Summary

This section will provide additional information and figures in support of the manuscript. We included here details on the controls used in the regression equations 1 and 2 of the manuscript, full diagnostics and diagnostic plots for equation 1, histograms illustrating several concepts derived from the descriptive statistics of the survey, tabular regression results, and a descriptive table containing variable names and definitions.

Control Variables for Equation 1

In this analysis, we tested for the effects of time, demographics, environmental beliefs, location, system specifications, and many other potential controls, through 124 rounds of best subsets optimization using the SAS system. None of these variables could be shown to have a significant impact on the DV or the weight and significance of other IVs. However, several of the controls included in the final model warrant discussion.

Ceteris Paribus, every additional owner contact (in or outside the neighborhood) might be expected to increase DP. This can be explained by consideration of what each additional contact means for a potential adopter: if one contact is enough to reduce UNMCs to the threshold of adoption, the potential adopter will not seek additional contacts. Potential adopters with large number of contacts either did not get all the information they need, or feel the need for the increased trust gained by redundancy. This takes time, increasing DP. So we control for the number of owner contacts (Own_Cont).

Residual uncertainty, measured by $MnPRsh$, is an indirect measure of the effectiveness of the research period. Effective research will create certainty regarding value, and yield low UNMCs at the time of installation. $MnPRsh$ is the sum of Likert items regarding understanding of installation, warrantee, maintenance, financial aspects, and impact on home value. These Likert items demonstrated a high degree of equidistance and symmetry and fulfilled the proportional odds assumption. This variable was transformed to create a second-order polynomial to better represent its curvilinear relationship with DP. By measuring residual uncertainty, the control in effect captures those aspects of the adopters’ information search process that are not explicitly modeled through the explanatory variables.
An additional variable, *Innovators*, controlled for respondents who did not think talking to others was useful and experienced no peer effect; and those who bought their system, did not experience peer effects, and had decision times under three months. In effect, this variable controls for the "true innovators"—those who were already convinced about adopting PV. This control variable also reduces heteroskedasticity in the model.

**Model Diagnostics and Sensitivity**

The length of the survey created the potential for uncertainty in model specification. The variables selected in the final model were tested for robustness through a best subsets procedure from Beal (2005) utilizing the SAS® system for minimization of Akaike’s Information Criteria (AIC). Multiple rounds were used due to the fact that the SAS® system best subsets procedure is limited to ten variables per round. This procedure was repeated over 124 rounds, with 1024 models simultaneously evaluated each round. Among many others, demographic variables, environmental beliefs, and system specifications (size, final cost, etc.) could not be shown to significantly influence DP. The main explanatory variables resulting from Hypotheses 1-4 (*InvestVIEI, PeerEfSum, HCN*, and *Lease*) were consistently selected through the (optimal) best subsets procedure. This procedure gives us a high degree of confidence in the model.

In early stages, with the inclusion of only *InvestVIEI, PeerEfSum, HCN*, and *Lease* based upon Hypotheses 1-4, the model displayed heteroskedasticity among independent variables. Heteroskedasticity was tested using White’s test. Initial Chi-square test statistics led to rejection of the null hypothesis (H0: Variance of the residuals is homogenous) at the alpha of 0.05. Examination of residual plots showed increasing variance in the *PeerEfSum* variable. The addition of two control variables, *MnPRsh*, and *Innovators*, decreased heteroskedasticity beyond significance (α = 0.05, p > 0.15). The *Innovators* variable controlled for respondents who bought their system, had a decision period of less than three months, experienced no peer effects, had no contact with other owners, and also disagreed that talking to others was useful or would have been useful. In effect, this variable controls for the "true innovators"—those who were already convinced about adopting PV. As discussed in Section 4.1, *MnPRsh* controls for residual uncertainty. The addition of these control variables did not significantly alter variable coefficients or P values (Δβ < 0.1, Δp < 0.01).
While these controls do much to reduce heterogeneity in residual variance, some variables, such as *Lease*, *HCN*, *PeerEfSum*, and *Own_Cont* continue to display greater residual variance where the variable effect is lowest (i.e. *Lease* = 0; *PeerEfSum* = 5).

The observed-to-predicted plot for the model suggests that full inclusion of the outliers (those with very large DP) could be problematic. For the results reported here (Table 2), this has been mitigated by the removal of three large outliers (DP > 60). While values are fairly evenly distributed around the fit line for most observations, outliers still have a fair amount of leverage in the model. This can be seen in the Cook’s D plot (Figure S4). The sample has been ordered according to DP, demonstrating the increasing leverage (Cook’s D > 0.4) of the respondents with the longest decision times. This effect is seen again in the histogram of the residuals (Figure 9), which has positive skew, suggesting that the coefficients may be slightly biased.

Multicollinearity is not a major problem in this model, as measured by variance inflation factors. Variance inflation between *MnPRsh* and *MnPrshSq* was reduced through mean centering—the subtraction of the mean residual uncertainty from each observation prior to its inclusion in the regression and transformation to *MnPrshSq*.

While the fit of the model is quite good, the root MSE (standard deviation) is high (8.00), limiting its truly predictive potential. As such, the model is more useful in systematically identifying and quantifying the components of the information channels associated with solar PV adoption that impact adopters decision process, rather than a predictor of DP for specific potential adopters.
Figure S1: Histogram displaying number of months spent between serious consideration of PV and installation (DP). The mean value is 8.89, median 6, with skewness of 4.35 and standard deviation of 11.67.

Figure S2: Breakdown of the percent of responders by color according to level of agreement with the statement “I did not find it necessary to talk to other PV owners” and by column for “Overall, how would you characterize the experience of finding dependable information during the time you were researching PV?” Responders without access to information seek to resolve this need through contact.
**Figure S3:** Peer effects affect groups differently based on type of contact. NCN = No contact, systems in the neighborhood; HCO = Had contact only outside neighborhood; HCN = Had contact within the neighborhood. Kruskal-Wallis ANOVA testing shows significantly different population distributions for “Motivated” (p < 0.001) and “Confidence” (p < 0.001). Average number of systems in the neighborhood varies by group: HCN: 9.80, HCO: 0.29, NCN: 2.43. Median HCN: 2, HCO: 0, NCN: 1.
Figure S4: Selected diagnostic plots for the model 1 shown in equation 1. Banding in observed values and residuals is the result of responders converging around convenient temporal choices (3, 6, 12, 24). The influence of outliers is moderated by removal of three observations (DP > 60).
Table S1: Full results and sensitivity testing for the DP model in equation 1, showing final control variables. Coefficients and p values are reported where applicable. An All variance inflation factors are < 2 for all non-squared terms.

| Results of Regression Analysis for DP |
|-------------------------------------|
|                                     |
|                     | Model 1 | Model 1a High Income | Model 1b Full Peer Effects | Model 1c Contact Type | Model 1d Contact Type Full Peer Effects | Model 1e PVDense |
| R²        | 0.26    | 0.25                | 0.21                        | 0.26                   | 0.22                                    | 0.26           |
| Adj R²    | 0.24    | 0.23                | 0.2                         | 0.24                   | 0.2                                     | 0.23           |
| P         | < 0.0001| < 0.0001            | < 0.0001                    | < 0.0001               | < 0.0001                                | < 0.0001       |
| Variable  |         |                     |                             |                        |                                         |                |
| Cons_Mo   | DV      | DV                  | DV                          | DV                     | DV                                      | DV             |
| InvestVIEI| 2.70**  | 3.01**              | 2.64**                      | 2.29**                 | 2.73**                                  |                |
|           | (1.00)  | (1.03)              | (1.00)                      | (1.03)                 | (1.00)                                  |                |
| PeerEfSum | 1.46**  | 1.57**              | 1.38*                       | 1.42**                 | 1.42**                                  |                |
|           | (0.55)  | (0.55)              | (0.57)                      | (0.55)                 | (0.55)                                  |                |
| HCN       | -4.70** | -4.72**             | -6.67***                    | -5.68**                | -7.72***                                | -4.56**        |
|           | (1.60)  | (1.59)              | (1.46)                      | (1.78)                 | (1.66)                                  | (1.62)         |
| Lease     | -2.32*  | -2.43*              | -1.41                       | -2.56*                 | -1.73                                   | -2.3†          |
|           | (1.18)  | (1.17)              | (1.20)                      | (1.19)                 | (1.21)                                  | (1.18)         |
| Own_Cont  | 1.18*** | 1.27***             | 1.13***                     | 1.37***                | 1.33***                                 | 1.23***        |
|           | (0.31)  | (0.31)              | (0.32)                      | (0.36)                 | (0.38)                                  | (0.33)         |
| MnPrsh    | 10.28***| 10.34***            | 10.31***                    | 10.30***               | 10.24***                                | 10.26***       |
|           | (1.65)  | (1.65)              | (1.70)                      | (1.65)                 | (1.70)                                  | (1.70)         |
| MnPRshsq  | 4.26*** | 4.36***             | 4.47***                     | 4.28***                | 4.44***                                 | 4.24***        |
|           | (0.80)  | (0.80)              | (0.82)                      | (0.80)                 | (0.82)                                  | (0.80)         |
| Innovators| -8.48***| -8.72***            | -8.07***                    | -8.68***               | -8.37***                                | -8.42***       |
|           | (1.69)  | (1.70)              | (1.76)                      | (1.70)                 | (1.77)                                  | (1.70)         |
| HighInc   | -2.43†  |                     |                             |                         |                                         |                |
|           | (1.49)  |                     |                             |                         |                                         |                |
| NCN       |         | -1.07               | -2.08                       |                         |                                         |                |
|           |         | (1.43)              | (1.44)                      |                         |                                         |                |
| HCO       |         | -1.42               | -1.41                       |                         |                                         |                |
|           |         | (1.51)              | (1.56)                      |                         |                                         |                |
| PVDense   |         |                     |                             |                         |                                         | -0.95          |
|           |         |                     |                             |                         |                                         | (2.07)         |

Table lists parameter estimates, standard errors in parentheses. n = 332.

† p < 0.10
* p < 0.05
** p < 0.01
*** p < 0.001
Table S2: Results and sensitivity testing for the peer effects model in equation 2. Coefficients and P values are reported where applicable. All variance inflation factors are under 2 for all non-squared terms. Model 2a excludes seven outliers. Model 2b includes a binary variable for PV dense zip codes. Model 2c includes only data from 2009-2011.

### Results of Regression Analysis for Peer Effects

| Variable     | Model 2 | Model 2a No Outliers | Model 2b PVDense | Model 2c Recent |
|--------------|---------|----------------------|------------------|-----------------|
| PeerEfSum    | -0.04*** (0.01) | -0.07*** (0.01)     | -0.07*** (0.11)  | -1.31*** (0.15) |
| PV_in_Nei    | 0.16 (0.11) | 0.14 (0.11)         | 0.18 (0.11)      | 0.12 (0.12)     |
| InvestVIEI   | 0.10 (0.14) | 0.07** (0.14)       | 0.25† (0.13)     | 0.12 (0.15)     |
| Lease        | 0.44* (0.20) | 0.40* (0.19)        | 0.59** (0.32)    | 0.47* (0.20)    |
| Innovators   | -33** (0.12) | 0.28*** (0.12)      | -0.60*** (0.13)  |                 |
| AE           | 0.03 (0.03) | 0.04 (0.12)         | 0.01 (0.03)      | 0.03 (0.03)     |
| Income       | -1.31*** (0.20) |                | -0.26† (0.15)    |                 |

Table lists parameter estimates, standard errors in parentheses. n = 315. Outliers are defined as Cook’s d > 4/n.

† p < 0.10  
* p < 0.05  
** p < 0.01  
*** p < 0.001
Table S3. Description of variables included in the regression models.

| Variable   | Explanation                                                                                                                                 |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Cons_Mo    | Months responder spent between serious consideration of PV and installation of a PV system (DP).                                               |
| Intercept  | Months of decision period (DP) when all independent variables are equal to 0.                                                                   |
| InvestVIEI | Binary variable, respondent indicated that financial aspects of PV were very important or extremely important to the decision to install.         |
| PeerEfSum  | Sum of section 4.6 in the survey, level of agreement with statements regarding neighborhood influence. Excludes Likert item regarding contact.    |
| HCN        | Binary variable, whether or not the responder had contact with at least one PV owner in the neighborhood before installation.                    |
| Lease      | Binary variable, whether the responder leased the PV system, as opposed to bought.                                                            |
| Own_Cont   | Number of other PV owners contacted by responder before installation of a PV system.                                                            |
| MnPRsh     | Sum of section 2.10 in the survey, level of agreement with statements regarding post-research uncertainty in performance, operation, maintenance, warranty, installation, and impact on home value. Used as a proxy for "residual uncertainty." Variable in conjunction with MnPRshSq. Has been centered on the mean (3.00). |
| MnPRshSq   | The square of MnPRsh. Together used with MnPRsh to estimate the curvilinear relationship of residual uncertainty and DP.                       |
| Innovators | Binary variable: Control for individuals with DP < 3 months who did not lease, experience peer effects, have contact with other owners, and disagreed that talking to others was useful or would have been useful. |
| HighInc    | Binary variable: whether or not the responder's household income is over $250,000.                                                              |
| PV_in_Nei  | Number of other PV systems in the neighborhood that the respondent is aware of.                                                                 |
| AE         | Binary variable: whether or not the responder is an Austin Energy customer.                                                                    |
| Income     | Reported household income, by category: Under $25,000; $25,000 - $39,999; $40,000 - $59,000; $60,000 - $84,999; $85,000 - $114,999; $115,000 - $149,999; $150,000 - $249,999; Over $250,000. |
| DPPerCont  | The number of months responder spent between serious consideration of PV and installation of a PV system (DP) divided by the Number of other PV owners contacted by responder before installation of a PV system. |
| Own_ContSq | The square of Own_Cont. Together used with Own_Cont to estimate the curvilinear relationship of contact and DPPerCont.                         |
| PVDense    | Binary variable: whether or not the household is located within a PV dense zip code.                                                          |
| Recent     | Binary variable: whether or not the PV system was installed after 2008.                                                                      |