

**Attachment C**  
**Customized Energy Solutions, Ltd.**  
**Technical Qualifications**

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**Customized Energy Solutions ABC Application**

Customized Energy Solutions is an established company with over 12 years experience as a consultant to clients in the energy industry. To prove technical competency consistent with the requirements of Part 454.70(a), included in this attachment are:

1. Summary of experience for persons being used to satisfy requirements of Part 454.70(a)
2. Full Resumes for those listed

**Stephen Fernands, President** - Stephen Fernands is founder and President of Customized Energy Solutions, one of the fastest growing private businesses. In 2008, INC magazine ranked Customized Energy Solutions the 15th fastest growing private company in the energy industry, and in 2007, the Philadelphia Business Journal named it the 8th fastest growing private company in the region. As President, Stephen has been involved in more than 100 consulting projects, including market design evaluation, demand response program development, supply procurement, load profiling, generation development, and transmission congestion analysis.

**Richard Gilkey, VP Fuels and Demand Response** - Richard Gilkey joined Customized Energy Solutions in June 2006. He assists customers in managing electric, natural gas, and other energy costs through supply management, cost optimization, and risk management. Rick is also responsible for administering electric load response programs that provide opportunities for customers to further reduce electric costs. He has worked with industrial customers to negotiate power and natural gas purchase agreements, perform energy scheduling, and provide consulting services. Rick earned undergraduate degrees in Chemistry from Dickinson College and Chemical Engineering from Rensselaer Polytechnic Institute and an MBA from Widener University. He is currently a member of the Association of Energy Engineers and is a Certified Energy Manager, Certified Energy Purchaser, and Certified Demand Side Management Professional.

**Jed Trott, Analyst** - Jed joined Customized Energy Solutions in July 2007, working in the Demand Response Business Line. This work includes advising and registering customers in ILR, testing customers for compliance, and planning for participation in the Demand Response program. He supports FTR services in MISO during the annual ARR allocations and FTR auctions. Jed also assists with consulting projects pertaining to market analysis using stochastic modeling tools. Before he joined Customized, Jed worked as a Financial Advisor. He earned a BA in International Relations from The University of Pennsylvania where he minored in Economics.

**Erik Paulson, VP Wholesale Market Services** - Erik is responsible for the company's services related to the wholesale electricity markets, which includes managing and scheduling generation assets in the various RTOs/ISOs, and managing the electricity purchases and electricity market activity for large users, including municipalities and industrial customers. Erik first joined Customized Energy Solutions in May of 2005 as the Director of Regulatory Affairs for PJM. In this role he provided market updates and information on market rule changes to many clients in PJM.

## **Stephen R. Fernands**

President, Customized Energy Solutions  
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### **Experience**

5/98– present **Customized Energy Solutions**

*President*

- Consult on electric and gas regulatory issues, process consulting, and financial analysis.
- Developed staff from one person to five staff and fifteen external consultants
- Successfully completed over 100 projects in first six years for leading energy companies
- Participate in developing competitive energy markets in PJM, NYISO, and ISO-NE.

From 1997 to 1998 worked as a contract employee in the retail choice department of PECO energy on retail choice issues including; load profiling, PJM scheduling and tariff design.

### **Specific Experience**

*PJM Committees*

#### Members Committee

During 2005 serving as the Vice Chair of the Members Committee. Currently serving as Chair of the Members Committee. Have represented clients on issues since 1998 including the establishment of the Capacity markets, the integration of Comed, AEP, AP, Duquesne and Dayton, FTR market modifications and the wide range of rules affecting the PJM marketplace.

#### Reliability Committee

Served in the reliability Committee from 1998 through 2003. In that role I analyzed reserve margins, load growth projection and the capacity factor. In that committee role I was involved in the discussion of capacity design and goals.

#### Capacity Working Groups

Between 1998 and the present I served on many committees making changes to the capacity markets including the ICAP/Energy Price Cap working group, Joint Capacity Working Group, Reliability Adequacy Model, and Incremental Changes Working Group.

#### Market Implementation Committee (formerly Market Implementation Working Group)

Between 2000 and the present I have served on this committee. The MIC was responsible for the shaping of the rules for the Regulation Market, Spinning Reserve Market, Auction Revenue Rights and Financial Transmission Rights (ARR/FTR) markets. Over the past three years I have been involved in all facets of the committee from draft tariff language to business rules to final approval. It is also where current trends such as the underfunding of FTRs, the use of Transmission Load Relief to reduce loop flow, and upgrades are discussed.

#### Electricity Markets Committee (formerly Energy Markets Committee)

This group is responsible for the overall functioning of the PJM energy, capacity, and ancillary service markets. Over the past six years I have been active in this committee in the design and operation of the markets.

#### *Market Analysis*

##### Congestion Analysis

Performed congestion study for client in tracking causes of congestion as well as effects of various line outages on the cost of power. This analysis was used to develop a hedging strategy including the use of FTRs.

##### Client Monthly FTR Evaluation

On a monthly basis analysis is provided to clients on what paths to bid on in the monthly FTR auctions as well as expected revenues. Our clients have consistently outperformed the market in these auctions.

##### Client Annual FTR Evaluation

Helped clients with their ARR allocations when customers switched suppliers and when they migrated from zonal pricing to nodal pricing. Worked with clients to identify profitable generation points as sources for ARRs (when generation assets were required for allocation of ARRs.)

#### **Committee Involvement (1998 – 2005)**

##### *PJM Committees*

Members Committee, Energy Markets Committee, Demand Side Response Working Group, Market Implementation Working Group, Joint Capacity Adequacy Group, Public Interest and Environmental Users Group, MAAC Administrative Board, Reliability Assurance Agreement Reliability Committee, numerous other working groups

##### *NYISO Committees*

Management Committee, Business Issues Committee, Price Responsive Load Working, Billing and Accounting Working Group

##### *ISO-NE (Active 2000 – 2001)*

Participants Committee, Markets Working Group

##### *RTO*

Part of the 45 day Northeast RTO process, ISO-NE/ NY merger committees, PJM/SPP/Midwest collaboration

##### *Pennsylvania Public Utility Commission*

Demand response users group (2000-2003)

#### **Conference Presentations**

2005 – Served on multiple panels in PJM sponsored 2 day conference on RPM

2004 – Represented the Other Supplier Sector at the PJM Annual Meeting

2003 – Spoke at the Mid-Atlantic Conference of Regulatory Utilities Commissioners

2003 – Chaired panel at PennFuture's "Getting to 10%" Conference

2002 – Served on panel before the Federal Energy Regulatory Commission on Demand Response

2002 – Chaired panel at Platts PJM Markets Conference

2002 – Presented to PA PUC on Standard Market Design

- 2002 – Presented at PennFuture’s “Getting to 10%” Conference
- 2001 – Conference facilitator for competitive environmental markets panel
- 2001 – Spoke at the NARUC conference on demand response in ISOs.
- 2001 – Center for Business Intelligence, ISO structures for demand response programs.
- 2000 – NYISO/ NYSERDA developing effective markets for demand response

**Honors**

- 2004 and 2001 - One of the fastest 100 growing businesses in the Philadelphia region
- 1988 Eagle Scout Award

**Completed Projects for following Clients (Partial Listing):**

**Load Serving Entities:**

- Constellation NewEnergy
- AES Power Direct
- Amerada Hess
- Central and South West Services (AEP)
- ConEdison Solutions
- Energy Cooperative Association of Pennsylvania (ECAP)
- New Century Technologies
- New Power
- Allegheny Electric Cooperative
- Delaware Electric Members Corporation
- Southern Maryland Electric Corporation

**Generation:**

- Advance Megawatt Generation
- GE Power Systems
- The Williams Company
- Dominion Energy Clearing House

**End Use Customers:**

- A. E. Stone
- Brick Realty Enterprises
- Concord Township Sewer Authority
- Globe Dye Works

**Technology Companies:**

- Energy Advisors
- Enetec
- GenerSys
- Electrotek
- Systems and Computer Technology (SCT)
- Skipping Stone

**Other Organizations:**

- Citizens for Pennsylvania's Future (PennFuture)
- Pace University Energy Project
- PJM Public Power Coalition
- Price Responsive Load Coalition

**Education**

- |                                      |                     |
|--------------------------------------|---------------------|
| <b>Drexel University</b>             | <b>MBA Finance</b>  |
| <b>Pennsylvania State University</b> | <b>BS Economics</b> |

## **Associations**

International Association of Energy Economics  
Philadelphia Chamber of Commerce  
Energy Cooperative Association of Pennsylvania

## **Selected Projects**

### **Allegheny Electric Cooperative**

- Perform annual analysis of congestion causes for multiple zones from multiple generators
- Perform monthly and annual analysis of FTRs and ARRs to both hedge load and maximize profit from participation in markets.

### **PECO Energy**

- In preparation for retail choice worked with the Supplier Administration Group and EDS to develop the load profiles that have been used to schedule competitive energy.
- Worked with the Billing department to develop competitive billing programs. This included developing billing test program based on the PECO tariff, meter reading cycles, and competitor pricing requests.
- Interfaced with PJM and marketers on supply scheduling issues in participation for the PECO Energy Pilot Program.

### **New Energy Ventures**

- Developed load profiling and tariff analysis products for the PJM and New York markets.
- Provided Regulatory Representation
- Managed customer information and worked with team developing forward forecasts of load.

### **Systems and Computer Technology (SCT)**

#### **Consolidated Edison Solutions**

- Implemented bill testing program for EDI data 810 (Billing) and 867 (Usage) information.
- Developed business processes to manage customer information for various customer types.

### **Energy Cooperative Association of Pennsylvania (ECAP)**

- Developed energy purchasing strategy to serve customers Pennsylvania.

- Created load profiles and expected usage for various rate classes and weather profiles.

### **Skipping Stone Energy Consulting Company**

- Developed Load Profiles and energy forecasts for end use client and marketers with various weather dynamics.
- Develop profit analysis from supplying aggregated group of clients based on coincident load profiles and shopping credit analysis.
- Develop tariff analysis tool for the Pennsylvania market.

### **End Use Clients**

Worked with AE Stone, Weichert Builders, and other end use clients to evaluate competitive bids, perform extensive tariff analysis to determine if they are on appropriate rates, and determine applicability of distributed generation technology.

## Richard T Gilkey, CEM, CEP, CDSM

1528 Walnut St, 22<sup>nd</sup> Floor  
Philadelphia, PA 19102

Mobile: (484) 459-2595  
Work: (215) 875-9440  
rgilkey@ces-ltd.com

### Experience:

- May 06 - present **Vice President, Fuels and Demand Response Services, Customized Energy Solutions.** Responsible for managing the Demand Side Response programs for end use customers as well as our partner clients who contract with us for back office DSR support services; including energy, capacity and ancillary service; also responsible for consulting company's revenues and costs related to natural gas, other fuels products, and demand response services. assist clients in RFP process including data analysis document preparation, coordination of wholesale and/or retail suppliers, bid evaluations, and contract negotiations;
- May 01-May 06 **Energy Management Specialist, McNeese, Wallace & Nurick LLC.** Participated in the RTO stakeholder process to further activities of customers; assisted customers in the PJM Demand Response Programs; analyzed existing and proposed retail and wholesale rates and prices, technical support for various client projects; developing regulatory and commercial strategies
- Jun 98 – May 01 **Manager, Electric Supply & Trading, Sunoco, Inc.** Responsible for managing Sunoco's electric supply; negotiated power purchases and sales (physical and financial) with utilities, wholesale and retail marketers; managed electric risk management programs, assessed wholesale and retail market opportunities to increase profitability and/or reduce expenses, which included selling capacity and energy from Sunoco's Marcus Hook Refinery generator; strategically determined retail markets Sunoco would participate in based on expense reduction potential
- Nov 96-Jun 98 **Electric Trader, Sunoco, Inc.** Negotiated commercial contracts with utilities, service agreements, special contracts, enabling agreements, and capacity & energy sales agreements; monitored deregulation activity and participated in industrial end user groups; monitored electric wholesale markets; managed risk management and trading positions.
- Jun 95- Nov 96 **Natural Gas Trader, Sunoco, Inc.,** responsible for purchasing and risk strategies for Sunoco's natural gas needs; negotiated commercial agreements; traded natural gas for movement on interstate and intrastate pipelines; responsible for execution of the risk management plan for natural gas; managed pipeline imbalances, monthly invoice reconciliation, and daily marketing activity.
- Jun 91-Jun 95 **Natural Gas Procurement and Contract Specialist, Sunoco, Inc.,** commercial manager for all major refinery contracts with third parties; 50% of job involved natural gas management, including purchasing, scheduling, nominating, negotiating contracts, regulatory affairs, and contract administration; other contractual responsibilities included Cogen Power Sale Agreement with PECO, water and electric utilities, pipeline and product sale; also administered major claims for and against refinery.
- Feb 88-Jun 91 **Operations Technical Specialist and Engineer, Sunoco, Inc.,** supervised technical support for crude and lubes refinery facilities; responsible for expense control and budgets; monitored product quality and engineering projects; optimized unit operations for energy efficiency and profitability; monitored product specification adherence
- Jun 82-Feb 88 **Process and Lead Engineer, BP Oil, Inc.,** various process engineering positions in refinery functionally the same as Process Engineer described above; one year spent as a Lead Process Engineer with supervisor responsibility for other process engineers.

### Education:

- Jan86 - Jul90 **Widener University, Chester, PA, MBA**
- Sep80 - May82 **Rensselaer Polytechnic Institute, Troy, NY, BS Chemical Engineering**
- Sep77 - May 80 **Dickinson College, Carlisle, PA, BS Chemistry**
- Sep73 - May77 **North Hills High School, Pittsburgh, PA, Diploma**

## **JEDIDIAH BROOKS TROTT**

*Address:* 611 W. Cheltenham Ave. Elkins Park, PA 19027

*Phone:* 215-360-1019

*Email:* jtrott@ces-ltd.com

## **EDUCATION**

**University of Pennsylvania, Philadelphia, PA**

(May 2005)

Bachelor of Arts in International Relations, minor in Economics

GPA 3.2/4.0

*Honors:* Mayor's Scholarship

*Activities:* Lightweight Crew, 2001

## **EXPERIENCE**

**Customized Energy Solutions**

(July 2007- Present)

*Analyst:* Manage all aspects of DSR participation in the PJM footprint. Have assisted in the integration of a wholesale Electric Cooperative into the PJM marketplace as a LSE. Have supported the management of various entities ARR and FTR portfolios in MISO.

**First Financial Group/MassMutual, Bala Cynwyd, PA**

(Oct 2005- July 2007)

*Financial Planner:* Developed fee based and non-fee based Financial Plans for clients

**Promissor, Philadelphia, PA**

(June 2002- September 2004)

Promissor is a computer-based testing company that focuses on testing for occupational certification and regulatory licensing.

*Assistant Editor:* Published tests and edited for functionality and developed methods for extracting information from the test platform and rendering the information useable.

## **SKILLS**

Proficient in Microsoft Word, Excel, and SQL some experience with Access. Experience in analyzing uncertainty with Monte Carlo simulators such as @Risk.



**CUSTOMIZED  
ENERGY SOLUTIONS**

## **Erik J. Paulson, VP Wholesale Market Services**

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### **Experience:**

- Jan 08 - present **Vice President, Wholesale Market Services, Customized Energy Solutions.** Responsible for consulting company's revenues and costs related to generation and load scheduling, analytical projects, and other wholesale energy market services. Oversee operation of company's 24 hour scheduling desk and responsible for over \$1M in company revenues.
- May 05-Jan 08 **Director of Regulatory Affairs – PJM, Customized Energy Solutions.** Report, advise, and represent clients' interests in wholesale and retail energy market issues within the PJM market footprint. Responsible for all regulatory clients and new business in the PJM region.
- Nov 04- May 05 **Manager, Market Development, PJM Interconnection.** Responsible for development of new electricity market products, market rule changes, and technical systems to support markets.
- Led PJM and stakeholder effort to integrate demand response resources into Ancillary Service Markets
  - Developed an implemented market systems necessary to integrate and additional 60,000+ mws into the PJM footprint
- July 03-Nov 04 **Manager, Real Time Market Operations, PJM Interconnection.** Responsible for operation of PJM's Real Time Energy Market, Spinning Reserve Market, and Regulation Market.
- Ensured PJM met its goal of 99% price posting accuracy
- Jun 00- July 03 **Senior Engineer, Energy Market Development, PJM Interconnection.** Design, test and implement new energy trading markets and market products. Train and support PJM Operations and Market Operations personnel in the operations of new and existing markets. Projects include
- Implementation of a Unit Dispatch System, which develops economic based generation dispatch points for over 600 units in the PJM region every five minutes. Received the "PJM President's Award" for the most significant contribution to PJM's Mission as a result of the work on this project.
  - Addition of a Spinning Reserves Market – an hourly market for the trading and procurement of spinning reserves within PJM.
- Jan 99-Jun 00 **Reactor Propulsion Division Officer,** managed 25-30 machinists in the Reactor Propulsion Division on a US Navy aircraft carrier. Responsible for tracking, coordinating, and completing major overhauls on over two dozen major pieces of steam plant equipment and ten compartments during the ship's complex, multi-year overhaul. Skilled in troubleshooting and repair of various control circuits and reactor protection components. Directed the operations of the carrier's nuclear propulsion plant in a supervisory role of reactor operation and actions of 20 subordinate watchstanders.
- Education:**
- Nov 97-Dec 98
- **Naval Nuclear Power School,** program consisting of over 30 semester hours of nuclear physics, nuclear engineering, systems engineering, mathematics, and materials followed by six months of hands-on operating and troubleshooting of electrical, electronic, and mechanical systems in an operational nuclear power plant.
  - **Surface Warfare Officer School,** six months of classroom and practical study of all aspects of shipboard management. Courses included study of gas turbine power plant and weapons, radar, and communications systems.
- Aug 95-May 96
- **United States Naval Academy,** class of 1995. Bachelor of Science with major in Systems Engineering. Course of study included control systems, advanced robotics, and electrical engineering. Co-Captain of Varsity Offshore Sailing Team, captain of 50 foot racing sloop with a crew of 10 underclassmen.
- Jul 91-Jun 95