STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7440

Petition of Entergy Nuclear Vermont Yankee, LLC,
And Entergy Nuclear Operation, Inc., for
Amendment of their Certificates of Public Good
And other approvals required under 10 V.S.A. §§
6501-6504 and 30 V.S.A. §§ 231(a), 248 & 254,
For authority to continue after March 21, 2012,
Operation of the Vermont Yankee Nuclear Power
Station, including the storage of spent-nuclear fuel

DIRECT TESTIMONY
OF
Jacob M. Thomas, P.E.

ON BEHALF OF
VERMONT DEPARTMENT OF PUBLIC SERVICE

November 14, 2008

Summary: Mr. Thomas analyzes the economic benefits to Vermont of continued operations of Vermont Yankee for twenty years beyond its current operating license. Mr. Thomas analyzes government revenues and burdens, impacts through economic activity of the plant, and potential ratepayer benefits through revenue-sharing and discounted price alternatives.

TABLE OF CONTENTS

EXHIBITS:

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Jacob M. Thomas. I am a Project Manager at GDS Associates, Inc. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia, 30067.

Q. MR. THOMAS, PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I received a Bachelor of Industrial and Systems Engineering in 2000 from the Georgia Institute of Technology and a Master of Business Administration with a concentration in Finance from Auburn University in 2006. I am a registered professional engineer and a member of the National Society of Professional Engineers, the American Statistical Association, and the Institute of Industrial Engineers. Since joining GDS Associates, Inc. in 1996 as a cooperative student, I have accumulated the equivalent of ten years of experience in the electric power industry including eight years of continuous full-time work. My experience focuses on statistical and financial modeling and analysis including load forecasting, financial forecasting, benefit-cost analysis, cost of service, electric and water/wastewater rate design, and economic impact analysis. I have done cost of service, retail, and wholesale rate design and evaluation for utilities in Alaska, Florida, Georgia, Indiana, Massachusetts, Ohio, South Carolina, Texas, and Virginia. I have prepared financial forecasts for electric cooperatives in

Georgia, South Carolina, Tennessee, and Virginia. In recent years, I have been heavily involved in completing benefit-cost analyses for existing and potential demand response programs for utilities in Indiana, Michigan, South Carolina, Texas, and Wisconsin. Those projects included estimating both Total Resource Cost Test and Utility Cost Test results. A recent project that is very similar in style to the Vermont Yankee Economic Impact Assessment is a project in which I estimated the economic impacts on the state of North Carolina for construction and operation of various conventional and renewable electric generating resources. My resume is included as Exhibit DPS-JMT-1.

Q. WHAT IS THE NATURE OF YOUR BUSINESS?

A. GDS Associates, Inc. ("GDS") is an engineering and consulting firm with offices in Marietta, Georgia; Austin, Texas; Corpus Christi, Texas; Manchester, New Hampshire; Madison, Wisconsin; Manchester, Maine; Bellingham, Washington; and Auburn, Alabama. GDS provides a variety of services to the electric utility industry including power supply planning, generation support services, rates and regulatory consulting, financial analysis, load forecasting and statistical services. Generation support services provided by GDS include fossil and nuclear plant monitoring, plant ownership feasibility studies, plant management audits, production cost modeling and expert testimony on matters relating to plant management, construction, licensing and performance issues in technical litigation and regulatory proceedings.

II. ASSIGNMENT

Q. WHAT WAS YOUR ASSIGNMENT IN THIS PROCEEDING?

A. My firm, GDS Associates, Inc. ("GDS") was retained by the DPS to assist in development of an analysis of many issues relating to the license renewal at Vermont Yankee ("VY"). We refer to this as the Act 160 report. DPS also requested GDS personnel to develop testimony to be filed in Docket 7440 based on the results presented in several of the Act 160 report chapters. For the Act 160 report, the GDS project manager, Dr. William R. Jacobs, Jr., assigned me to draft the Act 160 report chapter on economic analysis. Specifically, I was tasked with analyzing only the economic impacts associated with continued operation of the Vermont Yankee facility for twenty years. This testimony presents the results of my assessment of the economic impacts of continued operations of Vermont Yankee and includes the Act 160 report chapter as Exhibit DPS-JMT-2.

III. CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING ECONOMIC IMPACTS OF CONTINUED OPERATION OF VERMONT YANKEE.

A. Continued operation of the Vermont Yankee nuclear facility represents a substantial economic value to the state of Vermont and its citizens. With just over 500 employees, Vermont Yankee currently ranks among the 60 largest private and public

employers in Vermont.[1] It plays a larger role in the Windham County area, where it ranks in the top 5 of employers according to the Brattleboro Area Chamber of Commerce. The cost/benefit analysis conducted in this study indicates that positive value is created for the local and state governments, the economy as a whole, and the electric ratepayers of the state if the plant continues to operate an additional 20 years. The total 20-year value is estimated to range from an extreme low potential of $1.5 billion to an extreme high of $5.1 billion representing between 0.2% and 0.6% of estimated Gross State Product over the 20 years.[2] The base case value is $3.6 billion over 20 years. These results can be construed to represent the likely cost to the economy of shutting down Vermont Yankee in 2012 as opposed to extending its operating license. Although it could be argued that the decommissioning process would provide for mitigated economic activity beyond 2012, decommissioning would occur at the expiration of the extended license as well.

Table 1 summarizes the range of positive economic impacts associated with continued operation of VY for another 20 years. The base (or middle) case represents our best expectation.[3] Table 2 summarizes the basic assumptions for each of the range scenarios.

[1] Vermont Department of Labor.
[2] Assumes Gross State Product grows by 4% per year through 2012 and then grows by a simple trend through 2032.
[3] In the case of "Potential Electric Rate Discount", the 15% reduction case does not actually represent an expectation, but is more simply the middle of the three scenarios run for that component of the analysis. Making any guess as to what contract might be negotiated between Entergy and Vermont utilities would be speculative.

Table 1
Summary of Economic Impacts ($Millions)

20-Year Total of Nominal Values			
Component	**Extreme Low Case**	**Base Case**	**Extreme High Case**
Govt Revenues Net of Burdens	$173.4	$237.8	$282.1
Value Added – Econ. Activity	$1,095.9	$1,289.3	$1,482.7
Revenue Sharing Agreement	$259.5	$938.8	$1,441.1
Potential Electric Rate Discount	$0.0	$716.1	$1,193.5
Value Added – Rate Discount	$0.0	$421.3	$702.2
Total	**$1,528.8**	**$3,603.3**	**$5,101.6**
Jobs Supported by Value Added*	**21,298.0**	**30,079.4**	**36,884.2**

*20-Year Net Present Value***			
Component	**Extreme Low Case**	**Base Case**	**Extreme High Case**
Govt Revenues Net of Burdens	$105.1	$143.3	$169.6
Value Added – Econ. Activity	$642.1	$755.5	$868.8
Revenue Sharing Agreement	$159.0	$587.8	$908.0
Potential Electric Rate Discount	$0.0	$178.2	$296.9
Value Added – Rate Discount	$0.0	$231.0	$385.0
Total	**$906.2**	**$1,895.8**	**$2,628.3**
Jobs Supported by Value Added*	**21,298.0**	**30,079.4**	**36,884.2**

Average Annual Value Over 20 Years			
Component	**Extreme Low Case**	**Base Case**	**Extreme High Case**
Govt Revenues Net of Burdens	$8.7	$11.9	$14.1
Value Added – Econ. Activity	$54.8	$64.5	$74.1
Revenue Sharing Agreement	$13.0	$46.9	$72.1
Potential Electric Rate Discount	$0.0	$35.8	$59.7
Value Added – Rate Discount	$0.0	$21.1	$35.1
Total	**$76.5**	**$180.2**	**$255.1**
Jobs Supported by Value Added*	**1,064.9**	**1,504.0**	**1,844.2**

* – Measured in Full Time Equivalent (FTE) job-years. 1 job held for 20 years would equate to 20 job-years.

** – The discount rate for government revenues and burdens and value added is the general obligation bond rate of 4.9%. The discount rate for revenue sharing and rate discount is an average electric utility cost of capital of 8.5%.

Table 2
Components of the Three Cases

Component	Extreme Low Case	Base Case	Extreme High Case	More Details[4]
Government Rev/Burden Analysis	1. Low economic impact for taxes collected 2. 15% higher state & government burdens per capita 3. 75% of per capita state & local burdens assigned to out-of-state employees	1. 25% of per capita state and local burdens assigned to out-of-state employees	1. High economic impact for taxes collected 2. 15% lower state & government burdens per capita 3. 0% of per capita state & local burdens assigned to out-of-state employees	11.1
Value Added Through Economic Impact	1. Operating budget and salaries lower by 15%	1. Expected operating budget and salaries	1. Operating budget and salaries higher by 15%	11.2
Revenue Sharing	1. Market prices 20% lower than base case 2. Vermont Utilities with 55% share of revenue shared	1. Base case market price projections 2. Vermont Utilities with 92.5% share of revenue shared	1. Market prices 20% higher than base case 2. Vermont Utilities with 92.5% share of revenue shared	11.3
Electric Rate Discount	1. No discount from market	1. 15% discount from base case market prices 2. 45% of VY energy sold to Vermont utilities	1. 25% discount from base case market prices 2. 45% of VY energy sold to Vermont utilities	11.4

Given that it is such a large employer in Windham County, the closure of VY would potentially have considerable negative impacts on the local town and county economies. If Entergy moved its employees after decommissioning, the local real estate market would likely see a depression in home values with a relatively high number of homes

[4] Refers to the section in the Act 160 report on Economic Cost/Benefit analysis for which more details are available. The chapter is filed as Exhibit DPS-JMT-2.

entering the market in a short period of time. That, in turn, might be enough to suppress new home construction for some time, having adverse impacts on the construction sector as well. According to the 2000 Census, construction jobs represented nearly 8% of all jobs in Windham County.[5] Furthermore, the economy would lose the value of family members of VY employees that also worked in local jobs. If employees are not moved, it would create additional burden on local governments and lead to a temporary increase in local unemployment rates. Although these ancillary impacts are important to consider, they were not quantified for this study.

Q. HAVE YOU PROVIDED THE BASES FOR YOUR CONCLUSIONS?

A. Yes, the bases for my conclusions are provided in the Act 160 report chapter on economic analysis which is attached to this testimony as Exhibit DPS-JMT-2.

Q. DOES THAT CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes it does.

[5] U.S. Census Bureau.

Exhibit DPS-JMT-1

Resume of Jacob M. Thomas

Exhibit DPS-JMT-2

Act 160 Report Chapter on Economic Analysis