

Phone: (215) 569-5450
Fax: (215) 832-5450
Email: Tambolas@BlankRome.com

September 11, 2009

Via Electronic Filing and First-Class Mail

James J. McNulty
Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Joint Petition for Consolidation of Proceedings and Approval of Energy Efficiency and Conservation Plans of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company, Docket Nos. M-2009-2092222, M-2009-2112952, M-2009-2112956

Dear Secretary McNulty:

Enclosed for filing is the Main Brief of Field Diagnostic Services, Inc., in the above-referenced proceeding. Copies have been served as indicated on the enclosed Certificate of Service. The e-filing receipt is attached to the paper copy.

If you have any questions, please contact me.

Respectfully submitted,



Melanie J. Tambolas
PA Attorney I.D. #209323

MJT/dc
Enclosures

cc: Honorable David A. Salapa (w/encl.) (via Federal Express)
All parties on attached Certificate of Service (w/encl.)

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Joint Petition for Consolidation of	:	
Proceedings and Approval of Energy	:	
Efficiency and Conservation Plans of	:	Docket Nos. M-2009-2092222
Metropolitan Edison Company,	:	M-2009-2112952
Pennsylvania Electric Company and	:	M-2009-2112956
Pennsylvania Power Company	:	

**MAIN BRIEF OF
FIELD DIAGNOSTIC SERVICES, INC**

Christopher A. Lewis, Esquire
Christopher R. Sharp, Esquire
Melanie J. Tambolas, Esquire
Blank Rome LLP
One Logan Square
Philadelphia, PA 19103
Phone: (215) 569-5793
Fax: (215) 832-5794
e-mail: lewis@blankrome.com
sharp@blankrome.com
tambolas@blankrome.com
Counsel for Field Diagnostic Services, Inc.

Dated: September 11, 2009

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I. INTRODUCTION

This proceeding presents the Pennsylvania Public Utility Commission (the “Commission”) the opportunity to review and improve upon the Energy Efficiency and Conservation Plans (“EE&C Plans,” or the “Plans”) put forth jointly by Metropolitan Edison Company (“Met-Ed”), Pennsylvania Electric Company (“Penelec”) and Pennsylvania Power Company (“Penn Power”) (collectively, “FirstEnergy”) as mandated by Act 129 and the Commission’s subsequent Implementation Order. The Plans put forward by FirstEnergy are, by and large, well-designed, comprehensive and cost-effective. That said, however, the Plans would be substantially strengthened by including additional HVAC measures and tailoring program design toward HVAC for commercial and industrial customers, as proposed by Field Diagnostic Services, Inc. (“FDSI”), in order to encourage FirstEnergy customers to improve the efficiency of their heating, ventilation, and air conditioning (“HVAC”) systems. While the Plans does provide some incentives for improved HVAC efficiency, the factual record in this proceeding makes clear that, through the implementation of targeted HVAC efficiency programs and additional incentives for HVAC-specific diagnostic testing, FirstEnergy can better meet the aim of Act 129: providing the most cost-effective energy savings possible, in order to meet or exceed the targeted reductions.

II. PROCEDURAL HISTORY

On July 1, 2009, Met-Ed, Penelec and Penn Power filed a Joint Petition for Consolidation of Proceedings and Approval of Energy Efficiency and Conservation Plans (“FirstEnergy’s Petition”), which purports to reduce energy consumption and demand in its service territory in accordance with the requirements of Act 129—codified at 66 Pa.C.S.A. § 2806.1—and the Implementation Orders entered January 16, 2009 and May 28, 2009 by the Commission at

Docket No. M-2008-2069887, *Energy Efficiency and Conservation Program*. FirstEnergy simultaneously filed direct testimony and exhibits in support of its EE&C Plans.

Petitions to Intervene and Prehearing Memoranda were filed by several parties, including FDSI. A prehearing conference was held in Harrisburg on July 29, 2009, before Administrative Law Judge David A. Salapa. At that conference, Petitions to Intervene—including FDSI’s—were granted, the service list was developed, the schedule directed by the Commission was discussed and adopted, and other procedural matters were addressed.

On August 7, 2009, intervening parties, including FDSI¹, circulated Direct Testimony and Exhibits.

An evidentiary hearing was held in Harrisburg on August 31, 2009. Written rebuttal testimony was presented by FirstEnergy’s witnesses, who were cross-examined by some parties. Certain witnesses sponsored direct testimony and were cross-examined, and the sworn direct testimony of the remaining intervening parties—including FDSI—was admitted into evidence without cross-examination or objection.

III. DESCRIPTION OF FIRSTENERGY’S EE&C PLANS

The FirstEnergy EE&C Plans purport to reduce energy consumption and demand in its service territory in accordance with the requirements of Act 129 and the Implementation Orders entered January 16, 2009 and May 28, 2009 by the Commission at Docket No. M-2008-2069887, *Energy Efficiency and Conservation Program*.

The FirstEnergy EE&C Plans, commendably, include a tailored HVAC program for residential customers. This program provides incentives for contractor-installed HVAC systems

¹ Direct Testimony of Todd M. Rossi, Ph.D. on behalf of FDSI, identified as FDSI Statement No. 1 (Aug. 7, 2009) (hereinafter, “FDSI St. 1”).

that are high efficiency, ENERGY STAR compliant in existing or new residential buildings.² The program will replace existing or standard HVAC equipment in residential applications with heating/cooling systems approved by ENERGY STAR.³ Incentives range from \$250 for ENERGY STAR qualified Central AC systems at 15 SEER to \$325 for qualified heat pumps at 15 SEER.⁴ The program envisions that the suppliers and dealers will share, as a competitive marketing tool, the rebate with the end-user.⁵

The FirstEnergy Plans also include measures for commercial and industrial customers designed to improve HVAC efficiency.⁶ Such measures provide incentives for customers to replace existing units or to perform maintenance or tune-ups.⁷ These HVAC measures, however, are subsumed within general programs – the C/I Equipment Replacement Program⁸ and C/I Performance Contracting Program⁹ – for these customer classes rather than through an HVAC-tailored program with a dedicated Conservation Service Provider (“CSP”) or sub-CSP responsible for ensuring the effective implementation of the HVAC measures. Furthermore, while the Plans provide such improvement incentives for HVAC, the Plans are devoid of any incentives for HVAC-specific diagnostic testing, which is critical to the successful implementation of all HVAC efficiency improvement measures.

IV. SUMMARY OF ARGUMENT

The Plans put forward by FirstEnergy would be strengthened by providing for inclusion of HVAC diagnostic testing incentives and of an HVAC-tailored program for commercial and industrial customers to improve end-user HVAC efficiency. As the undisputed factual record

² Penelec EE&C Plan, p. 41; Met-Ed EE&C Plan, p. 41; Penn Power EE&C, p. 41.

³ Penelec EE&C Plan, p. 41; Met-Ed EE&C Plan, p. 41; Penn Power EE&C, p. 41.

⁴ Penelec EE&C Plan, p. 41 – 43; Met-Ed EE&C Plan, p. 41 – 43; Penn Power EE&C, p. 41 – 43.

⁵ Penelec EE&C Plan, p. 41 – 43; Met-Ed EE&C Plan, p. 41 – 43; Penn Power EE&C, p. 41 – 43.

⁶ FirstEnergy EE&C Plans, Appendix D; *see also* FDSI St. 1, p. 22: lines 10 – 20; p. 23, lines 1 – 8.

⁷ FDSI St. 1, p. 23, lines 3 – 8.

⁸ Penelec EE&C Plan, p. 57; Met-Ed EE&C Plan, p. 57; Penn Power EE&C, p. 57.

⁹ Penelec EE&C Plan, p. 73; Met-Ed EE&C Plan, p. 73; Penn Power EE&C, p. 67.

establishes, HVAC usage accounts for a significant portion—35% to 60%—of energy consumption among all customer classes. In fact, HVAC usually offers the single best opportunity for any individual end-user to improve its energy efficiency, providing one of the most significant opportunities for achieving the energy consumption reduction mandates under Act 129. To that end, FDSI has put forth concrete suggestions—each supported by the factual record—to improve upon the HVAC measures already included within the FirstEnergy Plans and to provide for additional incentives that will improve the utilization of such HVAC measures.

In particular, FDSI recommends that the Commission enhance the HVAC measures proposed within the FirstEnergy Plans by:

- creating a separate HVAC program for commercial and industrial customers that provides for a CSP or sub-CSP directly responsible for its the delivery and execution;
- including incentives for HVAC-specific diagnostic testing and requiring the use of automated systems for diagnostics; and
- establishing guidelines to ensure that HVAC tune-ups and other measures are performed in accordance with appropriate protocols and procedures.

Finally, FDSI encourages the Commission to permit the grandfathering of energy efficiency projects implemented between July 1, 2009, and Commission approval of the FirstEnergy EE&C Plans because, not only does Act 129 permits such treatment, but such treatment will allow customers to realize the full benefit of projects already implemented. Likewise, FDSI urges the Commission to allow customers that take advantage of stimulus funding through the American Recovery and Reinvestment Act (“ARRA”) and the Alternative

Energy Investment Act of 2008 (“Act 1”), along with Act 129 funding, for purposes of installing energy-efficiency projects, to be able to demonstrate compliance with Act 129.

V. ARGUMENT

A. **Act 129 Conservation and Demand Reduction Requirements**

Act 129 was signed into law on October 15, 2008, and the standards have since been promulgated in Implementation Orders entered January 16, 2009, May 28, 2009, and June 23, 2009, by the Commission at Docket No. M-2008-2069887. The Act directs that each electric distribution company (“EDC”) in Pennsylvania put forth a plan to reduce annual energy consumption by its customers—measured against each EDC’s forecasted customer consumption for the period between June 1, 2009, and May 31, 2010—by at least 1% by May 31, 2011, and at least 3% by May 31, 2013.¹⁰ It further requires each EDC serving at least 100,000 customers to reduce average system-wide peak demand during the 100 highest hours of demand by at least 4.5% by May 31, 2013, as compared to peak demand over the highest 100 hours of use occurring between June 1, 2007, and September 30, 2007.¹¹

Each plan, in its entirety, must satisfy a Total Resource Cost (“TRC”) test: the total cost of the plan must be less than the expected cost of the electricity that would otherwise have been consumed in its absence.¹² The costs incurred by each utility due to its EE&C plan, including administrative costs, may be recouped through a cost recovery mechanism, up to 2% of each EDC’s total annual revenue as of December 31, 2006.¹³

¹⁰ 66 Pa.C.S. § 2806.1(c).

¹¹ *Id.* at § 2806.1(d).

¹² *Id.* at § 2806.1(b)(1)(i)(I).

¹³ *Id.* at § 2806.1(g), (h).

Finally, at least 10% of the consumption reductions must be realized by federal, state, and local governments, and various non-profit entities,¹⁴ and the plan must include components specifically geared toward low-income consumers.¹⁵

1. Overall Conservation Requirements

FDSI has no position on this issue.

2. Overall Demand Reduction Requirements

FDSI has no position on this issue.

3. Requirements for a Variety of Programs Equitably Distributed

FDSI has no position on this issue.

4. 10% Government/Non-Profit Requirement

FDSI has no position on this issue.

5. Low Income Program Requirements

FDSI has no position on this issue.

6. Issues Relating to Individual Conservation and Demand Reduction Programs.

FDSI's position on these issues is addressed *infra*, and is incorporated herein by reference.

7. Proposals for Improvement of the FirstEnergy EE&C Plans.

As will be demonstrated just below, the factual record makes clear the importance and, indeed, necessity, of including HVAC efficiency incentives as part of the Plans. In addition, the undisputed factual record demonstrates that the existing HVAC programs proposed by FirstEnergy would benefit from the following improvements: (1) the inclusion of a separate HVAC program for commercial and industrial customers, providing for a CSP or sub-CSP

¹⁴ *Id.* at § 2806.1(b)(1)(i)(B).

¹⁵ *Id.* at § 2806.1(b)(1)(i)(G).

directly responsible for the delivery and execution of an HVAC efficiency program; (2) inclusion of incentives for HVAC-specific diagnostic testing and requiring the use of automated systems for diagnostics; and (3) establishing guidelines to ensure that HVAC tune-ups and other measures are performed in accordance with appropriate protocols and procedures.

a. Targeted HVAC Efficiency Improvements are Crucial to a Successful EE&C Program.

The requirements of Act 129, taken together, demand that FirstEnergy find the most cost-effective means possible to encourage its customers to reduce their energy consumption. Substantial record evidence demonstrates that the single best means to do so for customers in every class is through improved HVAC efficiency.¹⁶

As Dr. Rossi testified, “according to the Department of Energy, HVAC use accounts for 40 to 60 percent of the energy used in U.S. commercial and residential buildings, and up to 35 percent of energy used in manufacturing facilities.”¹⁷ By way of example, Dr. Rossi explained just how high the potential is for consumption reduction when a customer improves the efficiency of its HVAC unit through diagnostic testing followed by a tune-up or replacement:

Assume a typical HVAC unit in the field is currently performing only at 80% efficiency compared to “as new” performance. Improving the efficiency of that HVAC unit to 95% or 100% (which . . . is a very common outcome) can decrease the building’s entire energy use by 8% to 12% for a commercial and residential building, and 7% for manufacturing facilities.¹⁸

The undisputed factual record establishes that, by *alone* optimizing the efficiency of a single customer’s HVAC performance, each customer can realize average energy use savings of 20 to 25 percent per HVAC unit, leading to a 7 to 12 percent reduction in a customer’s entire

¹⁶ FDSI St. 1, p. 7, lines 3 – 18.

¹⁷ *Id.*, p. 7, lines 6 – 9.

¹⁸ *Id.*, p. 7, lines 11 – 15.

energy usage.¹⁹ Given the magnitude of energy savings available through HVAC efficiency improvements, it is no wonder that each utility in Pennsylvania has included some programs and measures to improve HVAC efficiency in its EE&C Plan.

Since HVAC offers the single best means to decrease consumer energy consumption, it is imperative that the FirstEnergy EE&C Plans prioritize **HVAC-specific** approaches accordingly, and avoid allowing these crucial programs to be subsumed into general programs which, as the record demonstrates, will not maximize the potential for HVAC-related energy savings.²⁰ An HVAC-specific approach, as Dr. Rossi testified, is consistent with the approach employed successfully in California and other states.²¹

Therefore, the record evidence clearly and amply demonstrates the value and importance of improving HVAC efficiency in order to make the Plans successful – and it is critical that the Plans devote significant resources to HVAC improvements *exclusively* in order to maximize the potential for these energy savings.

b. The FirstEnergy EE&C Plans Should Include a Separate HVAC Program, with a CSP or sub-CSP Directly Responsible for HVAC Efficiency.

Given, on the one hand, the energy savings possible from HVAC efficiency improvements, and on the other, the technical savvy required to realize those improvements, the HVAC programs proposed by FirstEnergy should be consolidated for administrative purposes, and include the procurement of a CSP or sub-CSP directly responsible for implementing and managing the HVAC efficiency incentives.

Dr. Rossi testified as to the importance of establishing a direct role for a CSP or sub-CSP focused exclusively on maximization of HVAC measures. As a preliminary matter, such a CSP

¹⁹ *Id.*, p. 11, lines 1 – 5.

²⁰ *Id.*, p. 18, lines 10 – 14; p. 22, lines 13 – 17.

²¹ *Id.*, p. 19, lines 6 – 21, p. 20, lines 1 – 2.

would be able to act fast—possibly through retroactive application back to the date the Plan was filed—in order to maximize the potential for FirstEnergy to apply energy consumption reductions that could be realized from the 2009 cooling season.²²

Second, a CSP contracting with FirstEnergy to focus solely on HVAC would use its expertise to ensure optimal and maximum use of the incentives included in the Plan:

The delivery process should require the CSP to work with participating contractors to help them identify opportunities and sell program services to their new and existing customers. The contractual agreements between the utility and the HVAC Tune up CSP could outline specific, achievable participation goals that ramp up by program year, with incentives for compliance.²³

Third, and perhaps mostly importantly, an experienced and sophisticated CSP can prevent, through training and monitoring, a key pitfall which can undermine the maximum achievement of HVAC results: well-meaning but unskilled or inexperienced contractors. For instance, an unskilled contractor may fail to properly select or correctly install an appropriate HVAC system leading to “undersized ductwork, leaky ductwork, poorly applied ductwork (high resistance to airflow), oversized units, contaminated refrigerant systems, and incorrectly charged unit.”²⁴

Finally, as Dr. Rossi testified, “[t]oo many contractors [addressing HVAC deficiencies] simply stop taking corrective measures once the unit is producing cold air, and therefore miss out on the opportunity for significant additional gains in efficiency.”²⁵ Due to incomplete tools and training, a contractor may fail to detect “poorly maintained units (dirty coils, for instance),” or be

²² FDSI St. 1, p. 21, lines 11 – 13.

²³ *Id.*, p. 21, lines 11 – 18.

²⁴ *Id.*, p. 9, lines 12 – 15.

²⁵ *Id.*, p. 9, lines 20 – 22.

saddled with “incomplete tool kits, and primitive diagnostic instruments like stick type thermometers.”²⁶

In order to maximize the gains from the already included HVAC-specific programs—as well as the additional programs that may be added by this Commission—it is crucial that a defined role be established for a CSP or sub-CSP with the requisite HVAC expertise.

c. Incentives for HVAC Diagnostic Testing and Reliance on Automated Systems for Diagnostics Will Improve Energy Efficiency Outcomes.

As discussed above, the HVAC programs and measures proposed by FirstEnergy are worthy ones. However, providing incentives for HVAC diagnostic testing is pivotal to ensuring that the programs proposed by FirstEnergy are properly utilized. Indeed, FirstEnergy itself concedes the importance of providing accurate information to the customer to help with the customer’s decision to utilize efficiency measures by including a program – the C/I Performance Contracting Program – that will allow customers to elect to secure energy efficiency services through Energy Services Companies (“ESCOs”) that will identify opportunities, implement retrofits and be paid through savings generated by the project over time.²⁷ Under such program, the FirstEnergy companies will pay a portion of the project costs for kWh and kW savings delivered for qualified ESCOs and will provide rebates for certain measures.²⁸ Yet, the evidentiary record in this proceeding makes clear that diagnostic testing is so important to HVAC energy efficiency that financial incentives should be used to promote it and that diagnostic testing should be used in connection with HVAC efficiency (in addition to generalized programs and in lieu of generalized audits).

²⁶ *Id.*, p. 9, lines 14 – 18.

²⁷ Penelec EE&C Plan, p. 73; Met-Ed EE&C Plan, p. 73; Penn Power EE&C, p. 67.

²⁸ *Id.*

Dr. Rossi explains that “[d]iagnostic testing directs the contractor to determine what type of efficiency measure must be implemented to optimize HVAC efficiency.”²⁹ This information is critical to empowering consumers and contractors—even otherwise unskilled contractors—to work together to make the best, most efficient HVAC tune-up or replacement decisions: “utilizing the proper reporting tools can help the contractor communicate to the HVAC unit owner that there is a real benefit to a specific repair measure, and can even calculate the return on investment of replacing the unit based on the kWh cost of power from the utility in question.”³⁰

Diagnostic testing also enables the customer to trust in the contractor’s credibility, which is critical when costly but important HVAC improvements are in play – “equipment owners are reluctant to invest in a new system when the existing strategy is to spend the least amount of money possible to keep cold air coming from the unit.”³¹ Believing that the contractor is using a proven metric in order to recommend HVAC investments will encourage consumers to make these investments where advisable.

It is likewise important to note that diagnostic testing is not only useful before the performance of an HVAC tune-up or replacement, but after: contractors can use diagnostic testing to monitor the performance of the unit after the tune-up or replacement.³² As Dr. Rossi made clear, customers usually prefer to do this to verify that they are receiving the benefits they expected, and it would give the contractor—and ultimately the utility—the concrete data necessary to verify the projected benefits are being realized.³³

²⁹ FDSI St. 1, p.12, lines 12 – 14.

³⁰ *Id.*, p. 15, lines 1 – 4.

³¹ *Id.*, p. 15, lines 6 – 8.

³² *Id.*, p. 16, lines 22 – 23; p. 17, lines 1 – 14.

³³ *Id.*

Despite the value and importance of diagnostic testing to make the best, most cost-effective decision regarding HVAC replacement, few consumers actually have access to it.³⁴ Most HVAC contractors are not properly trained to provide efficacious HVAC consultations without a proven paradigm for diagnostic testing – they may have many multiple manual tools, but no real gauge to calculate bottom-line efficiency.³⁵ Without such consultations, there is no guarantee that consumers and contractors will make the best decisions with respect to their HVAC.³⁶ As Dr. Rossi explains, the Plans may be either over-utilized or under-utilized for this reason: consumers may “not participate in these programs at all because they are not aware of the potential energy savings to be achieved, or over-participate in the early years of the program and then drop-out,” because they will not have access the information they need to make ongoing decisions about their HVAC units.³⁷ Particularly with respect to high energy-consuming large commercial, industrial, and industrial customers, ongoing assessment is crucial.³⁸

Furthermore, others in this proceeding—the Department of Environmental Protection (“DEP”) and PennFuture—have advocated for an emphasis on whole home or building audits, which are included in the FirstEnergy Plans. While such programs are worthy for other efficiency measures, the undisputed evidence shows that generalized audits do not sufficiently address the spectrum of opportunity for HVAC efficiency improvements.

As Dr. Rossi testified:

At best, a comprehensive whole home audit would be able to make recommendations for replacement of existing HVAC units with higher efficiency SEER units. But the return on investment might not be there for the customer to make a replacement. If the return on investment does not exist, customers will not replace the unit.

³⁴ *Id.*, p. 14, lines 2 – 7.

³⁵ FDSI St. 1, p. 9, lines 4 – 9; p. 14, lines 4 – 5.

³⁶ *Id.*, p. 14, lines 5 – 21.

³⁷ *Id.*, p. 24, lines 4 – 7.

³⁸ *Id.*, p. 14, lines 8 – 16.

But the real missed opportunity lies in the fact that customers will miss out on the ability to implement more cost-effective, efficiency improvements to their HVAC units. . . . All that the auditor is equipped to do is to tell the customer to replace a unit with a new unit. This is because an auditor is only able to tell a customer how efficient a *new* unit is based on the manufacturer's published efficiency ratings, or the SEER level. . . . Yet, the auditor is not able to tell the customer how efficiently the existing 12 SEER unit currently is running. For example, the auditor would not be able to tell if the refrigerant charge needs adjustments, whether there are possible line restrictions in the mechanical unit, if the coils need to be cleaned, or if there are problems with any of the heat exchangers, evaporators, or condensers. An HVAC contractor, in contrast, would be able to tell that the 12 SEER unit is running at 80% efficiency and could recommend the necessary improvements to address the remaining 20% efficiency³⁹

In summary, as Dr. Rossi succinctly stated, “[FirstEnergy’s] failure to provide financial incentives for the diagnostic portion of HVAC efficiency is a major risk for these programs, because it could render the HVAC measures useless.”⁴⁰ Financial incentives for diagnostic testing must be included, and reliance on automated systems for diagnostics is strongly encouraged. As the undisputed factual record indicates, using diagnostic technology, as opposed to manual testing and reporting, increases the availability of diagnostic information to customers, improves information-sharing between customers and contractors, improves contractor skilled performance and increases the chance of sustainable energy consumption reductions over the long-term.

d. The FirstEnergy EE&C Plans Should Establish Guidelines to Ensure that HVAC Tune-ups and Other Measures are Performed in Accordance with Appropriate Protocols and Procedures.

The success of the FirstEnergy HVAC efficiency measures depend not just on the technical veracity of a program, but also its execution. To that end, the record demonstrates that

³⁹ *Id.*, p. 25, lines 5 – 23; p. 26, lines 1 – 5.

⁴⁰ *Id.*, p. 24, lines 1 – 3.

it is crucial that the proposed HVAC measures—as well as all additional HVAC programs included by the Commission—be performed according to established best practices. As Dr. Rossi explained, “the financial incentives should only be given for measures that are implemented according to appropriate industry protocols and procedures”⁴¹ in order to “safeguard against any potential loss in energy savings to be achieved from the measure.”⁴²

Dr. Rossi’s position is consistent with Ms. Guttman’s expert testimony regarding the importance of establishing standard protocols and procedures to ensure that the programs FirstEnergy incentives are effectively managed.⁴³ While FDSI maintains that whole home audits advocated for by Ms. Guttman, though worthwhile, are not the primary solution for maximizing HVAC efficiency, it shares her concern that appropriate protocols and procedures be preemptively established and enforced.⁴⁴ As she explains, “[t]here is no uniformity among standards for reporting, education, or consumer incentives, for example, and the critically important standards for contractors and actual installation are generally non-existent. In order to have a successful program, it is important that the parties cooperate on developing a uniform standard that is coordinated with existing whole-home programs being deployed in Pennsylvania.”⁴⁵

With respect to HVAC tune-ups for instance, Dr. Rossi explained that certain protocols and procedures must be followed in order to maximize energy savings.

Initially:

the first step must be the initial performance assessment, or ‘test-in.’ During this measure the unit controllers (thermostats) are set

⁴¹ FDSI St. 1, p. 18, lines 19 – 20.

⁴² *Id.*, p. 26, line 18 – 19.

⁴³ Direct Testimony of Maureen Guttman, AIA, on behalf of the Department of Environmental Protection, identified as DEP Statement. No. 1, p. 18, line 8 to p. 19, line 1.

⁴⁴ *Id.*

⁴⁵ *Id.*

to 100% for 15 minutes. It is only at this full performance setting that the unit's true efficiency be calculated. Then program prescribed refrigeration cycle tests are performed. Economizer testing and change over setpoints are adjusted.⁴⁶

Second, typically "coil cleaning" is required:

This measure is essential because most units can gain significant performance from a condenser coil cleaning. In fact, this should be a mandatory measure on all units tested in the program, and the completion of the measure should be tied to an incentive payment. The evaporator coil should only be cleaned if needed per "test-in" criteria. Program standards should encourage power washing of coils, training on the effective techniques, chemical selections, and address how to avoid problems like "over" cleaning to the point that heat transfer is reduced because coils are damaged "blown off" units.⁴⁷

Third "is refrigeration charge and airflow . . . Again, I think that this should be a mandatory measure, tied to an incentive, if the initial testing criteria determines a charge adjustment would increase unit efficiency."⁴⁸

Fourth:

repairs to economizers must be considered. The purpose of an economizer device is to pull in fresh air from outside the building when the temperature and humidity are more favorable than the return air inside the space. A significant amount of economizers are found to be poorly functioning or not working at all. The difference between a working and non-working economizer can be up to 40% in energy savings.⁴⁹

Finally, "a 'test-out' should be performed so that any corrective measures performed improve efficiency and capacity to the 90% level, or better."⁵⁰

As Dr. Rossi's testimony makes clear, best practices for improving HVAC performance and efficiency are technically complex, yet extremely important – when these procedures are not

⁴⁶ FDSI St. 1, p. 20, lines 7 – 11.

⁴⁷ *Id.*, p. 20, lines 12 – 20.

⁴⁸ *Id.*, p. 20, lines 21 – 23.

⁴⁹ *Id.*, p. 21, lines 1 – 6.

⁵⁰ *Id.*, p. 21, lines 7 – 8.

employed, the cost for the HVAC program stays the same but the resultant benefit is reduced, thereby threatening compliance with TRC standards. This is why it is imperative that the Commission include in the FirstEnergy Plans the appropriate procedures and protocols which will maximize the potential for energy savings.

e. FirstEnergy Has Failed to Produce Specific Facts to Dispute the Direct Testimony of Dr. Rossi or the Merits of Dr. Rossi's Recommendations to Improve Upon the FirstEnergy EE&C Plans.

During the evidentiary hearing held on August 31, 2009, FirstEnergy's witness, George L. Fitzpatrick, offered written rebuttal testimony addressing the recommendations put forth by Dr. Rossi.⁵¹ Mr. Fitzpatrick concluded that:

[FirstEnergy has] included small commercial HVAC tune up programs in their plans and are satisfied with that measure. Black & Veatch recommended the programs and measures that, when taken in combination, produced the lowest estimated cost with the highest possible probability of attaining the goals established by Act 129. Any specific changes to the programs as filed would, in my judgment, result in the increased total cost of the program or reduce the likelihood of success.⁵²

Mr. Fitzpatrick's statement that implementing any specific changes would increase the total cost of the program or reduce the likelihood of success is a conclusory assumption at best. The statement simply fails to address, with any specificity, the undisputed record evidence or the merits of the recommendations put forth by Dr. Rossi. Indeed, from his testimony, it is quite unclear exactly which program or how the program's cost would be increased or the success of such program diminished. As a result, the Commission should not be dissuaded from approving the changes to FirstEnergy's EE&C Plans that Dr. Rossi has recommended and supported with detailed testimony and facts..

⁵¹ Rebuttal Testimony of George L. Fitzpatrick, on behalf of FirstEnergy, identified as Met-Ed/Penelec/Penn Power Statement No. 2-R (Aug. 31, 2009).

⁵² *Id.* at p. 6, lines 13-19.

B. Cost Issues

FDSI has no position on this issue.

C. CSP Issues

FDSI has no position on this issue.

D. Implementation and Evaluation Issues

FDSI has no position on this issue.

E. Other Issues

1. FDSI Supports Grandfathering Energy Efficiency Projects Between July 1, 2009, and Commission Approval of the FirstEnergy EE&C Plans.

FDSI strongly urges the Commission to allow FirstEnergy to grandfather proposed and existing projects for customers that install or commit to install qualifying equipment or services under its EE&C Plans between July 1, 2009, and Commission approval of the Plans for the following reasons. First, Act 129 expressly permits such treatment, as it defines “energy efficiency and conservation measures” in part as “technologies, management practices or other measures...installed on or after the effective date of this section at the location of a retail customer.”⁵³ Second, grandfathering these projects would improve FirstEnergy’s ability to reach its required Act 129 energy efficiency and consumption targets by increasing the amount of time and projects available that FirstEnergy may count toward compliance. Finally, grandfathering these projects would allow customers to take advantage of programs and incentives, including federal stimulus funding through the ARRA, discussed *infra* below, that may be available during the time between the filing of the FirstEnergy EE&C Plans and Commission approval.

⁵³ 66 Pa. C.S. § 2806.1(m)(1)(I).

2. FDSI Urges the Commission to Allow Projects that Received ARRA and Act 1 Funding to be Used to Demonstrate Compliance with Act 129.

FDSI urges the Commission to allow customers that take advantage of stimulus funding through the ARRA and Act 1, along with Act 129 funding, for purposes of installing energy-efficiency projects to be able to demonstrate compliance with Act 129. In the Total Resource Cost Test Order, the Commission determined that “[f]or the purposes of TRC testing, if the end-use customer is a recipient of an incentive/rebate from an Act 129 program, even if the customer is also a recipient of an [ARRA] incentive or rebate for the same equipment or service, we conclude that the entire savings of that equipment or service can also be claimed by the EDC for TRC testing purposes.”⁵⁴ In FDSI’s experience, imposing such an artificial limitation on the use of funding would only tend to hinder customer participation in FirstEnergy’s Act 129 energy efficiency programs: a counter-productive result to enhancing FirstEnergy’s ability to meeting the energy consumption reduction targets of Act 129.

VI. CONCLUSION

Substantial record evidence in this proceeding support the following proposed changes to FirstEnergy’s EE&C Plans:

- creating a separate HVAC program for commercial and industrial customers that provides for a CSP or sub-CSP directly responsible for its the delivery and execution;
- including incentives for HVAC-specific diagnostic testing and requiring the use of automated systems for diagnostics; and
- establishing guidelines to ensure that HVAC tune-ups and other measures are performed in accordance with appropriate protocols and procedures.

⁵⁴ Total Resource Cost Test Order, *Energy Efficiency and Conservation Program*, entered June 23, 2009, Docket No. M-2009-2108601.

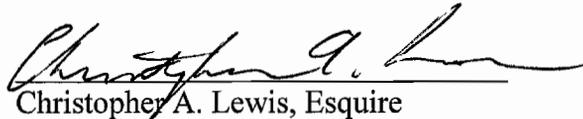
Additionally, FDSI encourages the Commission to permit the grandfathering of energy efficiency projects implemented between July 1, 2009, and Commission approval of FirstEnergy's EE&C Plans because not only does Act 129 permit such treatment, but it will allow customers to realize the full benefit of projects already implemented. Likewise, FDSI urges the Commission to allow customers that take advantage of stimulus funding through the ARRA and Act 1, along with Act 129 funding, for purposes of installing energy-efficiency projects, to be able to demonstrate compliance with Act 129.

VII. PROPOSED ORDERING PARAGRAPHS

IT IS HEREBY ORDERED THAT:

1. The Petition of FirstEnergy for Approval of its Act 129 Energy Efficiency and Conservation Plans, Docket Nos. M-2009-2092222, M-2009-2112952, M-2009-2112956, (the "Plans") is GRANTED and the Plans are APPROVED, subject to the modifications set forth below.
2. FirstEnergy is directed to create a separate HVAC program, providing for a Conservation Service Provider or sub-Conservation Service Provider that will be directly responsible for the delivery and execution of the separate HVAC program or track.
3. FirstEnergy is directed to provide incentives for HVAC-specific diagnostic testing and to require the use of automated systems for diagnostics, where possible.
4. FirstEnergy is directed to establish guidelines to ensure that HVAC tune-ups and other measures are performed in accordance with appropriate protocols and procedures.

Respectfully Submitted,



Christopher A. Lewis, Esquire

Christopher R. Sharp, Esquire

Melanie J. Tambolas, Esquire

Blank Rome LLP

One Logan Square

Philadelphia, PA 19103

Phone: (215) 569-5793

Fax: (215) 832-5794

e-mail: lewis@blankrome.com

sharp@blankrome.com

tambolas@blankrome.com

Counsel for Field Diagnostic Services, Inc.

Dated: September 11, 2009

CERTIFICATE OF SERVICE

I hereby certify that this day I have served a true copy of the foregoing document, Main Brief of Field Diagnostic Services, Inc., upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code § 1.54.

VIA E-MAIL AND FIRST-CLASS MAIL

Kathy J. Kolich, Esquire
FirstEnergy Service Company
76 South Main Street
Akron, OH 44309
kjkolich@firstenergycorp.com

Bradley A. Bingaman, Esquire
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, PA 19612-6001
bbingaman@firstenergycorp.com

Renardo L. Hicks, Esquire
Stevens & Lee
16th Floor
17 North Second Street
Harrisburg, PA 17101
rlh@stevenslee.com

Carrie B. Wright, Esquire
Charles Daniel Shields, Esq.
Office of Trial Staff
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265
717-787-1976
717-772-2677 (fax)
carwright@state.pa.us
chshields@state.pa.us

Lauren M. Lepkoski, Esquire
Daniel G. Asmus, Esquire
Office of Small Business Advocate
Commerce Building, Suite 1102
300 N. Second Street
Harrisburg, PA 17101
717-783-2525
717-783-2831 (fax)
llepkoski@state.pa.us
dasmus@state.pa.us

Candice Tunilo, Esquire
Aron J. Beatty, Esquire
Tanya McCloskey, Esquire
Office of Consumer Advocate
555 Walnut Street
5th Floor, Forum Place
Harrisburg, PA 17101
717-783-5048
717-783-7152 (fax)
tmccloskey@paoca.org
ctunilo@paoca.org
abeatty@paoca.org

Pamela C. Polacek, Esquire
Vasiliki Karandrikas, Esquire
Charis Mincavage, Esquire
Barry A. Naum, Esquire
Shelby A. Linton-Keddie, Esquire
McNees Wallace & Nurick LLC
100 Pine Street
P.O. Box 1166
Harrisburg, PA 17108-1166
717-232-8000
717-260-1730
ppolacek@mwn.com
vkandrikas@mwn.com
cmincavage@mwn.com
bnaum@mwn.com
skeddie@mwn.com

Carolyn Pengidore, Esquire
ClearChoice Energy
Suite 265
180 Fort Couch Road
Pittsburgh, PA 15241
Carolyn@ClearChoice-Energy.com

Harry Geller, Esquire
John C. Gerhard, Esquire
PA Utility Law Project
118 Locust Street
Harrisburg, PA 17101
hgellerpulp@palegalaid.net
jgerhardpulp@palegalaid.net

Mark C. Morrow, Esquire
Senior Counsel
UGI Utilities, Inc.
460 North Gulph Road
King of Prussia, PA 19406
morrowm@ugicorp.com

Daniel Clearfield, Esquire
Kevin J. Moody, Esquire
Eckert Seamans Cherin & Mellott, LLC
213 Market Street, 8th Floor
Harrisburg, PA 17108-1248
dclearfield@eckertseamans.com
kmoody@eckertseamans.com

Lillian S. Harris, Esquire
Thomas J. Sniscak, Esquire
Hawke McKeon & Sniscak, LLP
100 North Tenth Street
Harrisburg, PA 17105-1778
717-236-1300
lharris@hmslegal.com
tjsniscak@hmslegal.com

Aspassia V. Staevska, Esquire
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building, 9th Floor
400 Market Street
Harrisburg, PA 17101-2301
astaevska@state.pa.us

Lee E. Hartz, Esquire
National Fuel Gas Dist. Corp.
P.O. Box 2081
Erie, PA 16512
hartzl@natfuel.com

Ruben S. Brown, President
The E Cubed Company, LLC
1700 York Avenue, B1
New York, NY 10128
rsbrown@ecubedllc.com

Edward P. Yim, Esquire
Office of Rep. Camille "Bud" George
4 East Wing
P.O. Box 202074
Harrisburg, PA 17120
eyim@pahouse.net

Cheryl Walker Davis
Director's Office
Office of Special Assistants
Pennsylvania Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265
cwalkerdav@state.pa.us



Christopher A. Lewis (ID No. 29375)
Christopher R. Sharp (ID No. 205768)
Melanie J. Tambolas (ID No. 209323)
Blank Rome, LLP
One Logan Square
Philadelphia, PA 19103
Telephone: (215) 569-5793
Facsimile: (215) 832-5793
Lewis@blankrome.com
Sharp@blankrome.com
Tambolas@blankrome.com

Counsel to Field Diagnostic Services, Inc.

Dated: September 11, 2009