**Mgmt:** NAI Emory Hill Real Estate Group
Annapolis Junction, MD

**Project: FADRS® (pronounced faders)**
**Smart Grid Technology Showcase utilizing patented Artificial Intelligence, Prediction & Human Centric Technology.**

**Contractors:**
Consolidated Energy Design (Patent Holders)
Third Party BAS Company (Fab/Installation)

**Funding Agency:**
Maryland Energy Administration (MEA)
Grant 2015-05-517S5
**"Novel Demand Response & Advanced Energy Management System"**

**PRE Conditions:** 2 Story Tenant Occupied Office Building; 108,000 square feet
5 Major Roof Top Package Cooling Units with 83 VAV boxes with 2 stage electric heat
Typical Building Automation System (BAS) for space heating/cooling.

**POST Conditions:** ***CONTROLS ONLY*** **– No New HVAC Equipment or Lighting Retrofit**

- **FADRS® Painless Demand Response®**
- **FADRS® Enhanced Building Automation System**
- **~5 Power Quality Sub Meters** (1 for each Roof Top Unit) + KYZ Pulse meter

**ALL FADRS™ programming either overlaid on top of existing BAS or reporting to existing BAS. FULLY AUTOMATED control (No Human Intervention). Bidirectional control in real time.**

**Completion Date:**

**FADRS® Enhanced Building Automation System Performance:**
March 2016 (HVAC Energy Savings from April 2016 onward)

Year Three Normalized Baseline (NBL) for HVAC = 2,399,715 KWh ($267,048)
**AI Achieved Maximum HVAC Energy Savings by end of Year 3**
**887,120 KWh ($ 99,005)** **37%**

**FADRS® Painless Demand Response® Performance:**
(8/2/18 Summer Capacity Test)
163 KW down to 102 KW (61.1 KW Reduced) = **37.4%** DR Reduction

IPKeys is the Curtailment Service Provider for this project and their **PJM formula Calculations are found on reverse side.**

**EXHIBIT A**

**ELECTRIC SAVINGS AT MEA PROJECTS AFTER 3 YEARS**

**Building 10010**

| | KWh (NBL) | Dollars | Dollars/SF (81,000 SF) | KWh W/FADRS® | Dollars W/FADRS® | Dollars/SF (81,000 SF) | KWh Saved | $ SAVED | % SAVED |
|---|---|---|---|---|---|---|---|---|---|
| YEAR ONE 4/16-3/17 | 2,334,318 | $ 276,305 | $ 2.56 | 1,583,788 | $ 187,468 | $ 1.74 | 750,530 | $ 88,588 | 32.2% |
| YEAR TWO 4/17-3/18 | 2,293,173 | $ 277,111 | $ 2.57 | 1,476,565 | $ 178,431 | $ 1.65 | 816,608 | $ 96,597 | 35.6% |
| YEAR THREE 4/18-3/19 | 2,399,715 | $ 267,048 | $ 2.47 | 1,533,246 | $ 170,625 | $ 1.58 | 887,120 | $ 99,005 | 37.0% |
| Achieved energy savings of 37% at the end of Year 3 because our patented FADRS™ AI system learned how to run the building more efficiently over time. | | | | | | TOTAL SAVED OVER 3 YEARS | 2,454,258 | $ 284,190 | |

# DEMAND RESPONSE TEST

**PJM Customer Usage Review**

| | |
|---|---|
| Customer | Junction |
| Utility Acct # | |
| Nom ICAP | 185.12 |
| FSL | 125 |
| Zone | BGE |
| Cap Loss Factor | 1.089 |
| PLC | 321.24 |

Test Results: Pass

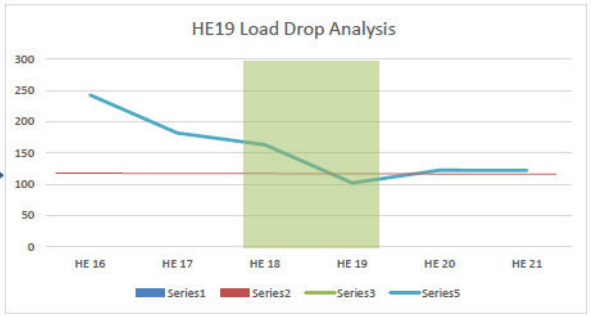
Customer required to reduce usage to or below this level.

**TEST** 2018-08-02

August 2, 2018
18:00:00 PM Test Event Start
19:00 PM Test Event End

| | |
|---|---|
| HE 1 | 118.4 |
| HE 2 | 113.4 |
| HE 3 | 117.5 |
| HE 4 | 116.3 |
| HE 5 | 118.1 |
| HE 6 | 196.6 |
| HE 7 | 182.6 |
| HE 8 | 189.5 |
| HE 9 | 201.7 |
| HE 10 | 205.2 |
| HE 11 | 244.7 |
| HE 12 | 251.1 |
| HE 13 | 254.4 |
| HE 14 | 268.0 |
| HE 15 | 281.4 |
| HE 16 | 242.6 |
| HE 17 | 181.6 |
| HE 18 | 163.1 |
| HE 19 | 102.0 |
| HE 20 | 122.5 |
| HE 21 | 121.9 |
| HE 22 | 123.0 |
| HE 23 | 124.1 |
| HE 24 | 114.0 |

IPKeys
Curtailment Service Provider for PJM




Target FSL 125kW

| FSL ANALYSIS | | | |
|---|---|---|---|
| | HE 19 | | Average Across Event |
| Nom ICAP | 185.12 | | |
| Comm ICAP | 185.12 | | |
| FSL (MW) | 125 | | |
| Metered Load | 102.03 | | |
| PLC (MW) | 321.24 | | |
| DR Factor | 0.957 | | |
| FPR | 1.0892 | | |
| Cap Loss Factor | 1.09 | | |
| Reduction ICAP MW | 210.12956 | | 210.13 |
| Shortfall ICAP | -25.0096 | | 114% |
| Shortfall UCAP | -27.2404 | | Pass |

| | |
|---|---|
| Tested HE19 kW Value | 102.0 |
| Load Reduction | 61.1 |
| Percentage of Reduction | 37% |

Reduction (MW) = PLC - (Metered Load * Capacity Loss Factor)

Shortfall ICAP = Committed ICAP - Reduction MW

Shortfall UCAP = Shortfall ICAP * DR Factor * Forecast Pool Requirement