



Massachusetts Residential Solar Loan Program

FINAL PROGRAM DESIGN - UPDATE

September 17, 2015

Problem Statement and Opportunity

- MA residential solar market has boomed over past 4 years and continued SREC-II program support will maintain this growth.
- Solar financing is essential to maintain market progress.
 - PPA/ Leases are one means of financing which currently serves a majority of the MA residential solar market.
 - For a direct ownership alternative, loans are required. Home equity loans currently used for solar are not ideal.
- Direct ownership of solar by MA homeowners provides substantially greater lifecycle benefits to homeowner and local economy.
- Convenient access to loan products will further this economic opportunity for homeowners and local lenders.

Program Goals

- The Solar Loan program will establish a loan product that
 - is readily accessible for installers, customers and lenders
 - is competitive with alternatives (e.g. PPA/lease, cash, etc.) from customer perspective
 - is of interest to lenders both on near term, and long term basis
 - helps small installers secure attractive financing for their customers
 - creates an affordable solution and lender support to serve moderate income homeowners and small owner participants in community shared solar projects.
- The Solar Loan program will help transform the market, but incorporates an exit strategy, so as program support is reduced and eliminated, a sustainable solar market is maintained.

Relation to Mass Save Heat Loan

- 50 lenders statewide are engaged with successful Heat Loan program that provides support for homeowner loans for energy efficiency and boiler replacements
- DOER and MassCEC anticipates Heat Loan lenders will particularly recognize the value of Mass Solar Loan, the successful performance of Heat Loans, and opportunity to expand customer base
- DOER will require participating borrowers demonstrate, by self-attestation, that they have had a residential energy audit in the past five years, or have one scheduled at time of loan application
- Programs are distinct in funding source, loan terms, technical/project eligibility, and administration

Lender Eligibility

- Eligible lenders must:
 - Be a depository institution as defined by the Board of Governors of the Federal Reserve System
 - per [Section 19\(b\)\(1\)\(A\)\(i\)-\(vi\)](#) of the Federal Reserve Act (12 USC 461)
 - Meet program loan parameters
 - Sign a program lender agreement.
- To maintain market diversity, DOER reserves the right to apply an entity cap on any lender that takes a market share greater than 25% of any IRB block.

Borrower Eligibility

Homeowner

- Projects in any Massachusetts utility territory (IOU or MLP) are eligible. Projects can be new installations for additions to existing systems.
- Homeowner eligibility includes owners of the following types of residential property -
 - single-family homes
 - individual condominiums and townhomes, with the homeowner association's written approval
 - owner-occupants of residences with up to three units.

Borrower Eligibility

Community Shared Solar

- Minimum requirements to qualify for a Community Shared Solar project include, but are not limited to, the following:
 - Participants must demonstrate a direct ownership stake in a solar project as net metering off-taker of 25 kW or less
 - Participants must demonstrate a direct ownership stake in solar project through an LLC, cooperative, condo association, or other collaboration subject to MassCEC approval
 - Project must meet Mass Solar Loan program technical eligibility criteria
 - For projects larger than 100 kW DC, the definition of Community Shared Solar Generation Unit as contained in the RPS Class I regulation shall determine eligibility as a CSS project under the Program.
 - For projects sized 100 kW DC or less, all participants must receive net metering credits or electricity from the project in shares of 25 kW DC or less.
 - Participating lender must be qualified under the Mass Solar Loan Program
 - The project CSS participant need not be a homeowner, but must meet requirements in Program Manual and Lender underwriting criteria

Solar PV System – Technical Eligibility (continued)

- PV project and equipment warranty requirements
 - Installer warranty – at least 5 year labor warranty
 - Manufacturer warranty – at least 20 year production warranty on panels, and 10 year warranty on inverter
 - Roof condition – installer attest that roof is in satisfactory shape and meets standards for solar installations
- Additional solar PV equipment requirements
 - New panels and equipment
 - UL listed
 - Solar panels on California Energy Commission (or successor) list of eligible renewable energy equipment

Solar PV System – Technical Eligibility

- Solar project must be eligible for MA Solar Carve-Out II program, or successor.
- Minimum design and estimated production requirements
 - Project designed so that estimated annual energy output is at least 70% of the default optimal output for a fixed PV project of the same capacity.
- Installation requirements
 - Electrical work performed by MA licensed electrician.
 - Project installed according to manufacturer's instructions and in compliance with all applicable permits, interconnection agreements, federal and state codes and standards.

***Technical Eligibility adapted from MassCEC Commonwealth Solar II Minimum Technical Requirements*

Qualification of Installers

- Installers will be expedited by MassCEC in a manner consistent with the Commonwealth Solar II Rebate program.
 - Installers already expedited in Commonwealth Solar II will be offered opt-in opportunity to participate in the solar loan program.
- Non-expedited or new-entry installers will be subject to inspection of first two projects.
 - Successful inspections will result in expedited status for installer going forward.
 - Inspection contracted by MassCEC.

Loan Parameters

- Unsecured and/or secured loans
- Borrower must meet underwriting criteria of lender
- Maximum loan available of at least \$35,000; minimum loan of \$3,000; lenders can offer a loan of up to \$60,000
- Loan tenor of 10 years must be offered; other tenors can also be offered
- Interest rate maximum of 6% before interest rate buy down (maximum pegged to WSJ prime lending rate + 2.75%)
- No penalties for early payments or payoff
- Loan re-amortization, or other mechanism approved by the program, to reduce loan payments due to submission of federal tax credit or other principal pay-down, available at no cost once in the first 18 months
- Disbursement of 35% of the Program Loan at loan closing and 65% of the Program Loan upon Project Completion; two-party check disbursement
- Transferability (at discretion of Lender)
- Loan fees optional, but not to exceed \$500 per loan
- Loan must not have recourse to credit enhancement by any other government program

Credit Enhancement Provisions - Summary

Eligible Loan Terms	Interest Rate Buy-Down (IRBD)	Loan Loss Reserve (LLR)	Income Based Loan Support (IBLS)
<p>Lender must offer tenor of 10 years, other tenors may also be offered. All tenors get same credit enhancement.</p> <p>Maximum Interest Rate 6% (pegged to WSJ Prime + 2.75%).</p>	<p><u>For All Borrowers</u></p> <p>3% IRBD available until \$5M of IRBD expended</p> <p>DOER intends to reduce IRBD for subsequent funding blocks based on program performance</p> <p>DOER will provide transparency as to IRBD spending and availability</p>	<p><u>680 < FICO < 720</u></p> <p>10% LLR for 80% remaining principal</p> <p><u>FICO ≤ 680</u></p> <p>20% LLR for 90% remaining principal</p> <p>Separate LLR accounting established for each lender. Each lender will be pre-funded with \$50,000</p>	<p><u>For Borrowers with:</u></p> <p><u>≤ 120% and > 100% of MA median household income</u> 20% of program loan or system cost</p> <p><u>≤ 100% of MA median household income</u> 30% of program loan or system cost</p> <p>IRBD based on full loan principal not IBLS reduced loan amount</p> <p>subject to change due to loan volume and allocated funds</p>

Credit Enhancement Mechanics

Interest Rate Buy-Down

- 3% interest rate buy-down (IRBD) available for all borrowers until the first \$5M IRB budget block is expended.
- DOER intends to reduce IRBD for subsequent funding blocks based on program performance
- MassCEC will provide public tracking of remaining IRBD block funds and announce any change in IRB at least 30 days prior to effective date of new block
- IRBD based on financing of full loan principal, not IBLS reduced loan principal
- Monthly IRBD disbursement procedure for individual lenders:
 - Lender aggregates monthly total of all IRBD compensation and reports to Central Administrator
 - Central Administrator disburses monthly IRBD payment to lender

Credit Enhancement Mechanics

Loan Loss Reserve

- Separate loan loss reserve (LLR) accounting established for each lender.
- Each lender will be pre-funded with \$50,000 in LLR.
- Lender should use normal business practice to establish FICO score.
- Lender is not required to serve all FICO scores, but is encouraged to consider the LLR's risk mitigation of the borrower's expenditure reduction provided by the solar asset.
- Funding of lender LLR:
 - Lender will report monthly to Central Administrator total loan principals by FICO score loan class.
 - Central Administrator will deposit appropriate funds in lender's LLR.
 - Lender will annually report to Central Administrator the aggregate remaining loan principal by FICO score loan class.
 - Central Administrator will reconcile lender LLR to cover remaining principal.

Credit Enhancement Mechanics

Loan Loss Reserve (continued)

- Loss payment procedure:
 - Lender will use its standard default and collection procedures.
 - Upon official default, lender will calculate eligible LLR payment based on remaining principal and borrower FICO score.
 - Lender will aggregate all eligible default payments and report to Central Administrator on a monthly basis.
 - Central Administrator will disburse any LLR payments on a monthly basis.

Credit Enhancement Mechanics

Income Based Loan Support

- Borrower IBLS eligibility confirmed by third party contracted by the MassCEC ahead of submission of final loan documents.
- Third party contractor will also confirm that solar project is to be installed at IBLS borrower's address.
- IBLS disbursement procedure:
 - Upon loan closing, lender applies appropriate value of borrower IBLS loan principal.
 - Lender then aggregates monthly total of all borrower IBLS and reports to MassCEC.
 - MassCEC disburses monthly IBLS payment to lender, in coordination with IRBD payment.

Borrower Examples

Project Size 5 kW
 Cost/Loan Principal \$22,500
 Lender Interest Rate 6%
 Loan Term 10 years

Borrower	Adjusted Loan Principal (after MILS payment)	LLR Funding	IRB (3%)	Income Based Loan Support
FICO = 700; and Household Income > 120% median	\$22,500	\$2,250	\$2,930	\$0
FICO = 640; and Household Income > 120% median	\$22,500	\$4,500	\$2,930	\$0
FICO = 700; and Household Income =110% median	\$18,500	\$2,250	\$2,930	\$4,000

Model Allocation of Program Funds

- DOER has allocated \$30 million to support the credit enhancement to encourage consumer solar loans.
- Modeling, with conservative assumptions, demonstrates that the DOER funds may support around \$127 million of loans, a leverage factor of 4.6 times.

IRB Assumption	Loan Volume	IRB Cost	LLR Cost	Moderate Income Cost	TOTAL SUBSIDY	TOTAL LOANS
IRB Block 1 - 3%	1855	\$5,000,000	\$2,712,653	\$2,967,689	\$10,680,343	\$41,733,131
*IRB Block 2 - 2%	1891	\$3,500,000	\$2,765,397	\$3,025,392	\$9,290,789	\$42,544,571
*IRB Block 3 - 1%	1900	\$1,811,576	\$2,778,054	\$3,039,238	\$7,628,868	\$42,739,291
Totals	5645	\$10,311,576	\$8,256,104	\$9,032,319	\$27,600,000	\$127,016,992
* only Block 1 IRB of 3% is confirmed					Leverage	4.6

Modeling Assumptions:

Loan Principal of \$22,500. Loan Program administrative costs of \$2,400,000.

IRBD Cost with 70% of customers taking 10 year tenor and 30% taking 7 year tenor.

LLR Cost with 50% of customers with FICO > 720, 35% between 680-720, 15% < 680.

Loan Support with 65% customers above 120% median income, 25% between 100%-120% median income, and 10% below 100% median income (assumes 5 kW systems).

Role of the MA Clean Energy Center as the Central Administrator and Fiscal Agent

DOER has partnered with the Massachusetts Clean Energy Center (MassCEC) as the Central Administrator for the solar loan program, as such the MassCEC will:

- Qualify and enroll lenders that meet program criteria to be eligible for the credit enhancement.
- Establish and maintain loan program website with public information, program forms/documents, and listing of eligible installers, lenders and loan offerings.
- Establish and maintain secure program database with user login capabilities.
- Provide income verification for IBLS through a subcontractor.
- Provide quarterly DOER and public reports on loan program activity and
- Act as a Fiscal Agent who will:
 - Register each loan, disburse IRBD and IBLS, and administer LLR accounting
 - Coordinate with lenders to review records to assure accurate information is being reported on loan amounts and FICO scores



Creating A Cleaner Energy Future For the Commonwealth



Next Steps and Anticipated Timeframe

- January 15: DOER announced its partnership with MassCEC, as the program central administrator
- Spring 2015: DOER worked with the MassCEC to procure and contract with four vendors to build the program portal, recruit lenders, verify the income of moderate income customers, and provide technical review
- Summer 2015: DOER released program documents for stakeholder comment and incorporated feedback
- Summer 2015: DOER finalized program documents and updated the final program design; all documents can be found on the program website: www.massolarloan.com
- Fall 2015: The Mass Solar Loan program is expected to secure lender agreements
- Fall 2015: The Mass Solar Loan is expected to launch