

## **Energy Division DEER Update Plan**

### **July 11, 2013**

This plan outlines the process for DEER updates in 2014 for the 2013-14 energy efficiency program cycle, and for the 2015 and beyond energy efficiency planning cycle. For the post-2014 period, Energy Division seeks to solicit stakeholder engagement during the planning and execution of the DEER update in order to provide transparency to the process and to allow stakeholders to provide input in the outcomes. During the 2013-14 cycle, there will be two phases of updates:

1. **DEER2013:** A mid-cycle update for the 2013-14 portfolio cycle will be completed in third quarter of 2013 that changes the baseline assumptions for codes and standards coming into effect in 2014.
2. **DEER2014:** The DEER update that will apply to the post-2014 portfolio in 2015 should be completed by the end of 2013, and will potentially incorporate measure cost updates, saturation studies, measure use profile updates, and any EM&V study results available within the schedule.

### **Background**

D.05-01-055 directed the Energy Division to provide oversight of research and analysis of the energy efficiency values. The Commission placed the updates to the Database for Energy Efficiency Resources (DEER) under the management of regulatory staff because they involve judgments that can influence either the development of performance targets or the measurement of program achievements. In D.05-04-051, Commission determined that DEER shall be the source of assumptions used to estimate load impacts to the extent possible.

D.12-05-015 adopted the DEER2011 release for use in planning the 2013-14 energy efficiency program cycle. The draft of DEER2011 was issued for parties' comments as a November 17, 2011 Administrative Law Judge's Ruling in R.09-11-014. In the decision, the Commission also determined that the codes and standards that will become effective in 2014 should be used to update the baseline values during the 2013-14 energy efficiency program cycle.

### **DEER Update Process and Schedule**

The DEER update process is a key component of the energy efficiency portfolio updates; and hence, must fit within a strict proceeding schedule. The anticipated schedule for the portfolio guidance and DEER updates is described in the chart below. DEER2013 is expected to go into effect on January 1, 2014, and thus must be completed by the end of September 2013 in order to provide time for the utilities to update their portfolios. The post 2014 portfolio are anticipated to



time to include in the DEER2014 will be addressed in a future update, which may take effect in 2016 or 2017. The process for making DEER updates beyond the current cycle will be determined during the portfolio guidance decision.

For the DEER2014 Update, Energy Division is exploring how to increase the stakeholder engagement by providing more opportunity to review and comment on the update earlier in the process. The intent is to provide more transparency in the methodology and rationale that the updates are based on. To do so, however, Energy Division must grapple with certain issues that make the ex-ante review, and the DEER Update specifically, particularly challenging to open to stakeholder engagement to the degree that is typical of other energy efficiency activities like program planning and design. These issues must be taken into consideration as ED proposes a stakeholder engagement process:

- 1. Quantity of measure parameters to be updated.** DEER2013 must adjust measure baselines based on changes to State and Federal codes and standards. For the post 2014 period, the DEER2014 update needs to consider over 100 measures from the Measure Cost Study, the commercial and residential saturation studies. In order for these updates to be available in advance of the portfolio cycles that they are needed, the Energy Division needs to manage the workflow of the ex ante review process (including Non-DEER) to ensure that these updates are completed in the available time frame.
- 2. Conflicts of Interests among stakeholders.** Many stakeholders may have a financial or political interest in parameter assumptions that maximize the appearance of cost effective energy efficiency, even if the savings are not ultimately realized. The Commission must account for the potential for systematic bias among stakeholders. Therefore, a consensus among certain stakeholders does not necessarily indicate reliability in the results.

Given these issues, Energy Division will coordinate a stakeholder process that presents the DEER update approach, solicits comments from stakeholders on specific issues of concern, and considers and responds to these comments as the DEER update progresses. This process will include an initial stakeholder workshop to discuss and receive input on the latest research available and proposed methodologies to use for updates, and follow-on meeting(s) to inform stakeholders about the methodology and draft results prior to the final release. The draft final release will be issued for comment on the record in the portfolio guidance proceeding to be approved by the Commission. Energy Division may consider additional follow up meetings with stakeholders, depending on the availability of time and resources.

The portfolio guidance proceeding may consider other longer term structures to involve stakeholders processes, such as lessons learned from the Regional Technology Forum (RTF) for future updates beyond 2015.

## **DEER2013—Codes and Standards (C&S) Update**

The DEER2013 update will only include required C&S changes that become effective in 2014 and will be applied to the 2013-14 portfolio cycle. The C&S updates that are of most significant to the DEER include the California Title 20 Appliance Efficiency Regulations, the California Title 24 Building Energy Efficiency Standards, and the United States Code of Federal Regulations. The list of measures to be updated in the codes and standards are listed in Appendix A. These updates include the following:

1. **2013 Title 20 Appliance Standards:** The standards updates come into effect on February 1, 2013, and apply to 23 appliances. Details can be found at <http://www.energy.ca.gov/appliances/>
2. **2013 Title 24 Building Codes:** Building efficiency standards will become effective January 1, 2014. They include prescriptive measures, mandatory requirements and compliances options for residential and non-residential buildings. Details can be found at <http://www.energy.ca.gov/title24/2013standards/index.html>

The DEER2013 Update will be developed based on the DEER2011 assumptions and methods, which are provided on the DEER website.<sup>1</sup> The currently identified C&S changes that must be taken into account for DEER2013 currently appear to only impact ex ante parameter values for unit energy savings (UES) of kWh, kW, and therm. Changes in these standards also result in changes in the typical or population average values used for some measures as well as code equivalent or standard practice values used for other measures. For this reason, EAR team plans to use the same tools used to developed DEER2011 UES values, listed on the DEER website, such as DOE2, and to make updates in the tools to account for C&S changes. C&S updates will lead to the following updates in simulation models:

### **Expected Model Changes from C&S Updates**

<b>Simulation Component</b>	<b>Description</b>
HVAC measures	See Appendix A
Weather Files for energy simulations	CTZ2 weather files replaced with CZ2010, as specified in the 2013 Title-24 15-day language
Peak Demand Period definition	3-day heat wave selected based on new weather files
Electric DHW Efficiency Measures; small storage and instantaneous	Code level EF increased to fix error in specified Federal Code requirements

<sup>1</sup> DEER can be found at <http://www.deeresources.com/>

Residential Refrigerators	Code-level energy ratings for various refrigerator configurations re-evaluated based on federal code (EISA code update starts in Sept 2014)
Commercial lighting systems	Code requirements for all lighting systems will be reviewed and updated as appropriate

The Energy Star joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy, and the Consortium for Energy Efficiency (CEE), both develop minimum qualification savings levels that are commonly used to establish “above code” thresholds used in the EE portfolios. When C&S changes are adopted, the Energy Star and CEE qualifying levels usually change as well. For DEER measure values to be appropriate for application to deemed measures within the EE portfolios, the measure definitions must reflect the CEE and Energy Star thresholds planned for use.

**Other parameter values that may be updated in 2014:**

Although it is not yet known at this time if C&S changes may require updates to DEER measure costs, such an update is not expected at this time. There is currently no known need to update Effective Useful Life (EUL), Remaining Useful Life (RUL), or Net-To-Gross (NTG) values, as 2014 C&S updates do not address these specific parameters.

**Process for Stakeholder Input:**

Given that the DEER2013 update must be applied to the current portfolio, the scope of the update is expected to be very limited, and will not be submitted to the record for review. Stakeholders may submit comments or questions on the methodology and values that will be applied from the C&S update. Stakeholder comments and ED responses will be made publicly available at the Energy Division Public Documents Area at the URL: <http://www.energydataweb.com/cpuc/home.aspx>. Since these methodologies have been applied in the past, stakeholders can review the current methods described in the 2011 DEER Update documentation on the DEER website.

**Schedule:**

This DEER2013 C&S update must be available no later than at the end of the third quarter of 2013 to allow the Commission-regulated EE portfolio implementers (investor-owned utilities, regional energy networks, community choice aggregators) to update their reporting databases, non-DEER and DEER related workpapers, and custom calculation tools.

Commission staff will notify the service list to R.09-11-014 of the availability of the draft DEER2013 Update which will be posted on the website: [www.deeresources.com](http://www.deeresources.com). Interested stakeholders will have an opportunity to review the draft DEER2013 Update, and to provide any

comments with empirical data supporting the position on the Energy Division Public Documents Area, <http://www.energydataweb.com/cpuc/home.aspx>.

#### **Proposed Timeline for DEER2013 Update:**

- Early July 2013: Provide draft DEER2013 Update to stakeholders for review and comments. Comments due 30 days after draft update has been posted.
- July 17, 2013: Stakeholder workshop to provide overview of DEER updates
- September 2013: Post the final DEER2013 Update on the DEER website

#### **DEER2014 Update**

DEER2014 Update will apply to the post-2014 portfolios, which are expected to begin on January 1, 2015. This update will be a comprehensive review of the most recent research that is available by summer of 2013. Energy Division anticipates the following sources to be available for consideration in the update process:

1. **Measure Cost Study (WO 17):** This study focuses on verification and estimation of deemed and custom measure costs. Measure costs will be estimated using a variety of primary and secondary research techniques from data collected from program records and the broader marketplace. The study is anticipated to be completed in September; the measures under review in the study are listed in Appendix B.
2. **Commercial Saturation and Market Share Tracking Study (WO 24):** The study will provide baseline and longitudinal data for numerous measures using detailed on-site surveys for major building types, and integrating building site characteristic data with energy consumption and load shape metering data. The Commercial Market Share Tracking (CMST) study will track sales of high efficiency measures installed in non-residential buildings.
3. **Building Simulation Models:** Based on previous updates to hours of use data, load shape profiles will be updated in DEER2014. These updates will be developed using the DOE2 building simulation model.
4. **2006-08 EM&V Results:** The DEER team will review the EM&V studies from 2006-08 to consider the inclusion study results that were not able to be included in the DEER2011 update.
5. **2013 Potential & Goals Study Measure Input Characterization System:** The 2013 Potential & Goals Study incorporated the DEER inputs by aggregating groups of

measures that have very similar characteristics. The DEER update will consider the incorporation of these measure groups, and other structural initiatives to more closely align the ex-ante planning and forecasting process.

6. **Non-DEER Workpapers:** In some cases, the program administrators (and their implementers) develop workpapers to support their own ex ante estimates for measures not included in DEER. Some of these non-DEER measures provide savings values that are important components relative to the total portfolio savings. Others of these measures are only slight variations from DEER measures. In both cases these workpapers may require updating if they are impacted by DEER changes, codes and standards changes or other changing market conditions and product offerings. The DEER update will include an examination of the most important non-DEER measure workpapers to see if there are opportunities to update DEER so as to accommodate non-DEER measures and thus reduce the need for non-DEER workpapers.

The following studies are anticipated to produce results during the vetting period for the DEER update. These studies may be considered for inclusion in DEER2014, depending on their level of completion at the time of DEER review. They will otherwise be considered for the following DEER2016 update along with the remainder of the 2010-12 impact evaluations.

7. **Residential On-Site/Metering Survey and California Lighting & Appliance Saturation Study (WO 21):** This study surveys the baseline energy use for a sample of over 1900 homes, using phone and on-site surveyors to collect data about the dwelling structure and energy-related equipment and usage characteristics.
  - HVAC
  - Appliances
  - Building Shell
  - TV
  - Computer
  - Lighting
8. **Residential/Advanced/Upstream Lighting Impact Evaluation (WO 28):** The core purpose of this study is to validate the savings claims for the upstream lighting programs, it is also leveraging field research activity to inform the net to gross ratios for lighting.
9. **Business and Consumer Electronics Impact Evaluation (WO 34):** This evaluation covers only free ridership (Net-To-Gross) for the the television measures within the BCE program measures associated with the midstream delivery and incentive mechanisms targeted at the business-to-consumer (B2C) and business-to-business (B2B) sectors.

10. **Appliance Recycling Study (WO 35):** This study evaluates the impacts of Appliance Recycling Programs for refrigerators and freezers through telephone surveys, laboratory testing, billing analysis and market research surveys.

**Study Results for the DEER2014 update**

	<b>Preliminary and Final Results (Anticipated)</b>	<b>Parameters Updated</b>
Measure Cost Study	May 2013 September 2013	Measure cost
Residential On-Site/Metering Survey/CLASS	May 2013 December 2013	Baseline energy use
Commercial Saturation and Market Share Tracking Study	May 2013 December 2013	Baseline energy use
Business and Consumer Electronics Impact Evaluation	April 2013 May 2013	Net to Gross Ratio
Residential/Advanced/Upstream Lighting Impact Evaluation	April 2013 October 2013	Net to Gross Ratio
Appliance Recycling Impact Evaluation	June 2013 September 2013	Unit Energy Savings, Net to Gross Ratio

The DEER2014 update will assess all measure results from these studies and the raw data to determine whether the results provided by the EM&V studies are methodologically sound and capture those that are appropriate and available within the update schedule. The DEER2014 update will only include EM&V data that is available and considered ready for publication prior to the release of the DERR update with sufficient lead time to allow consideration during the development of the update. The review team will provide an assessment of the measure result data that were adjusted or excluded from the study, with an explanation.

As many of the EM&V results of the 2010-12 portfolio cycle will be rolling out beginning in October 2013 with final results released in 2014, most of these results will not be available in time to incorporate into the 2015 portfolio. The results from these later release EM&V studies will be considered in a subsequent DEER update anticipated to be completed in 2015, and will be used to update the EE portfolios at a future date.

**Stakeholder Process**

In an initial stakeholder workshop, the Ex Ante Review team will present its approach for review and assessment of the evaluation data and the methodologies used to apply the data in building simulation modeling. The workshop will be an opportunity for stakeholder to ask questions, after



which there will be an opportunity for stakeholders to submit comments with empirical supporting data. Comments will be considered during the update process, and will be addressed during a progress report in the interim.

It should be noted that the DEER2014 update will be produced in parallel to the DEER2013 C&S update release. Commission Staff will notify the service list to R.09-11-014 and A.12-07-001 of the availability of the draft DEER2014 Update, which will be posted on the DEER website. Interested stakeholders will have an opportunity to review the draft DEER2014 Update, and to provide any comments with any empirical supporting information on the Energy Division Public Documents Area, <http://www.energydataweb.com/cpuc/home.aspx>.

### **Proposed Timeline for DEER2014 Update:**

A DEER update release must be finalized for adoption by the Commission's guidance decision so that the implementers' applications for the 2015+ EE cycle can utilize the new DEER updates. As the planning for the 2015+ portfolio begins, there may be added Commission direction regarding ex ante values and DEER; however, at this time work on the DEER2014 update must begin and target an initial release by the end of the third quarter of 2013 to allow adoption in the fourth quarter of 2013 in a Commission 2015+ guidance decision.

- July 17, 2013: Preliminary stakeholder workshop on DEER2014 Update. Comments due August 15, 2013.
- September 12 2013: Progress report on the values and methodologies to stakeholders for review; address comments from preliminary workshop in an interim meeting
- October 2013: Post the final DEER2014 Update on the DEER website

**APPENDIX A: Changes to Code-level HVAC values included in the DEER2013 update**

Based on 2013 Title-24 update, measure level HVAC efficiency values are unchanged

DEER2011 Measure ID	Category	Efficiency Parameter	Code Level		Measure	Parameter
			2008	2013	Level	ΔChange
dxHP-pkgEER-65to89kBtuh-11p5eer-3p4cop	packaged Heat Pump	EER	11	10.8	11.5	40%
dxHP-pkgEER-65to89kBtuh-12p0eer-3p4cop	packaged Heat Pump	EER	11	10.8	12	20%
dxHP-pkgEER-90to134kBtuh-11p5eer-3p4cop	packaged Heat Pump	EER	11	10.8	11.5	40%
dxHP-pkgEER-90to134kBtuh-12p0eer-3p4cop	packaged Heat Pump	EER	11	10.8	12	20%
dxHP-pkgEER-135to239kBtuh-11p5eer-3p2cop	packaged Heat Pump	EER	10.6	10.4	11.5	22%
dxHP-pkgEER-135to239kBtuh-12p0eer-3p2cop	packaged Heat Pump	EER	10.6	10.4	12	14%
dxHP-pkgEER-240to759kBtuh-10p5eer-3p2cop	packaged Heat Pump	EER	9.5	9.3	10.5	20%
dxHP-pkgEER-240to759kBtuh-10p8eer-3p2cop	packaged Heat Pump	EER	9.5	9.3	10.8	15%
dxHP-pkgEER-gte760kBtuh-10p0eer-3p2cop	packaged Heat Pump	EER	9.5	9.3	10	40%
dxHP-pkgEER-gte760kBtuh-10p2eer-3p2cop	packaged Heat Pump	EER	9.5	9.3	10.2	29%
NE-HVAC-Chlr-Cent-1t150tons-0p560kwpton-ConstSpd	Centrifugal Chiller	kW per Ton	0.7	0.634	0.56	-47%
NE-HVAC-Chlr-Cent-gte300tons-0p461kwpton-ConstSpd	Centrifugal Chiller	kW per Ton	0.576	0.573	0.461	-3%
NE-HVAC-Chlr-Cent-1t150tons-0p560kwpton-VSD	Centrifugal Chiller	kW per Ton	0.7	0.634	0.56	-47%
NE-HVAC-Chlr-Cent-gte300tons-0p461kwpton-VSD	Centrifugal Chiller	kW per Ton	0.576	0.573	0.461	-3%
NE-HVAC-Chlr-Cent-1t150tons-0p700kwpton-1FrctnlsComp	Centrifugal Chiller	kW per Ton	0.7	0.634	0.7	
NE-HVAC-Chlr-Cent-1t150tons-0p700kwpton-gt1FrctnlsComp	Centrifugal Chiller	kW per Ton	0.7	0.634	0.7	

NE-HVAC-Chlr-Screw- lt150tons-0p632kwpton	Screw Chiller	kW per Ton	0.79	0.778	0.632	-8%
NE-HVAC-Chlr-Screw- 150to299tons-0p574kwpton	Screw Chiller	kW per Ton	0.718	0.68	0.574	-26%
NE-HVAC-Chlr-Screw- gte300tons-0p511kwpton	Screw Chiller	kW per Ton	0.639	0.62	0.511	-15%
NE-HVAC-Chlr-WtrRecip- AllSizes-0p672kwpton *	Reciprocating Chiller		0.837		0.672	
NE-HVAC-Chlr-WtrRecip- lt150tons-0p672kwpton (new)	Reciprocating Chiller	kW per Ton		0.778	<b>0.672</b>	-36%
NE-HVAC-Chlr-WtrRecip- 150to299tons-0p672kwpton (new)	Reciprocating Chiller	kW per Ton		0.68	<b>0.588</b>	
NE-HVAC-Chlr-WtrRecip- gte300tons-0p672kwpton (new)	Reciprocating Chiller	kW per Ton		0.62	<b>0.536</b>	
NG-HVAC-Blr-HW- gt2500kBtuh-85p0EC-Atm	Hot water Boiler	Combustion Efficiency	75	82	85	-70%
NG-HVAC-Blr-HW- gt2500kBtuh-85p0EC-Drft	Hot water Boiler	Combustion Efficiency	75	82	85	-70%
NG-HVAC-Blr-HW- 300to2500kBtuh-85p0ET-Atm	Hot water Boiler	Thermal Efficiency	75	80	85	-50%
NG-HVAC-Blr-HW- 300to2500kBtuh-85p0ET-Drft	Hot water Boiler	Thermal Efficiency	75	80	85	-50%
NG-HVAC-Blr-HW- 300to2500kBtuh-94p0ET-Cnd	Hot water Boiler	Thermal Efficiency	75	80	94	-26%
NG-HVAC-Blr-HW- lt300kBtuh-84p5AFUE-Atm	Hot water Boiler	AFUE	80	82	84	-50%
NG-HVAC-Blr-HW- lt300kBtuh-84p5AFUE-Drft	Hot water Boiler	AFUE	80	82	84	-50%
NG-HVAC-Blr-HW- lt300kBtuh-94p0AFUE-Cnd	Hot water Boiler	AFUE	80	82	94	-14%
NG-HVAC-Blr-Stm- gt2500kBtuh-80p0EC-Atm	Steam Boiler	Combustion Efficiency	75	77	80	-40%
NG-HVAC-Blr-Stm- gt2500kBtuh-80p0EC-Drft	Steam Boiler	Combustion Efficiency	75	79	80	-80%
NG-HVAC-Blr-Stm- 300to2500kBtuh-85p0ET-Atm	Steam Boiler	Thermal Efficiency	75	77	85	-20%
NG-HVAC-Blr-Stm- 300to2500kBtuh-85p0ET-Drft	Steam Boiler	Thermal Efficiency	75	79	85	-40%
NG-HVAC-Blr-Stm- lt300kBtuh-82p0AFUE-Atm	Steam Boiler	AFUE	75	80	82	-71%
NG-HVAC-Blr-Stm- lt300kBtuh-82p0AFUE-Drft	Steam Boiler	AFUE	75	80	82	-71%

RG-HV-EffFurn-96AFUE	Residential Furnace	AFUE	78	80	96	-11%
RG-HV-EffFurn-94AFUE	Residential Furnace	AFUE	78	80	94	-13%
RG-HV-EffFurn-92AFUE	Residential Furnace	AFUE	78	80	92	-14%
RG-HV-EffFurn-90AFUE	Residential Furnace	AFUE	78	80	90	-17%
RG-HV-EffFurn-81AFUE	Residential Furnace	AFUE	78	80	81	-67%

**APPENDIX B: Measures in Measure Cost Study\***

<b>Sector</b>	<b>End Use</b>	<b>Tech Group</b>	<b>Measure Group</b>
C&I	HVAC	DX	Packaged DX
Residential	Electronics	Other plug load	Televisions**
Residential	Lighting	Exterior lighting	HID
C&I	Lighting	Interior lighting	LF lamps
C&I	Lighting	Interior lighting	LF fixtures
C&I	Lighting	Interior lighting	Electronic ballasts
C&I	Lighting	Interior lighting	LED fixtures**
C&I	HVAC	DX	Split HPs
C&I	HVAC	DX	Packaged HPs
Residential	Lighting	Interior lighting	CFL lamps**
C&I	Lighting	Controls	Occupancy sensors
C&I	HVAC	DX	Split DX
Residential	Building Shell	Envelope & Air Sealing	Envelope & Air Sealing
Residential	Appliances	Cold storage	Refrigerators
Residential	HVAC	DX	Room AC
C&I	HVAC	DX	PTACs
Residential	Appliances	Laundry	Clothes washers
Residential	Electronics	Office	PC power management
Residential	HVAC	DX	Split CACs
Residential	HVAC	Evaporative cooling	Evaporative coolers
Residential	HVAC	Air distribution	Fan motors
Residential	Water Heating	Water heaters	Storage WHs
Residential	Water Heating	Water heaters	Tankless WHs
Residential	Water Heating	Water heaters	Heat Pump WHs
C&I	Refrigeration	Controls	Evaporator fan controls
C&I	Refrigeration	Controls	Remote refrigeration system controls
C&I	Lighting	Interior lighting	HID fixtures - general service
C&I	Lighting	Interior lighting	HID fixtures - high bay
C&I	Lighting	Delamping	Delamping
C&I	HVAC	Evaporative cooling	Indirect evaporative coolers
C&I	HVAC	Chillers	Chillers
C&I	HVAC	Heat rejection	Economizers
C&I	HVAC	Air distribution	Fan motors and VSDs
C&I	HVAC	Air distribution	DCV

Sector	End Use	Tech Group	Measure Group
C&I	HVAC	Space heating	Steam boilers
C&I	Pool	Pump	Pool pumps
C&I	Pool	Pool	Pool cover
C&I	Building Shell	Fenestration	Heat curtains
C&I	Building Shell	Fenestration	Reflective film
C&I	Water Heating	Liquid circulation	Demand control recirc pumps
C&I	Water Heating	Liquid circulation	Low flow showerheads
C&I	Process	WH	Process boilers
C&I	Irrigation	Liquid circulation	Sprinkler
C&I	Refrigeration	Infiltration reduction	Auto-closers
C&I	Refrigeration	Cold storage	Display cases
C&I	Refrigeration	Remote refrigeration	Evaporator fan motors
Residential	Lighting	Interior lighting	LED
C&I	Building Shell	Fenestration	Low SHGC windows
Residential	HVAC	Space heating	Furnaces
Residential	HVAC	Space heating	Gas boiler
Residential	HVAC	Air distribution	Whole house fans
Residential	Building Shell	Insulation	Battery insulation
Residential	Building Shell	Insulation	Blow-in insulation
Residential	Building Shell	Windows	Windows
Residential	Water Heating	HW distribution	Pipe insulation
Residential	HVAC	DX	Split HPs
Residential	HVAC	Air distribution	Fan VSDs

\* Certain measure groups included in the Measure Cost Study are not included in the DEER update because they are Direct Install measure

\*\*The value of these measure groups is to be determined, as prices change rapidly making the study results “stale”