



# **Massachusetts Residential Solar Loan Program**

**FINAL PROGRAM DESIGN**

**January 6, 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 anticipates Heat Loan lenders will particularly recognize the value of the Solar Loan credit enhancement, the successful performance of Heat Loans, and opportunity to expand customer base.
- DOER will seek to coordinate the two programs with marketing, website linkages, and compatible procedures.
- DOER will require participating borrowers demonstrate, by self-attestation, that they have had a Mass Save energy audit in the past two 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

- Net metering off-taker in Community Shared Solar (CSS), as defined in SREC-II, or other net metering projects that meets the following criteria:
  - Net metering off-taker of 25 kW or less, with ownership position in the solar project
  - Limited to off-takers with direct ownership stake in the project or ownership through an LLC, cooperative, condo association, or other collaboration
  - Project must meet loan program technical eligibility criteria
  - CSS participant need not be a homeowner, but must meet lender underwriting criteria.

# 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*



# 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

# 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 loan
- Borrower must meet underwriting criteria of lender
- Maximum loan available of at least \$35,000; minimum loan of \$3,000
- 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
- 10% of loan disbursed upon closing; remaining disbursement plan to be established by lender/borrower; two-party check (borrower and installer) disbursement
- Transferability (at discretion of Lender that new homeowner meets credit requirements)
- Loan fees optional, but not to exceed \$500 per loan
- UCC-1 filing for loan optional, but should be considered by lenders
- Loan must not have recourse to credit enhancement by any other government program

# Credit Enhancement Provisions - Summary

Eligible Loan Terms	Interest Rate Buy-Down (IRB)	Loan Loss Reserve (LLR)	Moderate Income Loan Support (MILS)
<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% IRB available until \$5M of IRB expended</p> <p>DOER intends to reduce IRB for subsequent funding blocks based on program performance</p> <p>DOER will provide transparency as to IRB spending and availability</p>	<p><u>680 &lt; FICO &lt; 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 &gt; 100% of MA median household income</u> \$0.80/watt, up to 10 kW</p> <p><u>≤ 100% of MA median household income</u> \$1.20/watt, up to 10 kW</p> <p>Loan support down-payment to lender at time of IRB payment</p> <p>IRB based on full loan principal not MILS 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 (IRB) available for all borrowers until the first \$5M IRB budget block is expended.
- DOER intends to reduce IRB for subsequent funding blocks based on program performance.
- Central Administrator will provide public tracking of remaining IRB block funds and announce any change in IRB at least 30 days prior to effective date of new block.
- IRB based on financing of full loan principal, not MILS reduced loan principal.
- Monthly IRB disbursement procedure for individual lenders:
  - Lender aggregates monthly total of all IRB compensation and reports to Central Administrator.
  - Central Administrator disburses monthly IRB 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

## Moderate Income Loan Support

- Borrower MILS eligibility confirmed by third party contracted by the Central Administrator ahead of submission of final loan documents.
- Third party contractor will also confirm that solar project is to be installed at MILS borrower's address.
- MILS disbursement procedure:
  - Upon loan closing, lender applies appropriate value of borrower MILS to loan principal.
  - Lender then aggregates monthly total of all borrower MILS and reports to MassCEC.
  - MassCEC disburses monthly MILS payment to lender, in coordination with IRB 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%)	Moderate Income 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 and early mover incentives 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
<b>Totals</b>	<b>5645</b>	<b>\$10,311,576</b>	<b>\$8,256,104</b>	<b>\$9,032,319</b>	<b>\$27,600,000</b>	<b>\$127,016,992</b>
* only Block 1 IRB of 3% is confirmed					<b>Leverage</b>	<b>4.6</b>

## Modeling Assumptions:

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

IRB 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 MILS through a subcontractor.
- Provide quarterly DOER and public reports on loan program activity and recommendations for improvement.
- Contract a Fiscal Agent who will:
  - Register each loan, disburse IRB and MILS, and administer LLR accounting.
  - Coordinate with lenders to review records to assure accurate information is being reported on loan amounts and FICO scores.

# Next Steps and Anticipated Timeframe

- Announce partnership with the Massachusetts Clean Energy Center as the program Central Administrator and release of the Final Program Design (December 2014).
- DOER and MassCEC to provide lender agreement to lending community for two week review period before finalizing (January 2015).
- MassCEC to contract for web platform developer, Fiscal Agent, and other program services (early 2015).
- MassCEC to stage construction of program website (December 2014 through early 2015).
- Solicit lenders to program (early 2015 and on-going).
- Outreach program to installers and establish eligible installer list (early 2015 and on-going).
- Program to start providing loans (Spring 2015).