. Consequently, sellers and buyers of generating systems will want to be certain of the amount of incentive payment they may be receiving before ordering and installing the generating equipment.

6.1 Processing Reservations

Customers or their designated installers may apply for a solar incentive by completing and submitting the Reservation Request Form and supporting documentation to LADWP through PowerClerk or by mail. PowerClerk is an online application interface that allows applicants to complete, submit and monitor their applications via the internet; it can be accessed at ladwp.powerclerk.com. The application will be considered complete upon uploading of the completed Reservation Request Form and supporting documentation to PowerClerk. Supporting documents (listed below in Table 5) should be submitted through PowerClerk, or by U.S. Mail or courier service. Once LADWP has approved the incentive application (subject to available funds), LADWP will send the customer an Incentive Payment Claim (IP) Form as a Reservation Confirmation. Applicants should note that they must submit all their incentive application documents through PowerClerk, or all of their documents by mail. Applicants may not submit some documents through PowerClerk and some by mail.

Applicants who elect to submit their application through PowerClerk will be required to complete, sign and upload an Electric Document Authorization Form (See Appendix 4). Submission of the incentive application through PowerClerk can greatly expedite the incentive process.

For applications for projects less than 20 kW-AC^{CEC}, a copy of the Los Angeles Building and Safety Department permit will be required within 2 months of issuance of the reservation confirmation. Applicants may apply for a two month extension to this ruling.

6.2 New Construction/Major Renovation Projects

Projects seeking a Confirmed Reservation as New Construction/*Major Renovation* must be identified as such when the incentive application is submitted, and must submit the LADBS permit clearly showing the square footage being built. A *Major Renovation* is defined as the permitted addition of at least 399 square feet. It is the applicant's responsibility to clearly identify this information. This will allow for an extended period to complete construction and installation while maintaining the Confirmed Reservation. The construction or renovation that was anticipated is required to be completed prior to the expiration date of the reservation. The anticipated load must be verifiable to claim the total confirmed incentive amount. Please review section 4.4 for information on acceptable documentation on system sizing. Confirmations in this category will be required to submit a project status update showing progress annually to maintain a valid Confirmed Reservation. As an alternative to doing a projected kiloWatt-hour energy load calculation, the maximum system size for new construction and major renovation projects may be calculated at two Watts per square foot of the building's conditioned floor area.

Incentive Applications for *photovoltaic* systems over 10 kW- AC^{CEC} in capacity and systems using *BIPV* must also submit preliminary plans and a *project schedule* of sufficient detail so that the LADWP can determine feasibility of the project as described in section 4.4.1.

6.3 Expiration of Reservation

When additional information is requested regarding an application and it is not provided by the date stated on the request, the Confirmed Reservation will be rejected. **Cancelled confirmed reservations will not be reinstated.** The Confirmed Reservation will also show the expiration date for each *project*. Customers must complete their projects and must submit the Incentive Payment Claim Form prior to that expiration date, unless they have applied for and been approved for an extension in writing using the Time Extension Form. The Confirmed Reservation expiration periods

are shown below:

- **Residential customers** have 6 months from Confirmed Reservation date to complete *solar power system* installation. If a customer can demonstrate in writing that the *project* cannot be completed prior to the expiration date as a result of delays beyond their control such as permit delays when all required items have been submitted by the applicant, or procurement/delivery delays when *purchase order(s)* for materials have been submitted to a vendor in a timely manner--they may receive one 6-month extension, for a total of 12 months to complete the installation. If the *project* is eligible for an extension, the extension must be requested by the customer via email or mail using the Time Extension Form available from *the LADWP* web site and granted by the LADWP Solar Program prior to the Confirmed Reservation expiration date.
- **Commercial and non-profit entities**, due to the complexity of larger projects, have 12 months from the Confirmed Reservation date to complete the solar power system installation. If the customer can demonstrate in writing that the project cannot be completed prior to the expiration date, including all available extensions, as a result of delays beyond their control--such as permit delays when all required items have been submitted by the applicant--they may receive up to 3 more additional months from the reservation start date, for a total of 15 months to complete the installation. If the *project* is eligible for an extension, the extension must be requested by the customer via email or mail using the Time Extension Form available from the LADWP web site and granted by the LADWP Solar Program prior to the Confirmed Reservation expiration date.
- **Government entities and school systems** have 36 months from the Confirmed Reservation date to complete the solar power system installation. Furthermore, the 36 month timeframe is retroactive to all confirmed reservations that had not expired as of April 1, 2011. Board proposals or an official request for proposals pertaining to the purchase or lease, and installation of a solar system may be submitted in lieu of the agreement to purchase and install the solar system. The applicant has up to 12 months to submit evidence of an agreement to purchase

and install the solar power system. However, this agreement must be submitted prior to submitting the Incentive Payment Claim Form in all cases.

- **New Construction/Major Renovation** projects have 36 months to complete. Customers must show project progress every 12 months, with a maximum of three years to complete the installation. If progress is not demonstrated, the confirmed reservation will be cancelled. If a home, building, or facility is under construction or *major renovation*, an expected load profile must be submitted with the application.

6.4 Reservation Request Form – Instructions

The Reservation Request Form can be filled out online through PowerClerk, which can be accessed at ladwp.powerclerk.com. Instructions for the form are provided on each page of the online application. A video demonstrating how to use PowerClerk is also available on the PowerClerk homepage. The Form can also be printed from PowerClerk and submitted by mail.

Supporting Documents: Please submit the following supporting documents with the Reservation Request Form (Table 5 below summarizes which documents are necessary with each type of application):

1. Evidence of an agreement(s) to purchase or lease, and install the system. Evidence of an agreement to purchase or lease, and install can consist of a signed copy of the system or equipment purchase agreement(s) and/or a signed copy of the lease and/or installation contract.
2. Electronic Document Authorization Form (If the application is being submitted electronically through PowerClerk).
3. Evidence of electrical service from LADWP at the installation location (a copy of your most recent LADWP electric bill) showing the account number, address, and name on the account. Note, only the most recent LADWP electric bill needs to be submitted.

4. A copy of the LADBS solar permit within 60 days of receiving the reservation confirmation (Systems less than 20 kW-AC^{CEC}).
5. Signed Solar Inspection Agreement.
6. A copy of the LADBS building permit. Permit must identify square footage being built (new construction or *major renovation*).
7. Non-residential customers claiming the non-taxable incentive rate must include documentation of non-taxable status. Acceptable documentation includes IRS letter confirming tax exempt status.
8. Systems 20 kW-AC^{CEC} or larger must include a check for 0.5% of the anticipated incentive dollar amount with the Incentive Application. This deposit will be returned upon project completion at the same time the incentive amount is paid. If the applicant does not meet required deadlines and the reservation is canceled, the deposit will be forfeited.
9. A single line electrical diagram and operational listing for systems greater than 10 kW-AC^{CEC} and all grid-interconnected battery back-up systems (See Section 4.0).
10. A copy of the ten year warranty.
11. A copy of the energy audit results (existing residential or non-residential buildings only).
12. A signed disclosure form (existing residential or non-residential buildings only).
13. Completed and signed Preliminary Review Information Sheet (PRIS). Answering yes to any question on the PRIS will trigger a preliminary review and/or inspection by the LADWP ESR. Depending on the outcome of this review, the project may be subject to a LADWP engineering review and/or ESR inspection.

14. A copy of the benchmarking report (non-residential buildings only).
15. A signed commitment agreement (existing non-residential buildings with a conditioned floor area equal to or greater than 100,000 square feet and a benchmark rating less than 75).
16. A completed CF-1R signed by a certified CEPE meeting one of the two tiers of energy efficiency for all newly constructed residential buildings.
17. A completed PERF-1 signed by a certified CEPE meeting one of the two tiers of energy efficiency for all newly constructed non-residential buildings.

Table 5

Summary of Incentive Application Supporting Document Requirements

	Residential	Commercial	>10 kW CEC-AC	>20 kW CEC-AC	New Construction	Major Renovation	Benchmark Rating <75 & Area >100k sq. ft.	Non-Taxable	Battery Backup	Application submitted through PowerClerk
Signed Reservation Request Form	x	x								
System purchase agreement(s) and/or installation contract(s)	x	x								
Most recent LADWP Electric Bill	x	x								
Solar Inspection Agreement	x	x								
Electronic Document Authorization Form										x
Energy Audit from Home Energy Saver Tool	x									
Energy Audit from third party contractor		x								
RD: Residential Disclosure Agreement	x									
ND: Non-Residential Disclosure Agreement		x								
Portfolio Manager Benchmark Report		x								
CA: Commitment Agreement							x			
PR: Preliminary Review Information Work Sheet	x	x								
Interconnection Agreement			x							
Check for 0.5% of anticipated incentive payment				x						
Major Renovation/New Construction Building Permit (Must show sq. ft.)					x	x				
kWh load calculation					x	x				
IRS Letter Confirming Non-Tax Status								x		
Single line electrical diagram			x						x	
Copy of Ten Year Warranty	x	x								
Operational listing for battery back-up systems									x	
CF-1R from CEPE showing 15% above Title 24 Standards (Residential Only)					x					
PERF-1 from CEPE showing 15% above Title 24 Standards (Commercial only)					x					
	Base Documentation		Additional Documentation							

6.4.1 Submitting Supporting Documents

Any supporting documents, along with a copy of the most recent utility statement, can be **submitted in electronic form online via PowerClerk, or by U.S. mail or courier service** to:

**Los Angeles Department of Water and Power
Solar Incentive Program
111 North Hope Street, Room 940
Los Angeles, CA 90012**

The date the application is uploaded to PowerClerk by LADWP staff will be used to determine eligibility dates. In no case will LADWP staff take longer than one month to upload an application.

Please Note: Walk in submissions of application documents are not allowed and will not be accepted.

For systems greater than 10 kW-AC^{CEC}, preliminary electrical plans, single line electrical diagram, system design with plot and roof plans showing the location at which the system is to be installed must accompany the form. In addition, if the installation location currently has electrical service, the attached copy of a utility statement (bill) should show that the installation *site* receives electrical distribution from the LADWP. The LADWP will review the form for completeness, availability of funding and the eligibility of the proposed system and will send back to the customer a Confirmed Reservation. A Confirmed Reservation will not be sent until the LADWP receives all information and documentation required for the incentive application and the *project* advancement requirement within the *project* advancement period. Confirmed Reservations will be based on the Solar Incentive Guidelines in place at the time of confirmation.

Upon project completion, final electrical plans, system design with plot and roof plans must be submitted with the Incentive Payment Claim Form.

For more information on how to apply for an incentive reservation, please call the Solar Incentive Program at **(213) 367- 4122**.

6.4.2 PV System Inspections

After the Confirmed Reservation is given, residential and small commercial customers with systems less than or equal to 10 kW-AC^{CEC} may contact the appropriate LADWP Solar Inspector to spot the location of the AC disconnect switch in accordance with the LADWP interconnection rules. All other customers must submit the interconnection agreement first to have a LADWP Distribution Engineer assigned to their project. For systems larger than 10 kW-AC^{CEC}, the LADWP Electrical Service Representative must be contacted for final inspection when the project is completed.

The separate inspections that are required before the PV generating system can be placed in service are:

1. L.A. Department of Building and Safety Permit Inspection
2. LADWP Electrical Service Representative Inspection (for systems greater than 10 kW-AC^{CEC} only)
3. LADWP Solar Incentive Program Inspection

PV systems greater than 10 kW-AC^{CEC} will be locked by the LADWP Electrical Service Representative and not be allowed to operate until all inspections are completed, the customer signs an interconnection agreement, and a net meter has been installed. The locked system shall only be unlocked by the LADWP net meter installer, at which time the system can be *placed in service* and operated. Customers who fail to maintain a valid interconnection agreement for the operating life of the system may be required to reimburse the LADWP for all or part of the incentive received. **(See Appendix 2 for a process flow chart.)**

PV systems less than or equal to 10 kW-AC^{CEC} must submit an Incentive Payment Claim Form to get final inspection and a net meter installed.

6.4.3 Inspection Telephone Numbers

L.A. Department of Building and Safety Permit Inspection

Call 888-LA4-BUILD (888-524-2845) for inside Los Angeles County or 213-482-0000 for outside Los Angeles County.

LADWP Electrical Service Representative Inspection

Call 213-367-6067 **Metro East**, *PV* Installations South of Mulholland Drive and East of Vermont Avenue.

Call 213-367-6234 **Metro West**, *PV* Installations South of Mulholland Drive and West of Vermont Avenue.

Call 818-771-4135 **Valley**, *PV* Installations North of Mulholland Drive.

LADWP Solar Inspection

Dial 213-367-7106.

6.5 Claiming the Solar Power Incentive

Once an eligible *PV* generating system has passed all inspections a claim for payment of the approved incentive amount can be submitted.

6.5.1 Incentive Payment Claim Form (IP)

The LADWP IP form is used to request inspection and payment for a completely installed and LADBS approved solar *photovoltaic* system. The form specifies information about the solar *photovoltaic* system that was to be installed at the time the incentive application was initiated. It also serves as a means of documenting what changes occurred from the time the incentive application was processed until the time the system was installed. The Incentive Payment Claim Form must be submitted before the reservation expires.

Supporting Documents:

Several supporting documents must also be submitted before the claim will be processed. These include:

- A copy of the building permit and final signoff.
- A copy of the final purchase and itemized installation invoices confirming

equipment and amount paid.

- A copy of the LADWP electric bill if the installation location was a new facility without electrical service when the Incentive Application was submitted.
- Final system plans for systems greater than 10 kW-AC^{CEC}.
- A copy of the retrocommissioning report for buildings larger than 100,000 square feet with a benchmark rating less than 75.
- A copy of the Incentive Payment Claim Form.

Table 6 below summarizes the supporting documents required with each IP form type.

Table 6

Summary of IP Form Supporting Document Requirements

	Residential	Commercial	>10 kW CEC AC	New Construction & Major Renovation	Benchmark < 75 and sq. ft. > 100,000
Approved copy of the final LADBS building permit	x	x			
Copy of itemized sales invoice	x	x			
A copy of the LADWP electric bill				x	
Final system plans			x		
Copy of the Retro commissioning Report					x
Signed Incentive Payment Claim Form	x	x			
	Base Documentation		Additional Documentation		

Building Permit and Final Signoff:

The name and address on the building permit must match the installation address on the payment request form. Final approved building permits can be accessed online at www.ladbs.org under the Property Activity Report.

Invoices:

The invoices must clearly identify the work that was done and the amount paid, including identifying the quantity, make and model numbers of major equipment installed and the labor charge for installation. To meet this requirement you may submit a copy of the final invoice(s) or a copy of the final contract(s) showing a zero balance or the amount paid by the purchaser. LADWP staff may also request copies of bank statements, cancelled checks, or credit card statements to verify amount paid. The final system price paid by the purchaser should match the price shown on any contract or invoice previously submitted. Any differences must be explained.

All supporting documents for the IP form can be submitted through PowerClerk or by mail.

Submit your hard copy documents by mail or courier to:

**Los Angeles Department of Water and Power
Solar Incentive Program
111 N. Hope St., Room 940
Los Angeles, CA 90012**

Please Note: Walk in submissions of application documents are not allowed and will not be accepted.

The LADWP will verify that systems are installed in accordance with the information provided in the Reservation Request Form, Confirmed Reservation and IP Form, functionally and properly connect to the LADWP distribution system before and after incentive payments are made. The LADWP will process a check for the incentive payment amount when the Incentive Payment Claim Form is approved and funds are available. If current-year funds are not available when an Incentive Payment Claim Form is received, payments will be made in the next fiscal year for which funds are available, based on the order of receipt of completed IP forms.

7.0 System Installation Requirements

7.1 Installation Process

The application and installation process flow chart can be found in Appendix 2 of these guidelines.

7.2 Maximizing Electricity Production – Shading Analysis

In order to eliminate the possibility of *PV* systems being shaded and thus to maximize the amount of electricity produced by such systems, LADWP requires a shading analysis through use of a solar “pathfinder” (a device that displays the sun’s path throughout the year) or any equivalent technology as part of the Incentive Program reservation process, thus assuring maximum *PV* system production or output. **Be aware that the incentive amount will change based on the percentage shading as determined by the “pathfinder” shading analysis or equivalent instrument.** A shading analysis must be done for each separate solar array by placing the instrument at the center of where the array will be located and taking a reading. The shading percentage must then be entered into PowerClerk when completing the application process.

8.0 Los Angeles Manufacturing Credit (LAMC)

8.1 Introduction and Background

The Incentive Program provides an additional incentive payment for *PV* modules manufactured in the City of Los Angeles that have a confirmed LADWP Solar Incentive Program reservation.

8.2 Unqualified Technologies

The simple bolting together of modules, whether manufactured inside or outside of Los Angeles, to rails and inter-module wiring, commonly called “panelization” shall not qualify for the LAMC.

8.3 Minimum Requirements to Qualify for LAMC

8.3.1 Manufacturing Location and Controls

1. To qualifying for the LAMC, *PV* modules and solar power equipment must be manufactured within the limits of the City of Los Angeles. The manufacturer must have received written approval from the LADWP as qualifying for the LAMC.
2. For installations that use this product, the manufacturer must certify to LADWP by means of documentation, inventory control summaries, physical plant visits, and other means necessary, as determined by LADWP, sufficient to document local manufacturing before any LAMC payment will be made. The LADWP reserves the right to audit the records and inspect the premises of manufacturers requesting the LAMC.
3. To qualify for the LAMC and be considered locally manufactured, a minimum of 50% of the components of the finished *PV* modules or qualifying equipment must have been manufactured and/or assembled within the City of Los Angeles.
4. Alternatively, LAMC status may be obtained through the submission of and acceptance of the manufacturer’s local business plan by LADWP. Such local business plan should clearly demonstrate and document the use of local workforce, locally-manufactured components, or other local economic resources such that 50% or more of the manufactured product’s wholesale value is derived

from the aforementioned local resources. Business plans submitted shall be current, and must be renewed annually. Quarterly financial and labor business reports may be required.

The LADWP retains sole discretion to determine if a manufacturing process or manufactured equipment qualifies for the LAMC and only those that receive written approval from LADWP may receive the LAMC.

All material manufactured must meet codes and standards required for installation in Los Angeles.

8.4 LAMC Payment of Funds

Upon approval of an Incentive Payment Claim Form, LADWP will review the qualification for LAMC on this claim. Once LAMC qualified status is verified, payment will be released to the customer, or their designated payee.

LAMC funds claimed, but not yet supported by a net positive manufactured quantity in equivalent Watts of generating capacity will not be released by LADWP until such time as sufficient net positive balance of manufacturing is achieved.

9.0 Signatures

By signing the Reservation Request Form, the Customer and Applicant declare that: 1) the information provided in this form is true and correct to the best of their knowledge; 2) that the described solar *PV* generating system will be solely owned or leased by the Customer and is intended to offset part or all of the Customer's electrical needs at the site of the installation; 3) the Customer has received a copy of the completed Reservation Request Form; 4) the Customer understands their electric rate may change; 5) the Customer agrees to allow LADWP to account for renewable energy generated by the *PV* system for reporting purposes.; 6) the Customer has read, understands, and agrees to be bound by the Solar Incentive Program Guidelines; 7) the Customer agrees to comply with all provisions of the Net Energy Metering Ordinance and Interconnection Agreement, if applicable; 8) the Customer understands that acceptance of this incentive offer will not exceed LADWP's annual program customer limits as defined in Section 2.5 of the Solar Incentive Guidelines, including any previously received funds for corporate or government parents, holding companies or other business entities.

10.0 Indemnification

The Customer and/or Applicant undertake and agree to indemnify and hold harmless the City of Los Angeles, the Department of Water and Power, the Board of Water and Power Commissioners of the City of Los Angeles, and all of their officers and employees, and, at the option of the Department, defend the Department, and any and all of their Boards, officers, agents, representatives, employees, assigns and successors in interest from and against any and all suits and causes of action, claims, charges, damages, demands, judgments, civil fines and penalties, or losses of any kind or nature whatsoever, for death, bodily injury or personal injury to any person, including Customer's and/or Applicant's employees and agents, or damage or destruction or loss of use to any property of either party hereto, or third persons in any manner arising by reason of, or incident to participation in, the Solar Incentive Program, or resulting directly or indirectly from the negligent acts, errors, omissions or willful misconduct of Customer or Applicant, or either of their officers, designees, agents, employees, contractors, or sub-contractors/sub-vendors of any tier, except to the extent caused by the sole negligence or willful misconduct of the City of Los Angeles or LADWP, and either of their Boards, officers, agents, representatives and employees.

11.0 Definitions

Affordable Housing: A minimum of 50% of the units in either ownership or rental multi-family housing projects must be reserved as affordable. For ownership units, affordability is defined as reserved for families earning 120% or less of the Area Median Income (AMI). For rental units, affordability is defined as reserved for families earning less than 80% of Area Median Income and with rents not exceeding 30% of 60% of the area median income as set forth on a rent schedule prepared by the Los Angeles Housing Department. Long-term affordability of qualifying affordable housing units must be maintained through deed restrictions or other covenants for a period of not less than ten years.

BIPV: Building Integrated *Photovoltaics* -- PV installations of any technology where the PV material constitutes the ultimate weatherproof membrane of any new or existing building or structure or any portion or element thereof, including architectural projections as defined by the current version of the National Electrical Code (NEC).

Corporate Parent: For private sector entities, the holding company of the utility customer of record. In addition, other business relations such as franchises or building associations will be handled as Corporate Parents and will be held to the same limitations and caps as Corporate Parents.

Disconnect Device: All systems must be installed with a disconnect device on the alternating current side of the PV system. Disconnect devices shall provide for a visually verifiable air gap to assure circuit disconnect, and shall be lockable in the open position. Locking provisions shall have a 3/8-inch minimum hole for a LADWP standard padlock having a 1-inch locking clearance. Devices used to disconnect the PV system shall be accessible under all conditions and at all times to LADWP personnel.

Government Parent: A Government parent is divided into federal, state, and local government parents. Federal government parents include the Air Force, Army, Navy, Marines, Postal Service, General Services Administration, and all other Federal agencies or departments. State government parents include the University of California, California State University, Department of Corrections, Department of General Services, the combination of the Department of Development Services and CalTrans, the

combination of the California Youth Authority and the Department of Mental Health, and the combination of the CA Department of Food and Agriculture, The California Construction Authority (CCA) and the CA State Fairgrounds, all other state agencies and departments. Local government parents include cities, counties, school district, and other regional government entities.

Historic Usage: Energy consumption for a particular *site*, as recorded in the LADWP billing records.

KiloWatt (kW): One thousand Watts. A unit of measure for the amount of electricity needed to operate given equipment. A typical home using central air conditioning and other equipment might have a demand of 4-6 kW on a hot summer afternoon.

KiloWatt hour (kWh): The most commonly used unit of measure of electricity consumed over time. It means one kiloWatt of electricity supplied for one hour. A typical Los Angeles household consumes about 500 kWh in an average month.

Inverter Efficiency: LADWP accepts and will use weighted inverter efficiencies established by the California Energy Commission.

Major Renovation: The permitted addition of more than 399 square feet of living space.

Mounting Method: This is the “average standoff” between the mounting surface and bottom of the PV module frame or mounting rack, which ever is closest to the mounting surface. “Average standoff” (SAVG) is the sum of the minimum and maximum standoff divided by two. Standoff is the distance perpendicular from the mounting surface to the bottom of the PV module frame. One minimum standoff distance must be established.

$$SAVG = (S_{max} + S_{min})/2$$

The applicable standoffs that can be inputted into the EPBB PowerClerk calculator are:

- 0” average standoff (flush mount or BIPV) – Where the PV mounting rack is in direct contact with the mounting surface or the PV modules lack outdoor air ventilation.

- 0" to 1" average standoff – The average standoff is 1" or less
- 1" to 3" average standoff – The average standoff is 3" or less, but greater than 1"
- 3" to 6" average standoff – The average standoff is 6" or less, but greater than 3"
- >6" average standoff – The average standoff is greater than 6"

Nameplate Rating: The direct current (DC) capacity of a solar *photovoltaic* module in Watts as shown on back of the module under *Standard Test Conditions (STC)*.

Performance meter: A meter listed with the California Energy Commission and capable of measuring the total energy produced by the system in *kiloWatthours* (or Watt hours). Must have a manufacturer's uncertainty specification of plus or minus five percent (if customer retains ownership of RECs), or plus or minus two percent (if customer transfers ownership of RECs to LADWP). The meter must retain the *kiloWatt*hour production data in the event of a power outage and must provide a display of system output that the customer and LADWP can easily view and understand. The meter must be installed outdoors in close proximity to the LADWP billing meter and the required AC disconnect device. The meter shall be located so that the centerline of the meter is at a height of between 4 feet and 6 feet 3 inches. The meter must be rated for outdoor use. The meter requirement also applies to system additions if the existing system does not include a performance meter. Residential installations require a separate 4-pin meter socket with an electromechanical meter having either an analog or liquid crystal display.

Photovoltaic (PV): A technology using a semiconductor that converts light directly into electricity.

Placed In Service: The start of operation of the photovoltaic system when it becomes operational and capable of producing electricity, having passed all inspections and having a net meter installed.

Project: All eligible generating systems installed during the term of this program at one

site and serving the electrical needs of all real and personal property located at the *site*.

PTC Rating: PTC is an acronym for "PV USA Test Conditions" which were developed at the PV USA test site at the University of California, Davis. The PTC rating represents a more real life condition of 1,000 Watts per square meter solar irradiance, 1.5 Air Mass, and 20 degrees C ambient temperature at 10 meters above ground level and wind speed of 1 meter per second. The PTC rating is generally 10% less than the STC rating. Multiplying the PTC Watts of a system by the inverter efficiency will give you the AC-CEC Watts as defined by the California Energy Commission ($W_{ptc} \times \text{Inverter efficiency} = W_{AC}^{CEC}$).

Purchase Order: A document signed by a purchaser and seller which describe the generating equipment to be purchased or leased, including the make and model, the location at which the equipment is to be installed, and the cost of the equipment to the purchaser or lessee.

Site: One physical address encompassing the locations of all *solar power system* installations serving the electrical needs of all real and personal property located at that physical address, where a site is a single parcel of real property plus any improvements located at that physical address.

Solar Power Project: All eligible solar power generating systems installed at one *site*.

Solar Power System: All photovoltaic (*PV*) equipment furnished and installed to create a complete, working electrical generating system, including solar photovoltaic modules, associated electrical conduit and wiring, electrical sub panels and controls, electrical equipment and meters, structural mounting and supports, and all other components considered to be Balance of System (BOS) to the *PV* generating facility. The complete system will be from the *PV* modules to the performance meter.

Standard Test Conditions (STC): Solar modules produce Direct Current (DC) electricity. The DC output of solar modules is rated by manufacturers under Standard Test Conditions (*STC*). These conditions are easily recreated in a factory, and allow for consistent comparisons of products, but need to be modified to estimate output under common outdoor operating conditions. *STC* conditions are: solar cell temperature = 25°

C; solar irradiance (intensity) = 1000 W/m^2 (often referred to as peak sunlight intensity, comparable to clear summer noon time intensity); and solar spectrum as filtered by passing through 1.5 thickness of atmosphere (ASTM Standard Spectrum). Citation: California Energy Commission, A Guide to Photovoltaic (PV) System Design and Installation.

Warranty: A written warranty given by the seller, retailer or manufacturer of eligible equipment to the purchaser of such equipment, and which complies with the conditions and definitions of 15 U.S.C. Sections 2301 et seq., and which shall be transferable to any subsequent purchaser during the duration, and which must include and provide for the labor to remove and replace any defective components, except where the warrantor did not provide for the original installation of the equipment as part of the original purchase transaction.

**Appendix 1 LADWP Solar Incentive Program – Summary of
September 1, 2011 Revisions**

LADWP SOLAR INCENTIVE PROGRAM SUMMARY OF SEPTEMBER 1, 2011 REVISIONS

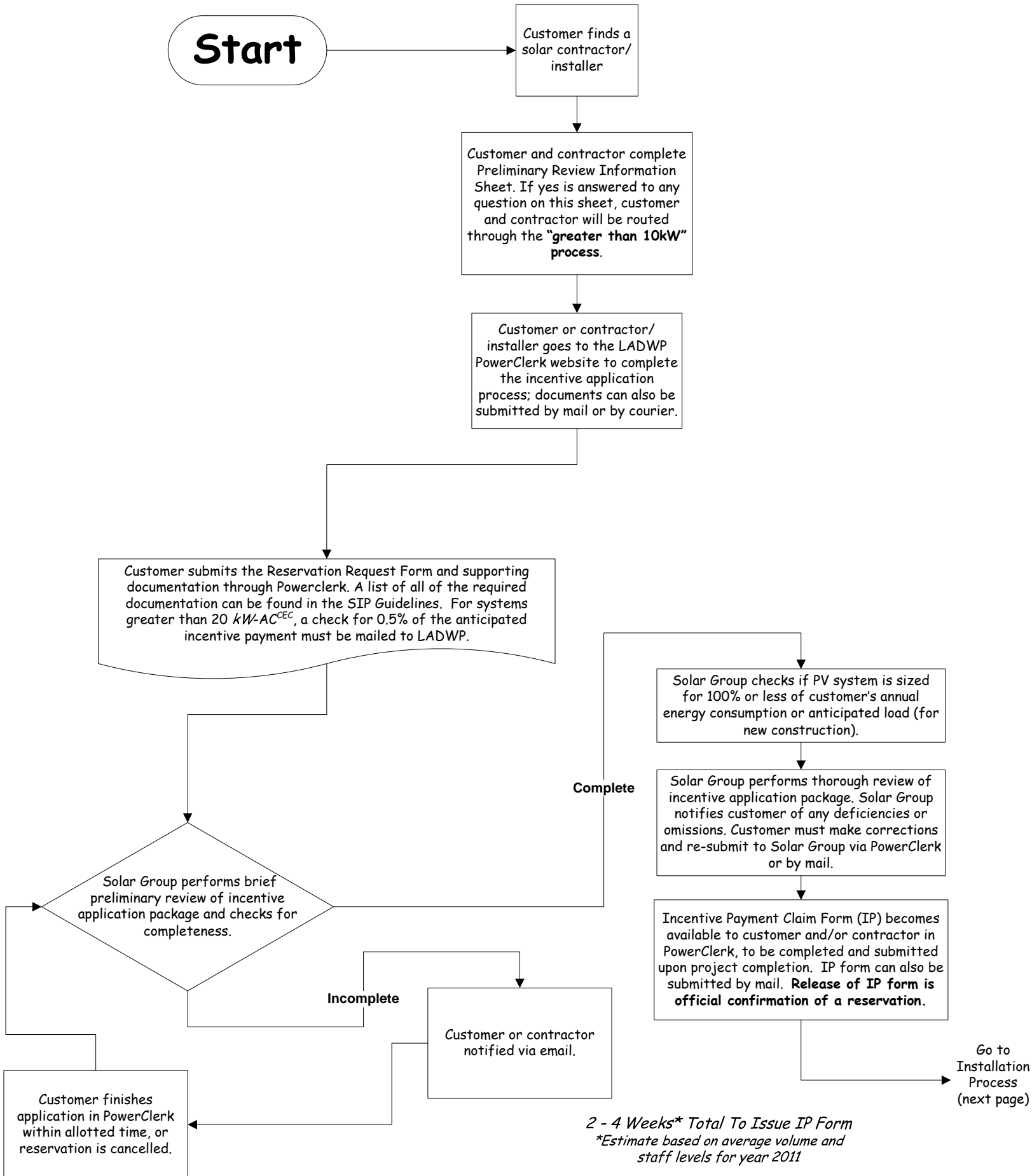
<i>Revision</i>	<i>January 1, 2011 Guidelines</i>	<i>September 1, 2011 Guidelines</i>
Incentive Levels and Incentive Calculation	<p>20 x 0.9 x Incentive Rate x PVWatts Annual Expected kWh Production</p> <p style="text-align: center;"><u>Step 5 Incentive Levels</u></p> <p>Residential: \$0.10/kWh Commercial: \$0.07/kWh Government/Non-Profit: \$0.10/kWh</p>	<p>CEC-AC System Rating x Design Factor x \$/W Incentive Rate</p> <p style="text-align: center;"><u>Step 5 Incentive Levels</u></p> <p>Residential: \$2.20/W Commercial: \$1.95/W Government/Non-Profit: \$2.70/W</p>
LADBS Permit Requirement	N/A	For systems less than 20 kW-AC ^{CEC} , a copy of the Los Angeles Department of Building and Safety solar permit (or equivalent documentation from the appropriate jurisdiction) is required within two months of issuance of the reservation confirmation.
PowerClerk	Reservation Request Form and Incentive Payment Claim Form must be completed by hand with wet signatures and mailed with supporting documentation to the LADWP Solar Group.	<p>The Reservation Request Form and Incentive Payment Claim Form should be completed online through PowerClerk, printed, signed, and uploaded to the PowerClerk web server; they can also be mailed. Supporting documentation may also be uploaded to the PowerClerk web server or mailed. Please note that applicants must submit all documents through PowerClerk, or they must mail all documents. Applicants may not submit some documents through PowerClerk and some documents by mail. Before submitting documents through PowerClerk, applicants must print, sign, and submit a copy of the Electronic Document Authorization Form to LADWP.</p>
Customer Exclusions from Incentive Program	The incentive program is not applicable to applicants on any of the following electric services: Residential Service Rate C, Rate D, or Rate E, or service established on experimental rates, or if expressly prohibited from an existing Special Service Contract	<p>In addition to the existing exclusions, customers who complete the incentive process and enroll in an inapplicable electric service will be required to reimburse LADWP, on a prorated basis, for the remaining portion of the incentive.</p> <p>Applicants who submit incomplete applications will be notified and provided corrective guidance. Those who submit 3 deficient applications will be given a six month exclusion from submitting additional applications.</p>

Revision	January 1, 2011 Guidelines	September 1, 2011 Guidelines
Solar Leases	Incentives for lease solar systems will be paid at the respective Residential/Non-Residential incentive level.	Incentives for leased solar systems will be paid at the Taxable Non-Residential incentive level.
System use before Inspection	N/A	If a solar power system is found with 10 or more hours of use on the inverter prior to approval from the LADWP solar inspector, the application will count as 1 of the 3 deficient applications allowed per applicant.
Conditional Reservation Confirmation	Applications submitted without proof of project advancement are issued Conditional Confirmations	Removed from Guidelines.
Major Renovation	Undefined	A major renovation is defined as the permitted addition of at least 399 square feet of living space.
Performance Meter Specification Requirement	Installed performance meters must be within 5% accuracy.	Applicants who give LADWP ownership of the RECs must install performance meters within 2% accuracy.
Government and School Reservations	School systems and government entities have one year reservations, and must submit an executed purchase agreement with their application.	Schools systems and government entities have 3 year reservations. Furthermore, the 3 year reservation timeframe is retroactive to all confirmed reservations that had not expired as of April 1, 2011. School systems and government entities may also submit a copy of a Board proposal or an official request for proposals in lieu of the executed purchase/lease agreement. The purchase/lease agreement will be required within 1 year from the reservation confirmation.
LAMC Allowance Substitution	Manufacturers may substitute existing or new modules manufactured outside of Los Angeles for LAMC modules manufactured with in Los Angeles.	Removed from Guidelines
Solar Inspection Agreement	N/A	Solar Inspection Agreement is required with the application submittal.

Revision	January 1, 2011 Guidelines	September 1, 2011 Guidelines
Additional Program Requirements	N/A	<p>The solar system is owned by the building owner who is also the owner of the roof space or demonstrates in writing exclusive rights to the roof space for the duration of the incentivized period (not applicable to leased solar systems).</p> <p>The electric bill is paid by the owner.</p> <p>The total of any submetered charges to tenants may not exceed the amount of the owner's electric bill.</p> <p>The solar equipment is being connected to the customer's billing meter, which will be the only meter that is converted to a net meter.</p> <p>Each system has a minimum size of 1 kW AC.</p>
Preliminary Review Information Sheet	Required for projects greater than 10kW.	Required for ALL projects. Projects may be subject to LADWP engineering/ESR review and/or ESR inspection.
Labor on Self-Install	Labor on a self-install may not be counted as an eligible cost.	Language added to the Guidelines clarifying that labor on a self-install cannot be counted as an eligible cost. Only invoiced labor paid to other parties are eligible costs.
Interconnection Agreement Submitted Prior to Confirmation	The interconnection agreement must be completed, signed, and submitted to the LADWP Co-generation Coordinator prior to receiving a confirmation.	Language added to the guidelines clarifying that the interconnection agreement must be completed, signed, and submitted to the LADWP Co-generation Coordinator prior to receiving a confirmation.
Deposit Check	A check for 0.5% of the anticipated incentive amount is required for systems greater than or equal to 30 kW-AC ^{CEC} .	A check for 0.5% of the anticipated incentive amount is required for systems greater than or equal to 20 kW-AC ^{CEC} .

Appendix 2 Solar Incentive Program Process Flow Chart

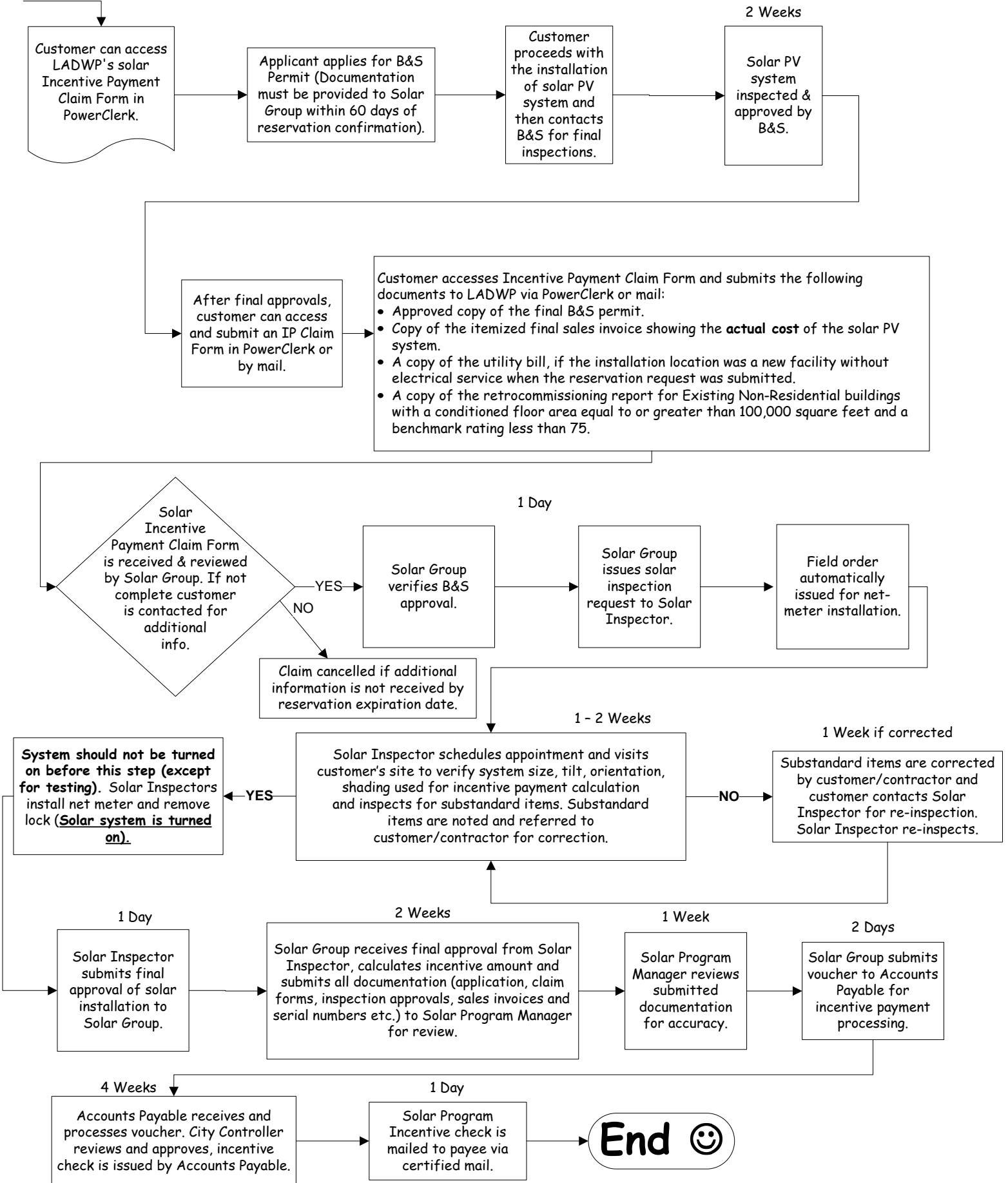
Solar Incentive Reservation Confirmation Process (Less than or equal to 10 kW-AC^{CEC})



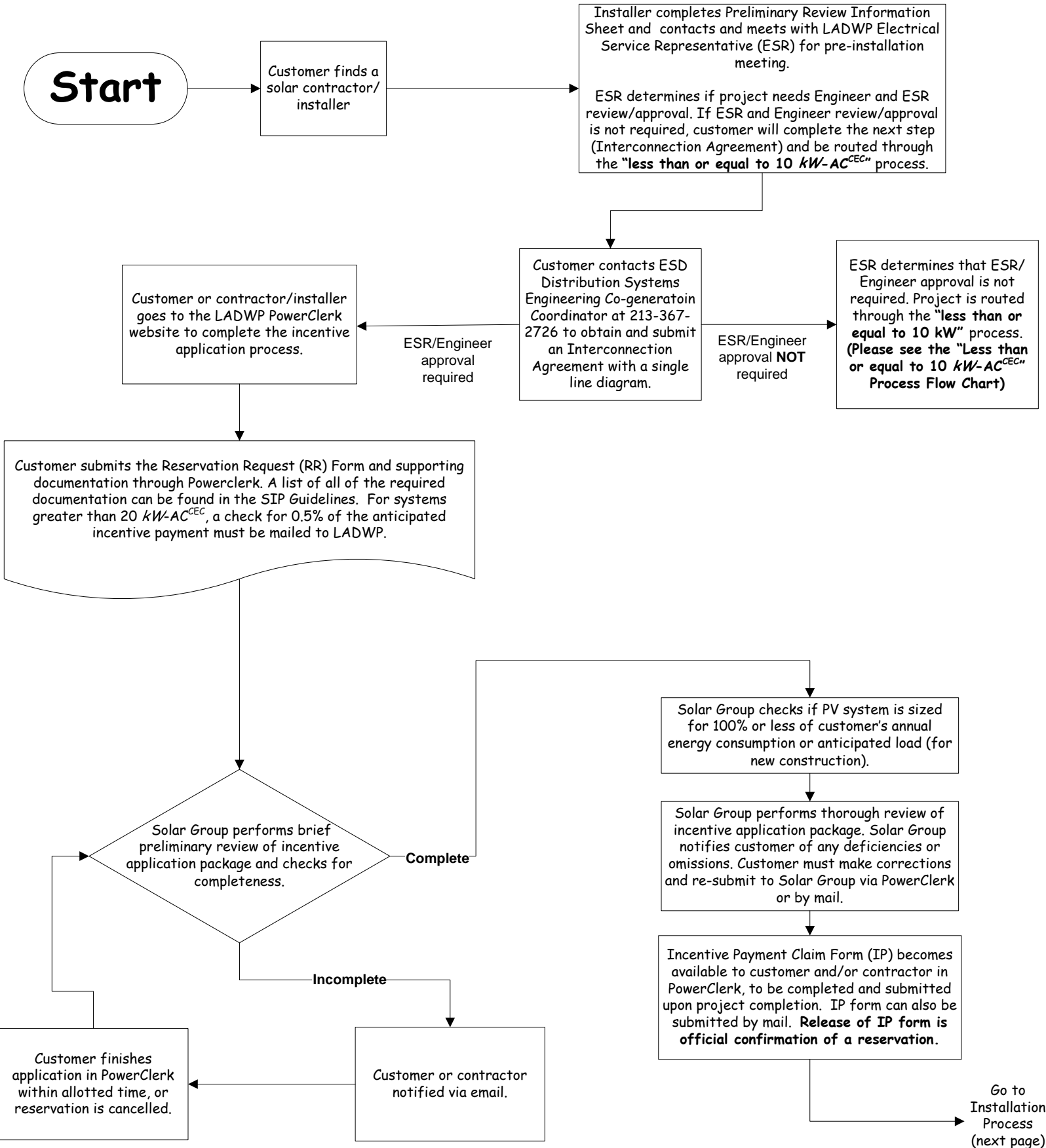
2 - 4 Weeks Total To Issue IP Form
*Estimate based on average volume and
staff levels for year 2011*

Solar Incentive Installation & Payment Claim Process (Less than or equal to 10 kW-AC^{CEC})

Continued From
Reservation Process

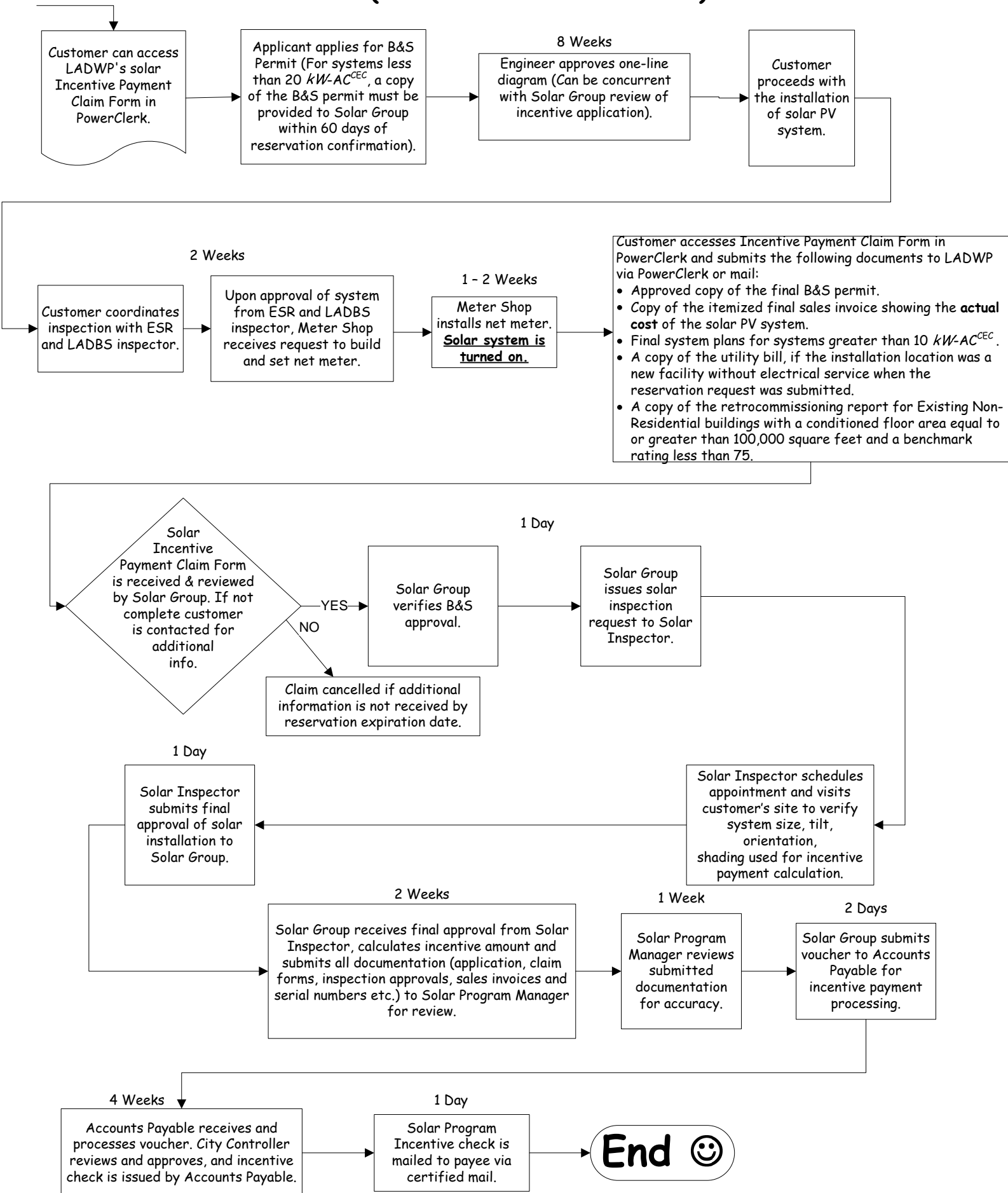


Solar Incentive Reservation Confirmation Process (Greater than 10 kW-AC^{CEC})



Continued From
Reservation Process

Solar Incentive Installation & Payment Claim Process (Greater than 10 kW-AC^{CEC})



Appendix 3 EPBB Calculation

EPBB Incentive Structure

The EPBB incentive is based on the expected performance of the solar system and is dependent on the tilt, azimuth, location, mounting method, and shading around the proposed solar system. The following calculation shall be used to calculate the EPBB incentive:

$$\text{Incentive Amount} = \text{System Rating} \times \text{Incentive Rate} \times \text{Design Factor}$$

System Rating = Quantity of Modules x PTC Rating of Module x Inverter Efficiency.

Incentive Rate = The customer classification dependent dollar per watt payrate used to calculate the incentive.

Design Factor = Design Correction x Geographic Correction x Installation Correction.

Design Factor

The EPBB Design Factor consists of ratios comparing the estimated performance of the proposed system to the performance of an optimal reference system. The design factor is the product of the following ratios:

$$\text{Design Correction} = S_{s,p,p} / S_{s,p,o}$$

$S_{s,p,p}$ = The system's estimated summer kiloWatt-hour output at the proposed location, with proposed tilt and azimuth.

$S_{s,p,o}$ = The system's estimated summer kiloWatt-hour output at the proposed location with summer optimized tilt and azimuth allowing for equal treatment of proposed systems oriented from South to West. (i.e., the optimized system's orientations shall be the same as the proposed system for orientations due south to due west. See table below for reference azimuths relative to the proposed azimuth).

Proposed System Azimuth	Reference System Azimuth
180° to 270°	Proposed System Azimuth
270° to 45°	270°
45° to 180°	180°

Reference system tilt is optimized for summer production at the reference azimuth

Geographic Correction = $A_{s,p,o} / A_{s,r,o}$

$A_{s,p,o}$ = The system's annual kiloWatt-hour output at the proposed location with summer optimized tilt and south azimuth.

$A_{s,r,o}$ = The system's annual kiloWatt-hour output at the reference location with summer optimized tilt and south azimuth.

Installation Correction = PTC_{adj} / PTC

PTC_{adj} = The adjusted PTC DC rating accounting for mounting method, nominal operating cell temperature and power temperature coefficient for that specific module.

PTC = The DC rating of the panels at PVUSA Test Conditions

The PowerClerk EPBB calculator has the following characteristics and features:

- The Summer Period is defined as May 1 through October 31.
- All estimated kiloWatt-hour outputs are calculated and obtained from the PV Simulator performance model.
- Geographic Correction is capped at 1.0
- All systems oriented between 180° degrees and 270 ° are treated equally.
- The “optimal reference orientation tilt” is optimized for summer production corresponding to the different acceptable compass directions for 180 ° to 270 °.
- Location-specific criteria which account for weather variation and varying degrees of solar insolation, based on local climate and geography.
- An “optimal reference latitude tilt” that relates to local latitude.

Formula for Adjusted PTC Rating

$$PTC_{adj} = STC * (1 + PwrTempCoeff/100 * (T_{mod} - 25))$$

$$T_{mod} = 20 + 1.389 * (NOCT - 20) * (0.9 - n)$$

$$n = STC / (1000W/m^2) / Area$$

“PTC_{adj}” is the adjusted module DC Power rating at the installed NOCT.

“STC” is the module DC power rating at Standard Test Conditions

“PwrTempCoeff” is the power temperature coefficient of the module.

“T_{mod}” is the module temperature at PVUSA Test Conditions

“NOCT” is the Nominal Operating Cell Temperature for BIPV installations

n is the panel solar to DC electric conversion efficiency

“Area” is the panel cell area in square meters.

Appendix 4 Incentive Program Application Forms

1. Solar Inspection Agreement
2. Residential Disclosure Form
3. Non-Residential Disclosure Form
4. Commitment Agreement
5. Preliminary Review Information Sheet
6. Solar Time Extension Request Form
7. Solar Reservation Payment Assignment Form
8. Electronic Document Authorization Form

SA**Solar Inspection Agreement**

Los Angeles
Department of
Water and Power

Please upload to PowerClerk or submit by mail or courier to:
Solar Incentive Program
LADWP
111 N. Hope St., Room 940
Los Angeles, CA 90012

Customer Contact Information

Name/Company _____

Physical Address of System _____

Mailing Address _____

Telephone _____

Fax _____

Email _____

The Los Angeles Department of Water and Power (LADWP) Electric Service Requirements **prohibits** the operation of solar power systems prior to inspection and approval by the LADWP Solar Inspector. LADWP considers the safety of its customers and field workers paramount, and inspection and approval by the LADWP Solar Inspector are necessary prior to operation.

Please note the following regarding the inspection and the activation of your solar power system:

- Your project will go through at least two inspections: The first inspection will be conducted by the Los Angeles Department of Building and Safety, and the second will be performed by the LADWP Solar Inspector. Operation of the solar power system is not to occur until passing of the LADWP Solar Inspection. No billing credit will be issued for systems that are turned on prior to receiving a net meter.
- You will experience problems with your bill if you operate your system prior to the LADWP Solar Inspection. In order to accurately account for solar generation, you must have a net meter installed, which is done by the solar inspector upon passing the inspection.
- Prior to the LADWP solar inspection, the system may be energized temporarily for testing purposes only. This typically takes less than 2 hours. Thus, incentive applications for systems found with more than 10 hours of use will count as 1 of the 3 deficient applications allowed per applicant.
- If at any time during the life of the solar power system that there is not 24 hour access, the system will be tagged and locked out until 24 hour access is provided.

By signing this document, all parties involved with the purchase and installation of the solar power system affirm that they have read and understand the above information, and that the system will not be activated, except temporarily for testing reasons, prior to the LADWP Solar Inspection.

Purchaser

Print Name: _____

Signature: _____

Date: _____

Installer

Print Name: _____

Signature: _____

Date: _____

RD

RESIDENTIAL DISCLOSURE AGREEMENT



Los Angeles
Department of
Water and Power

Please upload to PowerClerk or submit by mail or courier to:
Solar Incentive Program
LADWP
111 N. Hope St., Room 940
Los Angeles, CA 90012

Contact Information

Name/Company _____ Physical Address of System _____ Mailing Address _____

Telephone _____ Fax _____ Email _____

Please initial on each line and sign at the bottom. Submit this form along with your reservation request and energy audit.

_____ I certify that I am the owner of the building located at the above address, and I am applying for an LADWP solar incentive.

_____ I have received and reviewed the most recent 12 month history of my home's energy consumption from LADWP.

_____ I used the following services and tools to learn of and identify cost-effective energy measures applicable to my residence.

- <http://www.ladwp.com/ladwp/cms/ladwp001950.jsp>
- <http://www.energystar.gov>
- <http://gosolarcalifornia.ca.gov>
- Other: _____

_____ I have received and reviewed information on beneficial energy efficiency rebates and incentives available for my home from LADWP.
Information can be found at:
<http://www.ladwp.com/ladwp/cms/ladwp011178.jsp>

_____ An energy audit has been conducted on my home to identify cost-effective energy efficiency measures that could be installed.

_____ I installed the following energy efficiency measures on my home:

I intend to install the following energy efficiency measures on my home:

Planned date of installation _____

Print Name: _____ Signature: _____ Date: _____

ND

NON-RESIDENTIAL DISCLOSURE AGREEMENT



**Los Angeles
Department of
Water and Power**

Please upload to PowerClerk or submit by mail or courier to:
Solar Incentive Program
LADWP
111 N. Hope St., Room 940
Los Angeles, CA 90012

Contact Information

Name/Company _____ Physical Address of System _____ Mailing Address _____

Telephone _____ Fax _____ Email _____

Please initial on each line and sign at the bottom. Submit this form along with your reservation request, energy audit, and benchmark report.

_____ I certify that I am the owner of the building located at the above address, and I am applying for an LADWP solar incentive payment.

_____ I have received and reviewed the most recent 12 month history of the building's energy consumption from LADWP.

_____ I used the following services and tools to learn of and identify cost-effective energy measures applicable to the building.

- <http://www.ladwp.com/ladwp/cms/ladwp001950.jsp>
- <http://www.energystar.gov>
- <http://gosolarcalifornia.ca.gov>
- Other: _____

_____ I have received and reviewed information on beneficial energy efficiency rebates and incentives available for my building from LADWP.
Information can be found at:
<http://www.ladwp.com/ladwp/cms/ladwp011178.jsp>

_____ An energy audit has been conducted on the building to identify cost-effective energy efficiency measures that could be installed.

_____ I have benchmarked the building using Portfolio Manager or an equivalent performance rating system.
Benchmark Rating _____ Benchmark Date _____
If building is larger than 100,000 square feet and your benchmark rating is below 75, please sign and send a commitment agreement along with this form.

I installed the following energy efficiency measures on the non-residential building:

I intend to install the following energy efficiency measures on the non-residential building:

Planned date of installation _____

Print Name: _____ Signature: _____ Date: _____

PR

PV Preliminary Review Information Sheet



**Los Angeles
Department of
Water and Power**

Please upload to PowerClerk or submit by mail or courier to:
Solar Incentive Program
LADWP
111 N. Hope St., Room 940
Los Angeles, CA 90012

Customer Contact Information

Name/Company _____ Physical Address of System _____ Mailing Address _____
 Telephone _____ Fax _____ Email _____

Installer Contact Information

License Class and # _____ Expiration Date _____ Company _____ Address _____
 Telephone _____ Fax _____ Email _____

Please check Yes or No for the following:

- Yes No Is the PV system for a commercial service?
 - Yes No Is the aggregate AC output for all PV systems on the property $\geq 10 \text{ kW-AC}^{CEC}$?
 - Yes No Will the proposed PV system be connected to a 3-phase service?
 - Yes No Is a line-side tap proposed for the PV system? (A field evaluation is needed)
 - Yes No Is an EV charging station installed or proposed?
 - Yes No Will the service panel need to be upgraded?
 - Yes No Is the existing or new service panel rated ≥ 225 amps?
(Residential services larger than this require a utility disconnect with a viewing window and the 22K fault current becomes an issue when a service is too close to the transformer.)
 - Yes No Are other power sources such as a battery backup system, a standby generator or fuel cells installed or proposed?
 - Yes No Is the project site located in a methane zone?
(Instructions on how to determine if your project site is in a methane zone can be found in the Solar Incentive Program "Frequently Asked Questions" document, available at www.ladwp.com/solar.)
 - Yes No *(Multi-Tenant Buildings Only)*
Is this a Master metered Service? Is this a sub-metered service?
- Circle Applicable Services: **MASTER METERED SERVICE** **SUB-METERED SERVICE**

Installer Name: _____ Signature: _____ Date: _____

PA

**RESERVATION PAYMENT ASSIGNMENT FORM
SOLAR INCENTIVE PROGRAM**



**Los Angeles
Department of
Water and Power**

Reservation Number _____

Reservation Information

Customer Name: _____
Customer Address: _____
Customer Contact: _____
Customer Phone #: _____

Customer is (Check one) Owner of Solar System Lesser of Solar System

Assignment Request

I, _____, the designated payee or authorized representative of the payee, hereby assign the right to receive payment for the above noted reservation under the Solar Incentive Program to the following individual or entity:

Name: _____
Address: _____
Phone #: _____
Federal Tax ID: _____

I request that payment be forwarded to this individual or entity at the address noted and that proof of payment be forwarded to me.

Acknowledgement

As the designated payee or authorized representative, I understand that I remain responsible for complying with the requirements of the Solar Incentive Program and will remain liable for any tax consequences associated with the reservation payment, despite the payment's assignment. I further understand that I may revoke this payment assignment at any time prior to the Los Angeles Department of Water & Power's (LADWP) processing of the payment by providing written notice to the LADWP's Solar Incentive Program Office. Such notice shall be provided to:

Solar Incentive Program,
LADWP,
111 N. Hope St., Room 940
Los Angeles, CA 90012

Executed on: _____

Signature: _____
Name: _____
Title: _____

ED

Electronic Document Authorization Form



**Los Angeles
Department of
Water and Power**

Please upload to PowerClerk or submit by mail or courier to:
**Solar Incentive Program
LADWP
111 N. Hope St., Room 940
Los Angeles, CA 90012**

Contact Information

_____	_____	_____
Name/Company	Physical Address of System	Mailing Address
_____	_____	_____
Telephone	Fax	Email

Please complete, sign, and upload this document with your incentive application onto the PowerClerk web server.

I hereby authorize the electronic submission of the LADWP Solar Incentive Program application and related documents through the online software tool PowerClerk. I agree that my signature on documents electronically submitted through PowerClerk shall be the legally binding equivalent of the original handwritten signature on those documents and that electronic copies of documents submitted through PowerClerk shall be the legally binding equivalent of the originals.

Purchaser

Print Name: _____

Signature: _____

Date: _____

Installer

Print Name: _____

Signature: _____

Date: _____