

# Appendix M – GPRA05 Estimate of Penetration of Generating Technologies into Green Power Markets

## Introduction

The Green Power Market Model (GPMM or the model) identifies and analyzes the potential electric-generating capacity additions that will result from “green power” programs, which are not captured in the “least-cost” analyses performed by the National Energy Modeling System (NEMS). The model projects green power-capacity additions through both green power marketing programs in deregulated markets, and utility green pricing programs in regulated markets.

Princeton Energy Resources International, LLC (PERI) originally constructed the GPMM as a sub-module in the summer of 2000, with the results hardwired into NEMS as planned capacity. This year’s model, the FY05 GPMM, is based in Microsoft Excel 97 and is consistent with efforts during the past several years. The model continues to use a detailed and regionalized set of assumptions for electricity market restructuring, coming from a recent National Renewable Energy Laboratory (NREL) report, *Growing the Green Power Market: Forecasting the Impacts of Customer Demand for Renewable Energy*.<sup>[1]</sup> The assumptions taken from this report include the dates for initiation of market restructuring (except where noted later), as well as the assumed green power-penetration rates. The report included both a high-growth and low-growth case, with varying assumptions for market restructuring, access to green power, and customer participation rates. The GPMM uses the assumptions of the high-growth case, except where noted.

The Green Power Network, a part of the U.S. Department of Energy (DOE), defines both green power and green power marketing on their Web site. It states that the “essence of green power marketing is to provide market-based choices for electricity consumers to purchase power from environmentally preferred sources. The term “green power” is used to define power generated from renewable energy sources, such as wind and solar power, geothermal, hydropower and various forms of biomass.”<sup>[2]</sup>

For purposes of this analysis, the term “green marketing” refers to selling green power in the competitive marketplace, in which multiple suppliers and service offerings exist. “Green” marketing programs occur in restructured markets that were formerly served by either investor-owned utilities (IOU) or public utility companies (PUC) and give the customer the option of paying a market price (higher if necessary) to ensure that their electricity demand is met by green power.<sup>[2]</sup> “Green pricing” programs, on the other hand, represent the programs sponsored by utilities that give customers the opportunity to pay extra to support the development and operation of green power sources. Those utilities (both IOUs and PUCs), which remain regulated in our analysis, have the option of providing “green pricing” programs.

Electricity markets are now restructured and openly competitive in several states: Arizona, Connecticut, Delaware, the District of Columbia, Illinois, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Oregon, Rhode Island, Pennsylvania,

Texas, and Virginia. Green power marketing products are currently being offered in nine states, including Maine, New Jersey, New York, Pennsylvania, Illinois, District of Columbia, Maryland, Virginia, and Texas. Green power pricing programs are being offered by utilities in 32 states, including Alabama, Arizona, California, Colorado, Florida, Georgia, Hawaii, Idaho, Indiana, Iowa, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, South Carolina, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, Wyoming. <sup>[3 and 4]</sup>

## The Model

### *Time frame:*

The model projects increased capacity and electricity generated from green technologies for the periods 2005, and then five-year periods to 2035. The FY05 model extended the time frame of analysis to 2035, by giving half of the green revenues and capacity builds from the 2026-2030 period to the 2031-2035 period.

### *Technologies:*

Thirteen individual technologies, comprising five technology types, were selected as both green and commercially viable for this analysis. These are:

- |                              |  |
|------------------------------|--|
| 1) Biomass:                  | <ul style="list-style-type: none"><li>- Direct-Fired Biomass</li><li>- Biomass Gasification</li><li>- Landfill Gas</li></ul>                       |
| 2) Geothermal:               | <ul style="list-style-type: none"><li>- Flash Geothermal</li><li>- Binary Geothermal</li><li>- Hot Dry Rock</li></ul>                              |
| 3) Concentrated Solar Power: | <ul style="list-style-type: none"><li>- Solar Thermal Trough</li><li>- Solar Thermal Dish-Hybrid</li><li>- Solar Central Receiver</li></ul>        |
| 4) Photovoltaics:            | <ul style="list-style-type: none"><li>- Residential PV (Neighborhood)</li><li>- Central Station PV (Thin Film)</li><li>- Concentrator PV</li></ul> |
| 5) Wind:                     | <ul style="list-style-type: none"><li>- Wind Turbines</li></ul>  |

Although the model was initially designed to distinguish between dispatchable and intermittent technologies, more recent versions of the model exclude this distinction. The original distinction was accomplished by adding an extra cost to intermittent technologies associated with “firming up” the technologies’ ability to provide a constant power supply. However, since green power programs only guarantee that a certain percentage of total kilowatt-hours generated will come from green sources over the course of a year, the developers of new green power do not have the incentive to include backup generation to provide a continuous source of power. Developers are

therefore assumed to build the sites in least-cost fashion (i.e., without backup) and take the “green” electrons when and from where they are able.

#### *Regions:*

The model is composed of regional segments, used to capture differences in the costs of competing technologies, resource availability, levels of participation in voluntary green marketing programs, and electricity demand by sector. PERI has elected to use U.S. Census regions as the breakdown, as the availability of regional data for the model often takes this format. Eight regions (the South Atlantic and East South Central regions have been combined) are modeled independently, and then summed to produce national results (see **Appendix A**). The regions for this analysis are 1) New England, 2) Middle Atlantic, 3) East North Central, 4) West North Central, 5) South Atlantic and East South Central, 6) West South Central, 7) Mountain, and 8) Pacific. Detailed results of the model are shown by Census Region in **Appendix B**.

This regional breakdown is different from the regional divisions of NEMS, however. In order to be hardwired into NEMS, the eight regional capacity projections must be converted to the 13 divisions used in NEMS. The NEMS divisions are based on the North American Electric Reliability Council’s (NERC) regions. The names of these regions, and the conversion formulas from the census region breakdown, are documented in the model. Detailed results of the model are shown by NEMS Region in **Appendix C**.

#### *Assumptions:*

The technology cost and performance data was taken from the DOE/EPRI report, *Renewable Energy Technology Characterizations*, EPRI-TR109496 (TC).<sup>[5]</sup> New characterizations for wind (with Class 4 and Class 6 data averaged) and CSP (trough and power tower data) were taken from program revisions to the TC report. All technology cost figures were converted to 2000\$, using GPD price deflators from <http://w3.access.gpo.gov/usbudget/fy2001/sheets/hist10z1.xls>.

The state-by-state restructuring and penetration assumptions are taken from the *Growing the Green Power Market: Forecasting the Impacts of Customer Demand for Renewable Energy*.<sup>[1]</sup> These rates are summed across the regions, and are prorated based on the loads of the electric market in each state compared to the region as a whole. State-by-state assumptions for restructuring, green power access, and customer participation rates are shown in **Appendix D**.

A number of new assumptions were included in this year’s analysis that alter the assumptions given in the NREL report—primarily the start dates for electric market restructuring in states that do not currently have specific plans (see **Appendix D**). In order to more accurately reflect the fairly high degree of uncertainty surrounding electric market restructuring—particularly in light of the unstable markets seen in California that caused electricity choice to be suspended there, as well as the delayed restructuring in Arkansas, Montana, Oklahoma and New Mexico—PERI reviewed the most recent updates to EIA’s Status of State Electric Industry Restructuring Activity, which lists updates to state activity as of February 2003.<sup>[6]</sup> In response to the delays and lack of market restructuring activity, this year’s analysis has pushed back the start dates (for states with no pending start date) from the January 1, 2004, start date assumed in prior years to

January 1, 2008. This change has led to greatly decreased capacity builds in the early years of the model, to 2010, in comparison to the results of the FY04 GPMM.

The model also assumes that market rules are conducive to competition and customer switching, and customer understanding and participation continues to increase. Specific assumptions from the high-growth scenario include:

- IOU restructuring: States already open to competition remain open, and retail choice continues as scheduled.
- PUC restructuring: Starts at 2.5% in the third year after IOU restructuring commences, and increases to 20% by the 10<sup>th</sup> year.
- Access to Green Power: In regulated markets, starts at 5% and increases 60%; while, in competitive markets, 100% is assumed to be open.
- Green Power Market Penetration: In regulated markets, participation starts at 0.75% for residential customers in first year, increasing by 0.75% annually to 7.5% in the 10<sup>th</sup> year; while, in competitive markets, participation starts at 1% and increases to 15% in the 15<sup>th</sup> year. Nonresidential customers are a constant 25% of residential participation in both regulated and competitive markets.<sup>[1]</sup>

As states begin to restructure their markets, it is assumed the pace of restructuring will vary from state to state. But within five years of deregulation, it is assumed that 100% of the IOUs markets will have active retail competition—except as dictated by existing legislation—including green marketing programs. To this extent, all states are assumed to restructure at least a portion of their electric markets by 2008.<sup>[1]</sup>

On the other hand, green pricing is an optional utility service that allows customers an opportunity to support a greater level of utility company investment in renewable energy technologies. Participating customers pay a premium on their electric bill to cover the extra cost of the renewable energy. Green pricing implies a continued regulated arena in which an optional fee is paid by customers to promote their utility's development of renewable energy technologies. The assumptions of the NREL report incorporated in our model suggest that a portion of those utilities still regulated in each state will offer green pricing programs. As more markets are restructured, the green pricing programs are converted to green marketing programs. However, the customer participation levels achieved under green pricing programs are assumed to remain at a constant level the first year under deregulation, with the incremental gains of deregulated markets starting in the following year. Another important assumption incorporated into our model is that restructuring never fully includes all of the PUCs, nor do green pricing programs ever enter into all of the still-regulated utilities. From these assumptions, it can be seen that at least some of the customers in each state never gain access to green power markets; but the regional percentage of all customers with access to green power programs grows to 63-91% in the out years of the analysis.

A second set of assumptions taken from the NREL report deals with customer participation in green power programs. The assumption used in earlier year's analyses (that 30% of eligible residential customers would eventually enroll in these voluntary programs) was both reduced overall and varied regionally to more accurately reflect customer participation rates in existing

programs. The customer participation rates reach 7-13% in the out years of the analysis, a reduction of more than 50% from the original assumption.

Participation rates for the commercial and industrial sectors are tied into the residential participation rates. The NREL report assumes that combined commercial/industrial participation rate is 25% of that of the residential sector. Commercial and industrial customers' participation rates are set at 16.7% and 8.3%, respectively, of their residential customers counterparts. Another key assumption is that all customers continue in the programs, once they have joined. **Table 1** shows the assumptions and calculations of regional customer participation rates for green marketing programs.

**Table 1. Regional Participation Rates in Green Power programs**

	2000	2005	2010	2015	2020	2025	2030
<b>New England</b>	1.1%	5.1%	9.5%	12.4%	12.6%	12.7%	12.7%
<b>Mid. Atlantic</b>	0.4%	5.0%	9.6%	13.0%	13.0%	13.0%	13.0%
<b>E. N. Central</b>	0.0%	2.3%	5.9%	9.7%	11.0%	11.4%	11.4%
<b>W.N. Central</b>	0.0%	0.0%	0.9%	3.9%	6.3%	7.1%	7.1%
<b>S. Atl. &amp; E.S. Central</b>	0.0%	0.4%	1.9%	5.2%	7.6%	8.3%	8.3%
<b>W.S. Central</b>	0.0%	1.3%	4.1%	7.3%	8.7%	9.0%	9.0%
<b>Mountain</b>	0.0%	1.5%	3.9%	8.0%	10.0%	10.8%	10.8%
<b>Pacific</b>	0.0%	0.0%	1.5%	4.7%	7.7%	8.8%	8.8%

Another important assumption is the choice of how to model the payments for participation in green power programs. A range of payment devices currently exists in programs underway, with some programs charging an additional amount per kilowatt-hour, a fixed amount each month, or a percentage of the total bill. PERI has chosen to use the percentage of the total bill, assumed to be 10%, to more accurately show the regional energy price variation. Originally, the model used a fixed payment-per-month method to represent all programs, with amounts of \$6, \$96, \$408 for the residential, commercial, and industrial sectors, respectively. However, this fixed price method does not reflect the regional energy price variability, nor is it the most commonly used method in current programs. Because the model already incorporated both the average regional electricity use and regional electricity prices, PERI was able to calculate a regionally varied amount of funds generated by green power programs.

The model uses only the dollars from new customers joining green programs each year to build the new capacity, because money from customers who have joined in prior years is assumed to continue to finance projects built in those years. Another key assumption is that all of the money collected from these programs will go toward building additional capacity.

A very important modeling assumption allows the model to build multiple competing technologies in a region, not only the least-cost alternative. This approach avoids so-called knife-edge choices, and recognizes that single-point estimates of data actually represent a range of values. The percentage apportioned to each technology is inversely related to its first-year cost of energy (FY COE) through a sharing algorithm (i.e., a logit function), consistent with NEMS modeling procedures. The spread of the distribution depends on a scaling factor, lambda, which

often ranges from 0 to 15. As this factor increases, the lower-cost technologies receive a higher percentage of the total distribution. PERI has chosen to set this factor at 3.2. A small sensitivity analysis was conducted ranging lambda from 2 to 8 with minor impacts (less than 10%) on the resulting totals.

Another set of assumptions deals with creating regional distinctions in the model by varying the resource potential of the technologies. This was done both throughout the entire nation and in subsets of the regions, depending on the specific technology characterizations. Landfill gas, for example, is limited nationwide by the availability of an economically viable resource base. To account for this, a 70 MW capacity limit was instituted in each region. For this year's model, the regional limit on the amount of landfill gas (LFG) was modified so that only one-fifth of the five-year regional limit of 70 MW, or 14 MW, was allowed for the one-year period of 2005.

For other technologies, such as CSP and Geothermal, resource-based regional distinctions were introduced via adjustment factors (AF). For each technology, a base capacity factor (CF) was taken from the TC report.<sup>[5]</sup> The AFs were then applied to the base CFs in order to create the regional distinctions. An AF greater than one implies that the resource is more prevalent in that region; and, therefore, the cost of producing electricity from that technology would be lower. The AFs are based on available resource levels as determined from resource maps in the TC document. The AFs for each region, and the subsequent regional CFs, are noted in **Appendix E**. Additionally, certain technologies are excluded from regions, due to prohibitively high costs or the absence of a resource base, by setting their respective AFs to zero. **Table 2** documents these exclusions.

**Table 2. Regional Exclusion of Green Technologies**

Technology	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8
Direct-Fired Biomass								
Biomass Gasification								
Landfill Gas								
Flash Geothermal	X	X	X	X	X	X		
Binary Geothermal	X	X	X	X	X	X		
Hot Dry Rock	X	X	X	X	X	X		
Solar Thermal Trough								
Solar Thermal Dish Hybrid								
Solar Central Receiver	X	X	X		X			
Residential PV (Neighborhood)								
Central Station PV (Thin Film)								
Concentrator PV								
Wind Turbines					X			

X- indicates regions where technology is assumed to be unavailable.

Geothermal technologies are restricted to penetrate in only the Pacific and Mountain regions. Central Receivers are restricted to regions west of the Mississippi, consistent with NEMS modeling procedures. Despite the fact that the Central Receiver technology is the only type of CSP technology modeled in NEMS, we allow the other CSP technologies (troughs and dishes) to compete more widely in the model. Although dish and trough CSP technologies are competitive in all regions, they are given substantial penalties in regions with lower solar insolation via the AFs. For example, the trough technology has a national average of 33% for its CF; however, due to the reductions introduced by the AFs for the New England and Middle Atlantic regions, the CF in these regions is about 23%. The reduction in CF also has the effect of increasing the COE, making this technology less competitive in these regions.

*Annual Energy Outlook Inputs:*

The number of customers by economic sector for each region is determined by the number of residential housing units for the residential sector, the amount of commercial floor space for the commercial sector, and the industrial gross output for the industrial sector. This data is taken from the most recent Energy Information Administration's (EIA) assumptions for the *Annual Energy Outlook 2003*, DOE/EIA-0383(2003) (AEO03).<sup>[7]</sup> The residential housing-units data was updated using data provided by John Cymbalsky of the EIA on July 18, 2003, in the spreadsheet file "AEO 2003 Households- from J Cymbalsky- 7-18-03.xls." The commercial floor space and industrial gross output were updated from the AEO03 supplemental data tables, Tables 22 and 23, respectively.<sup>[7]</sup> The number of commercial establishments is calculated assuming 13,000 square feet per establishment; and the number of industrial establishments is calculated assuming \$10 million of gross output per establishment.

The regional energy consumption and prices were taken from Tables 1-20 of AEO2003 Supplemental Data Tables.<sup>[7]</sup> **Tables 3-5**, on the following pages, show the differences in regional energy consumption and prices for the residential, commercial, and industrial sectors between the FY04 and the FY05 models.

**Table 3. Residential Energy Consumption and Prices by Census Region**

<b>Census Region</b>	<b>Model Year</b>	<b>2000 Residential Energy Consumption (Quads)</b>	<b>2020 Residential Energy Consumption (Quads)</b>	<b>2000 Residential Energy Prices (2000¢/kWh)</b>	<b>2020 Residential Energy Prices (2000¢/kWh)</b>
<b>National</b>	FY05	4.07	5.59	8.09	7.58
	FY04	4.07	5.70	8.31	7.70
<b>New England</b>	FY05	0.14	0.16	10.53	10.98
	FY04	0.14	0.19	11.62	10.57
<b>Mid-Atlantic</b>	FY05	0.38	0.45	10.62	9.58
	FY04	0.38	0.49	11.00	9.90
<b>E. N. Central</b>	FY05	0.59	0.83	7.61	6.83
	FY04	0.58	0.83	7.93	7.16
<b>W.N. Central</b>	FY05	0.30	0.42	7.44	6.62
	FY04	0.30	0.41	7.52	6.88
<b>S. Atlantic and E.S. Central</b>	FY05	1.34	1.89	7.67	7.26
	FY04	1.35	1.95	7.95	7.20
<b>W.S. Central</b>	FY05	0.61	0.90	7.71	7.08
	FY04	0.61	0.87	7.46	7.13
<b>Mountain</b>	FY05	0.25	0.39	7.27	7.57
	FY04	0.25	0.39	7.42	7.74
<b>Pacific</b>	FY05	0.46	0.55	8.46	8.70
	FY04	0.46	0.59	8.75	8.70

**Table 4. Commercial Energy Consumption and Prices by Census Region**

<b>Census Region</b>	<b>Model Year</b>	<b>2000 Commercial Energy Consumption (Quads)</b>	<b>2020 Commercial Energy Consumption (Quads)</b>	<b>2000 Commercial Energy Prices (2000¢/kWh)</b>	<b>2020 Commercial Energy Prices (2000¢/kWh)</b>
<b>National</b>	FY05	3.96	6.20	7.22	6.92
	FY04	3.91	6.12	7.55	6.94
<b>New England</b>	FY05	0.16	0.23	8.96	9.09
	FY04	0.14	0.19	9.74	8.13
<b>Mid-Atlantic</b>	FY05	0.51	0.67	9.32	8.24
	FY04	0.49	0.63	9.64	8.44
<b>E. N. Central</b>	FY05	0.54	0.73	6.51	6.26
	FY04	0.55	0.74	7.06	6.66
<b>W.N. Central</b>	FY05	0.30	0.45	6.16	5.71
	FY04	0.28	0.41	6.18	5.86
<b>S. Atlantic and E.S. Central</b>	FY05	1.13	1.96	6.54	6.57
	FY04	1.11	1.95	6.88	6.51
<b>W.S. Central</b>	FY05	0.48	0.70	6.72	6.30
	FY04	0.49	0.72	6.51	6.32
<b>Mountain</b>	FY05	0.24	0.44	6.12	6.44
	FY04	0.28	0.52	6.41	6.59
<b>Pacific</b>	FY05	0.60	1.02	8.27	7.91
	FY04	0.56	0.95	9.09	7.85

**Table 5. Industrial Energy Consumption and Prices by Census Region.**

<b>Census Region</b>	<b>Model Year</b>	<b>2000 Industrial Energy Consumption (Quads)</b>	<b>2020 Industrial Energy Consumption (Quads)</b>	<b>2000 Industrial Energy Prices (2000¢/kWh)</b>	<b>2020 Industrial Energy Prices (2000¢/kWh)</b>
<b>National</b>	FY05	3.63	4.63	4.45	4.38
	FY04	3.65	4.83	4.61	4.45
<b>New England</b>	FY05	0.09	0.10	7.22	6.58
	FY04	0.09	0.11	7.73	6.19
<b>Mid-Atlantic</b>	FY05	0.29	0.35	5.69	5.40
	FY04	0.29	0.36	5.82	5.76
<b>E. N. Central</b>	FY05	0.78	0.97	4.19	4.36
	FY04	0.78	1.00	4.48	4.59
<b>W.N. Central</b>	FY05	0.28	0.35	4.11	3.82
	FY04	0.29	0.36	4.22	3.88
<b>S. Atlantic and E.S. Central</b>	FY05	0.99	1.25	4.21	4.19
	FY04	1.00	1.31	4.38	4.25
<b>W.S. Central</b>	FY05	0.55	0.72	4.10	4.30
	FY04	0.56	0.77	3.99	4.29
<b>Mountain</b>	FY05	0.23	0.32	3.79	4.01
	FY04	0.24	0.33	3.91	3.99
<b>Pacific</b>	FY05	0.42	0.57	5.08	4.44
	FY04	0.41	0.59	5.36	4.49

As can be seen from **Tables 3-5**, only minor differences occur in the economic-sector demand assumptions for energy consumption and prices. In the residential sector of **Table 3**, the residential energy consumption for the nation decreased 0.11 Quads by 2020, from 5.70 to 5.59 Quads. This reduced the growth rate of energy consumption for the country as a whole; which, in turn, reduces the average monthly electric bills, the pool of green money, and the total capacity built to meet green power market demand. **Table 4** shows the commercial-sector demand assumptions. The most noted change is the change in New England’s commercial-sector energy prices, which decreased from 9.74 ¢/kWh to 8.13 ¢/kWh in the FY04 model, but actually increases from 8.96 ¢/kWh to 9.09 ¢/kWh in the FY05 model. **Table 5** shows the industrial-sector demand assumptions, which remained the most consistent of the sectors in regard to energy consumption and prices from FY04 to FY05.

*Other Inputs:*

PERI included both additions and subtractions to the green capacity values for the Million Solar Roofs (MSR) capacity additions, and EIA “Floors” builds, **Tables 6-8**.

A primary means of deployment for PV is expected to be in distributed systems, which are customer-sited and customer-owned. This market for distributed systems will be easier for PV to compete in, because it allows PV to compete with retail electricity prices, not the very low competitive grid prices. The MSR initiative targets this application. The realization of MSR goals for PV—600,000 systems installed by 2010—has formed the basis for the distributed power-penetration projections since the FY01 GPRA benefits reporting. Projections beyond 2010 assume declining annual growth rates, as would be expected to occur after the end of a major initiative. The current MSR capacity additions, taken from revisions to the FY04 GPRA benefits analysis for the Solar Energy Program and shown in **Table 6**, are added to the green model numbers in the reporting of the Residential PV capacity builds. These estimates have been revised downward to reflect the phasing-out of the program. In the FY04 model, however, the incremental MSR capacity additions were allowed to remain constant once the annual growth rate was reduced to 0. In the FY05 model, the incremental additions were reduced by 10% of the 2015 number for each year from 2015-2024 to arrive at 0 in 2024.

**Table 6. Million Solar Roofs – Incremental Capacity Additions in the GPMM05 and GPMM04**

<b>Year Period</b>	<b>FY05 MSR Capacity Additions (above 2004 Baseline)</b>	<b>FY04 MSR Capacity Additions (above 2004 Baseline)</b>
<b>2005</b>	70	189
<b>2006-2010</b>	773	711
<b>2011-2015</b>	1,761	1,761
<b>2016-2020</b>	1,348	1,926
<b>2021-2025</b>	385	1,926
<b>2026-2030</b>	0	1,926
<b>2031-2035</b>	0	N/A
<b>Total for 2004-2035</b>	4,337	8,439

EIA describes the inclusion of “Floors” capacity in the Renewable Fuels Module section of the *Assumptions to the Annual Energy Outlook 2003*, page 129, and in the *NEMS Renewable Fuels Module Documentation Report*, page 67. <sup>[8 and 9]</sup> An additional 332.5 MW of central station PV and 75.5 MW of central station solar thermal capacity are “assumed by EIA to be installed for reasons in addition to least-cost electricity supply,” “such as for market testing or unique economic requirements,” during the period 2001 to 2025. **Table 7** shows the “Floors” capacity additions, which are prorated for 2004 to 2025 and regionally divided among the regions that have capacity additions in these technologies.

**Table 7. EIA “Floors” Incremental Capacity Additions for PV and Solar Thermal in NEMS**

Year Period	EIA PV “Floors” Capacity Additions (above 2004 Baseline)	EIA Solar Thermal “Floors” Capacity Additions (above 2004 Baseline)
<b>2005</b>	13.3	3.0
<b>2006-2010</b>	66.5	15.1
<b>2011-2015</b>	66.5	15.1
<b>2016-2020</b>	66.5	15.1
<b>2021-2025</b>	66.5	15.1
<b>2026-2030</b>	0.0	0.0
<b>Total for 2004-2030</b>	279	63.4

These amounts are then subtracted from the green power builds for each region. However, if the prorated regional portion of the “Floors” additions was greater than the regional builds in the GPMM, only the amount predicted to be built by the GPMM was subtracted (i.e., value reported as zero, no negative numbers reported), as shown in **Table 8**. As can be seen in **Table 8**, not all of the PV or Solar Thermal “Floors” additions in **Table 7** were subtracted from the FY05 GPMM model results. This because less capacity is being built in some of the regions by the model than was added by the “Floors” capacity.

**Table 8. EIA “Floors” Incremental Capacity Additions Subtracted from the GPMM04**

Year Period	EIA PV “Floors” Capacity Additions Subtracted from GPMM04 (above 2004 Baseline)	EIA Solar Thermal “Floors” Capacity Additions Subtracted from GPMM04 (above 2004 Baseline)
<b>2005</b>	0.0	1.7
<b>2006-2010</b>	44.5	15.0
<b>2011-2015</b>	66.5	15.1
<b>2016-2020</b>	65.0	15.1
<b>2021-2025</b>	65.4	15.1
<b>2026-2030</b>	0.0	0.0
<b>Total for 2004-2030</b>	241.4	62.0

## Results

### *Comparison of Final Results*

**Table 9** shows the final results of the FY05 and FY04 GPMM that were hardwired into the NEMS, detailed results of the FY05 model are given in **Appendix A**. As can be seen in **Table 9**, the total additions have been reduced significantly, especially in the early and late stages of the model (e.g., reduction of 31% of capacity builds by 2010 and 26% of capacity builds by 2030), while the middle years of the analysis remain relatively constant. The cause of the early time frame capacity losses is the revision of state restructuring start dates from 2004 to 2008. With a number of states not entering electricity restructuring until 2008, a significant portion of the early capacity builds from the FY04 model are lost in this year's model. On the other hand, the cause of the late time frame capacity losses is the revision of the PV capacity due to the MSR program, which have been revised significantly downward in the out years of the model. This revision is detailed in **Table 6**.

**Table 9. Comparison of Results of the FY05 and FY04 GPMM Model (MW of added capacity)**

	2010		2020		2030	
	FY05	FY04	FY05	FY04	FY05	FY04
<b>Biomass (incl. LFG)</b>	150	287	558	673	706	802
<b>Geothermal</b>	91	209	485	600	628	705
<b>CSP</b>	137	257	738	801	994	970
<b>PV</b>	866	968	4,343	4,973	4,942	9,045
<b>Wind</b>	1,781	2,632	4,246	4,601	4,907	4,948
<b>Total</b>	3,025	4,353	10,371	11,648	12,176	16,470

### *Sensitivity Analysis:*

Additionally, PERI performed a sensitivity analysis (i.e., a reality check), to gauge the ability of the model to predict what has happened in the real world. A recent NREL report states that 982 MW of new renewables have been built to meet green power marketing and green pricing programs' demand since the end of 2002. <sup>[10]</sup>

When the FY05 model is run for the time frame of 1999-2002, the cumulative capacity built by the model by 2002 is 621 MW (i.e., 710 MW with the MSR additions and "Floors" subtracted). This analysis shows that the model is performing reasonably well; and, if anything, is thus far conservative in its projections. Additionally, the model predicts wind technologies to receive about 92% of total builds in the initial results of the GPMM, which is consistent with the NREL estimate of wind capacity serving green power programs, at 93%. <sup>[10]</sup>

**Table 10. Comparison of Capacity Additions to Meet Green Power Programs (MW)**

Renewable Technologies	NREL-2003 Report*	FY05 GPMM for time period 1999-2002			
		Initial Model Results	MSR added	Floors subtracted	Final Results
<b>Biomass (incl. LFG)</b>	45	31			31
<b>Geothermal</b>	10	7			7
<b>CSP</b>	5	10		3.3	7
<b>PV</b>		0	92	0	92
<b>Wind</b>	913	573			573
<b>Total</b>	982	621			710

\*The NREL report total contains 8.5 MW of small hydro, which is not modeled in the GPMM, and 4.8 MW of “solar” capacity.

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## Appendices

## Appendix A: National Results of the GPMM

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### OUTPUT SUMMARY - SUM OF REGIONS

Cumulative Capacity Additions from 2003 Baseline (MW)

	2005	2010	2015	2020	2025	2030	2035
Biomass (incl. LFG)	18	150	377	558	654	706	732
Geothermal	4	91	295	485	585	628	649
CSP	3	138	470	738	890	994	1,046
PV	70	866	2,789	4,343	4,834	4,942	4,996
Wind	212	1,781	3,495	4,246	4,661	4,907	5,030
Total	307	3,026	7,427	10,371	11,624	12,176	12,453

\* Includes MSR additions for PV Residential and EIA "Floors" subtractions for PV Central Station and CSP Troughs

### GREEN REVENUES (\$millions/period)

	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
Residential	28	119	384	247	124	61	31
Commercial	5	20	66	49	30	19	10
Industrial	2	6	19	13	8	5	3
Total (\$millions/year)	34	145	469	309	162	86	43

### CAPACITY- PV FROM MSR PROGRAM- ADDED TO PV-RESIDENTIAL TOTALS

	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2005-2035
PV - residential (MW)- incremental	70	773	1,761	1,348	385	0	0	4,337
PV - residential- Generation (MWh)- from incremental adds	125,706	1,388,153	3,162,404	2,420,738	691,383	0	0	7,788,385
Cumulative - PV adds	70	843	2,604	3,952	4,337	4,337	4,337	

### EIA FLOORS CAPACITY- ALREADY INSTALLED BY EIA IN NEMS

	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2005-2035
PV Central Station (MW)- incremental	13.3	66.5	66.5	66.5	66.5	0.0	0.0	279
Solar Thermal - Central Station (Trough) (MW)- incremental	3.0	15.1	15.1	15.1	15.1	0.0	0.0	63.4
PV Central Station (MW)- cumulative	13.30	79.80	146.30	212.80	279.30	279.30	279.30	558.60
Solar Thermal - Central Station (Trough) (MW)- cumulative	3.0	18.1	33.2	48.3	63.4	63.4	63.4	126.8

### EIA FLOORS CAPACITY- Amount Subtracted from GPMM

	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2005-2035
PV Central Station (MW)	0.0	44.5	66.5	65.0	65.4	0.0	0.0	241.4
Solar Thermal - Central Station (Trough) (MW)	1.4	15.1	15.1	15.1	15.1	0.0	0.0	61.8
PV Central Station- Generation (MWh)	0	80,667	120,586	117,850	118,561	0	0	437,664
Solar Thermal - CS (Trough)- Generation (MWh)	5,076	67,725	67,725	67,725	67,725	0	0	277,134
Cumulative PV- subtractions	0.0	44.5	111.0	176.0	241.4	241.4	241.4	
Cumulative CSP- subtractions	1.4	16.5	31.6	46.7	61.8	61.8	61.8	

### CAPACITY TO BE CONSTRUCTED FROM GREEN MONEY

Firm, Dispatchable Power (MW)									
	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Cumulative Specific Tech. Totals	Cumulative RET Totals
Direct-Fired Biomass	3	24	61	52	21	7	3	172	Total Biomass
Biomass Gasification	5	45	95	67	31	13	6	263	732
Landfill Gas	11	62	70	62	43	33	16	297	
Flash Geotherma	3	62	146	137	72	30	15	465	Total Geothermal
Binary Geothermal	1	25	58	53	28	12	6	182	649
Hot Dry Rock	0	0	0	0	1	1	0	1	
Solar Thermal Trough	1	36	115	96	56	42	21	368	Total Solar Thermal
Sir Thermal Dish Hybrid	0	68	143	100	45	18	9	384	1,046
Solar Central Receiver	2	30	74	72	50	43	22	294	
As-Delivered, Intermittent Power (MW)									
Solar Cntrl Receiver	0	0	0	0	0	0	0	0	
Sir Thermal Dish Alone	0	0	0	0	0	0	0	0	
Residential PV (Neighborhood)	70	773	1,761	1,363	401	21	10	4,399	Total PV
Central Station PV (Thin Film)	0	7	84	87	28	53	26	285	4,996
Concentrator PV	0	16	78	103	62	34	17	311	
Wind - Class 5- dropped	0	0	0	0	0	0	0	0	Total Wind
Wind - Class 4 and Class 6 Avg	212	1,569	1,714	751	415	246	123	5,030	5,030
TOTAL (MW)	307	2,719	4,401	2,945	1,253	553	276	12,453	Total RETs 12,453

### ELECTRICITY GENERATED FROM CONSTRUCTED CAPACITY

Firm, Dispatchable Power (MWh)									
	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Cumulative Specific Tech. Totals	Cumulative RET Totals
Direct-Fired Biomass	18,686	169,583	430,619	367,733	145,620	47,246	23,623	1,203,110	Total Biomass
Biomass Gasification	32,472	314,998	669,083	471,346	220,348	90,396	45,198	1,843,843	5,392,181
Landfill Gas	85,751	491,748	551,880	489,225	338,210	258,943	129,471	2,345,228	
Flash Geothermal	22,544	517,599	1,224,716	1,150,690	602,427	254,319	127,160	3,899,455	Total Geothermal
Binary Geothermal	9,705	207,908	482,462	443,676	234,069	99,622	49,811	1,527,254	5,437,707
Hot Dry Rock	0	0	0	0	4,633	4,244	2,122	10,998	
Solar Thermal Trough	1,049	110,891	381,196	318,966	180,050	149,464	74,732	1,216,348	Total Solar Thermal
Sir Thermal Dish Hybrid	1,685	301,103	632,951	443,533	200,553	80,747	40,374	1,700,946	5,155,409
Solar Central Receiver	8,121	203,584	543,251	563,248	397,675	348,158	174,079	2,238,115	
As-Delivered, Intermittent Power (MWh)									
Solar Cntrl Receiver	0	0	0	0	0	0	0	0	
Sir Thermal Dish Alone	0	0	0	0	0	0	0	0	
Residential PV (Neighborhood)	125,706	1,388,153	3,162,404	2,448,425	720,428	38,192	19,096	7,902,404	Total PV
Central Station PV (Thin Film)	0	13,572	157,291	163,679	54,093	97,913	48,957	535,506	9,105,946
Concentrator PV	0	35,455	165,866	221,163	133,480	74,714	37,357	668,036	
Wind - Class 5- dropped	0	0	0	0	0	0	0	0	Total Wind
Wind - Class 4 and Class 6 Avg	779,933	6,611,254	7,313,892	3,322,100	1,802,473	1,051,804	525,902	21,407,358	21,407,358
TOTAL (MW)	#####	10,365,849	15,715,613	10,403,784	5,034,060	2,595,762	1,297,881	46,498,601	46,498,601

## Appendix B: Results by Census Region (MW)

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<b>Direct Fired Biomass</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.3	1.2	1.2	0.3	0.2	0.2	0.1	3.41
Mid. Atlantic	0.8	3.2	3.4	0.3	0.3	0.3	0.1	8.40
E. N. Central	0.45	2.85	4.55	2.58	1.14	0.61	0.3	12.47
W.N. Central	0.00	0.27	1.35	1.53	0.57	0.14	0.1	3.93
S. Atl. & E.S. Central	0.85	14.51	45.81	43.20	16.56	5.12	2.6	128.60
W.S. Central	0.20	1.78	3.02	2.07	0.85	0.45	0.2	8.60
Mountain	0.05	0.00	0.82	0.73	0.41	0.00	0.0	2.02
Pacific	0.00	0.42	1.32	1.75	0.74	0.00	0.0	4.24
<b>Total US</b>	<b>2.67</b>	<b>24.20</b>	<b>61.45</b>	<b>52.47</b>	<b>20.78</b>	<b>6.74</b>	<b>3.37</b>	<b>171.68</b>

<b>Biomass Gasification</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.5	2.2	1.9	0.4	0.3	0.3	0.2	5.66
Mid. Atlantic	1.5	5.8	5.2	0.4	0.4	0.5	0.2	14.10
E. N. Central	0.77	5.22	7.07	3.31	1.73	1.09	0.5	19.73
W.N. Central	0.00	0.50	2.09	1.96	0.87	0.25	0.1	5.79
S. Atl. & E.S. Central	1.48	26.58	71.18	55.37	25.06	9.21	4.6	193.48
W.S. Central	0.36	3.25	4.70	2.66	1.28	0.82	0.4	13.47
Mountain	0.09	0.61	1.28	0.94	0.62	0.39	0.2	4.12
Pacific	0.00	0.78	2.05	2.25	1.12	0.38	0.2	6.77
<b>Total US</b>	<b>4.63</b>	<b>44.95</b>	<b>95.47</b>	<b>67.26</b>	<b>31.44</b>	<b>12.90</b>	<b>6.45</b>	<b>263.11</b>

<b>Landfill Gas</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.4	2.2	2.2	1.3	1.0	0.8	0.4	8.34
Mid. Atlantic	1.2	6.1	6.1	1.5	1.4	1.2	0.6	18.07
E. N. Central	2.05	10.26	10.26	10.26	5.29	2.81	1.4	42.32
W.N. Central	0.00	2.56	5.23	5.23	2.65	0.64	0.3	16.63
S. Atl. & E.S. Central	4.67	23.33	23.33	23.33	23.33	23.33	11.7	133.00
W.S. Central	2.01	10.88	10.88	9.62	3.92	2.10	1.1	40.46
Mountain	0.48	3.09	4.57	3.40	1.91	1.00	0.5	14.96
Pacific	0.00	3.95	7.41	7.41	3.44	0.99	0.5	23.70
<b>Total US</b>	<b>10.88</b>	<b>62.37</b>	<b>70.00</b>	<b>62.05</b>	<b>42.90</b>	<b>32.84</b>	<b>16.42</b>	<b>297.47</b>

<b>Flash Geothermal</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
Mountain	2.77	27.29	56.27	40.36	25.56	15.19	7.6	175.04
Pacific	0.00	34.91	90.13	96.47	46.08	15.05	7.5	290.14
<b>Total US</b>	<b>2.77</b>	<b>62.20</b>	<b>146.40</b>	<b>136.83</b>	<b>71.64</b>	<b>30.24</b>	<b>15.12</b>	<b>465.19</b>

<b>Binary Geothermal</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
Mountain	1.19	10.96	22.17	15.56	9.93	5.95	3.0	68.74
Pacific	0.00	14.02	35.50	37.19	17.90	5.89	2.9	113.46
<b>Total US</b>	<b>1.19</b>	<b>24.98</b>	<b>57.67</b>	<b>52.76</b>	<b>27.83</b>	<b>11.85</b>	<b>5.92</b>	<b>182.21</b>

<b>Hot Dry Rock</b>	2003-2007	2008-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
Mountain	0.00	0.00	0.00	0.00	0.00	0.29	0.1	0.43
Pacific	0.00	0.00	0.00	0.00	0.62	0.28	0.1	1.05
<b>Total US</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.62</b>	<b>0.57</b>	<b>0.28</b>	<b>1.48</b>

<b>Solar Thermal Trough</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.1	1.6	1.7	0.2	0.3	0.7	0.3	4.99
Mid. Atlantic	0.5	4.7	4.9	0.0	0.3	1.1	0.6	12.07
E. N. Central	0.15	4.11	7.04	3.58	2.28	2.85	1.4	21.43
W.N. Central	0.00	0.29	3.04	3.48	1.92	0.96	0.5	10.18
S. Atl. & E.S. Central	0.00	18.67	81.35	75.34	42.21	27.86	13.9	259.36
W.S. Central	0.06	5.37	9.99	6.37	3.71	4.59	2.3	32.38
Mountain	0.00	1.02	3.33	2.88	2.54	2.76	1.4	13.91
Pacific	0.00	0.65	3.15	4.33	2.77	1.63	0.8	13.34
<b>Total US</b>	<b>0.81</b>	<b>36.44</b>	<b>114.51</b>	<b>96.22</b>	<b>55.99</b>	<b>42.47</b>	<b>21.23</b>	<b>367.67</b>

\* Includes Subtractions of NEMS "Floor" Capacity Additions

<b>Solar Thermal Dish Hybrid</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	2.4	2.1	0.4	0.3	0.3	0.1	5.68
Mid. Atlantic	0.0	6.9	6.0	0.5	0.5	0.5	0.2	14.61
E. N. Central	0.00	6.59	8.75	4.01	2.00	1.21	0.6	23.16
W.N. Central	0.00	0.95	3.87	3.55	1.50	0.41	0.2	10.49
S. Atl. & E.S. Central	0.25	38.71	101.61	77.30	33.53	11.78	5.9	269.07
W.S. Central	0.11	8.87	12.55	6.95	3.20	1.95	1.0	34.63
Mountain	0.00	2.09	4.33	3.11	1.98	1.18	0.6	13.28
Pacific	0.00	1.58	4.08	4.37	2.10	0.69	0.3	13.15
<b>Total US</b>	<b>0.37</b>	<b>68.13</b>	<b>143.32</b>	<b>100.15</b>	<b>45.13</b>	<b>17.99</b>	<b>8.99</b>	<b>384.07</b>

## Appendix B: Results by Census Region (MW) (cont.)

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<b>Solar Central Receiver</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.N. Central	0.00	2.12	11.61	14.21	8.64	4.23	2.1	42.93
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.S. Central	1.33	19.81	37.66	27.85	18.43	20.03	10.0	135.12
Mountain	0.41	4.68	12.98	12.47	11.37	12.08	6.0	60.02
Pacific	0.00	3.52	12.23	17.53	12.05	7.04	3.5	56.89
<b>Total US</b>	<b>1.73</b>	<b>30.12</b>	<b>74.48</b>	<b>72.05</b>	<b>50.50</b>	<b>43.38</b>	<b>21.69</b>	<b>293.95</b>

<b>Solar Central Receiver- Intermittent</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mountain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pacific	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total US</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<b>Solar Thermal Dish- Alone</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mountain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pacific	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total US</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<b>PV Residential</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.5	5.4	12.3	9.5	2.7	0.4	0.2	30.96
Mid. Atlantic	0.8	8.6	19.6	15.0	4.3	0.6	0.3	49.15
E. N. Central	1.93	21.32	48.57	37.18	10.62	1.44	0.7	121.77
W.N. Central	0.61	6.76	15.40	11.79	3.37	0.46	0.2	38.61
S. Atl. & E.S. Central	60.13	664.01	1,512.70	1,173.33	345.43	14.64	7.3	3,777.66
W.S. Central	4.51	49.79	113.43	86.83	26.03	2.13	1.1	283.77
Mountain	1.55	17.10	38.95	29.82	8.52	1.15	0.6	97.66
Pacific	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
<b>Total US</b>	<b>70.00</b>	<b>773.00</b>	<b>1,761.00</b>	<b>1,363.39</b>	<b>400.94</b>	<b>20.76</b>	<b>10.38</b>	<b>4,399.47</b>

\* Includes Additions of MSR Capacity Additions

<b>Central Station PV</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	1.1	1.4	0.0	0.0	0.9	0.4	3.81
Mid. Atlantic	0.0	3.4	4.4	0.0	0.0	1.4	0.7	9.93
E. N. Central	0.00	1.35	5.39	2.32	0.40	3.51	1.8	14.72
W.N. Central	0.00	0.00	1.96	3.15	1.08	1.11	0.6	7.86
S. Atl. & E.S. Central	0.00	0.00	60.97	71.70	22.39	35.80	17.9	208.76
W.S. Central	0.00	1.04	6.74	4.35	0.82	5.20	2.6	20.74
Mountain	0.00	0.00	1.70	1.83	1.32	2.82	1.4	9.08
Pacific	0.00	0.00	1.84	4.01	1.88	1.87	0.9	10.54
<b>Total US</b>	<b>0.00</b>	<b>6.87</b>	<b>84.39</b>	<b>87.36</b>	<b>27.90</b>	<b>52.62</b>	<b>26.31</b>	<b>285.44</b>

\* Includes Subtractions of NEMS "Floor" Capacity Additions

<b>Concentrator PV</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	1.2	0.4	0.5	0.6	0.3	2.83
Mid. Atlantic	0.0	0.0	3.4	0.5	0.7	0.9	0.5	5.88
E. N. Central	0.00	0.00	4.89	4.13	2.75	2.31	1.2	15.23
W.N. Central	0.00	0.00	2.14	3.61	2.04	0.78	0.4	8.97
S. Atl. & E.S. Central	0.00	13.33	56.82	79.69	46.15	22.55	11.3	229.82
W.S. Central	0.00	3.04	6.98	7.12	4.38	3.72	1.9	27.10
Mountain	0.00	0.00	2.40	3.17	2.69	2.23	1.1	11.61
Pacific	0.00	0.00	0.00	4.51	2.89	1.32	0.7	9.37
<b>Total US</b>	<b>0.00</b>	<b>16.37</b>	<b>77.74</b>	<b>103.11</b>	<b>62.02</b>	<b>34.38</b>	<b>17.19</b>	<b>310.81</b>

<b>Wind - Class 5- dropped</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mid. Atlantic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E. N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.N. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mountain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pacific	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total US</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<b>Wind - Class 4 and Class 6 Avg</b>	2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	Total 2002-2030
New England	31.9	185.1	133.6	22.2	20.8	20.1	10.0	423.72
Mid. Atlantic	98.5	499.4	368.4	26.8	29.1	30.7	15.4	1,068.23
E. N. Central	51.94	445.63	498.81	209.55	112.11	72.63	36.3	1,426.98
W.N. Central	0.00	42.89	147.53	123.96	56.27	16.61	8.3	395.57
S. Atl. & E.S. Central	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
W.S. Central	23.88	277.97	331.38	166.95	83.12	54.44	27.2	964.96
Mountain	5.76	51.80	90.21	59.44	40.47	25.93	13.0	286.57
Pacific	0.00	66.25	144.49	142.07	72.95	25.67	12.8	464.27
<b>Total US</b>	<b>211.98</b>	<b>1,569.04</b>	<b>1,714.41</b>	<b>750.96</b>	<b>414.84</b>	<b>246.04</b>	<b>123.02</b>	<b>5,030.31</b>

## Appendix C: Capacity Installed by NEMS region (MW)

08/11/03

Direct Fired Biomass		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.4	3.2	7.3	5.9	2.3	0.9	0.4
2		0.1	0.9	1.5	1.0	0.4	0.2	0.1
3		0.6	3.4	6.6	4.5	1.8	0.7	0.3
4		0.2	1.1	1.7	1.0	0.4	0.2	0.1
5		0.0	0.2	0.9	0.9	0.4	0.1	0.0
6		0.3	1.3	1.3	0.1	0.1	0.1	0.1
7		0.3	1.2	1.2	0.3	0.2	0.2	0.1
8		0.2	2.9	9.2	8.6	3.3	1.0	0.5
9		0.5	8.7	27.5	25.9	9.9	3.1	1.5
10		0.1	1.0	2.1	1.7	0.7	0.3	0.1
11		0.0	0.1	0.6	0.7	0.3	0.0	0.0
12		0.0	0.0	0.5	0.5	0.3	0.0	0.0
13		0.0	0.3	1.0	1.3	0.6	0.0	0.0
Total		2.7	24.2	61.4	52.5	20.8	6.7	3.37

Biomass Gasification		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.6	5.8	11.4	7.5	3.5	1.6	0.8
2		0.2	1.6	2.3	1.3	0.6	0.4	0.2
3		1.0	6.2	10.3	5.8	2.8	1.2	0.6
4		0.3	1.9	2.6	1.2	0.6	0.4	0.2
5		0.0	0.4	1.4	1.2	0.5	0.2	0.1
6		0.6	2.3	2.1	0.2	0.2	0.2	0.1
7		0.5	2.2	1.9	0.4	0.3	0.3	0.2
8		0.3	5.3	14.2	11.1	5.0	1.8	0.9
9		0.9	15.9	42.7	33.2	15.0	5.5	2.8
10		0.2	1.8	3.2	2.2	1.0	0.5	0.3
11		0.0	0.4	1.0	0.9	0.5	0.2	0.1
12		0.1	0.4	0.8	0.6	0.4	0.2	0.1
13		0.0	0.6	1.5	1.7	0.8	0.3	0.1
Total		4.6	44.9	95.5	67.3	31.4	12.9	6.45

Landfill Gas		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		1.7	8.5	8.5	8.5	5.5	4.0	2.0
2		1.0	5.4	5.4	4.8	2.0	1.1	0.5
3		1.2	6.0	6.0	3.3	3.2	3.0	1.5
4		0.8	3.8	3.8	3.8	2.0	1.0	0.5
5		0.1	1.8	3.3	3.3	1.7	0.5	0.2
6		0.5	2.4	2.4	0.6	0.5	0.5	0.2
7		0.4	2.2	2.2	1.3	1.0	0.8	0.4
8		0.9	4.7	4.7	4.7	4.7	4.7	2.3
9		2.8	14.0	14.0	14.0	14.0	14.0	7.0
10		1.0	6.5	7.7	7.1	3.1	1.3	0.7
11		0.2	2.1	3.5	3.1	1.5	0.6	0.3
12		0.3	2.0	2.9	2.2	1.2	0.6	0.3
13		0.0	3.0	5.6	5.6	2.6	0.7	0.4
Total		10.9	62.4	70.0	62.1	42.9	32.8	16.42

Binary Geothermal		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.0	0.0	0.0	0.0	0.0	0.0	0.0
2		0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		0.0	0.0	0.0	0.0	0.0	0.0	0.0
4		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5		0.0	0.0	0.0	0.0	0.0	0.0	0.0
6		0.0	0.0	0.0	0.0	0.0	0.0	0.0
7		0.0	0.0	0.0	0.0	0.0	0.0	0.0
8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
10		0.0	0.0	0.0	0.0	0.0	0.0	0.0
11		0.4	7.5	16.9	14.9	8.1	3.6	1.8
12		0.8	7.0	14.2	10.0	6.4	3.8	1.9
13		0.0	10.5	26.6	27.9	13.4	4.4	2.2
Total		1.2	25.0	57.7	52.8	27.8	11.8	5.92

Flash Geothermal		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.0	0.0	0.0	0.0	0.0	0.0	0.0
2		0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		0.0	0.0	0.0	0.0	0.0	0.0	0.0
4		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5		0.0	0.0	0.0	0.0	0.0	0.0	0.0
6		0.0	0.0	0.0	0.0	0.0	0.0	0.0
7		0.0	0.0	0.0	0.0	0.0	0.0	0.0
8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
10		0.0	0.0	0.0	0.0	0.0	0.0	0.0
11		1.0	18.6	42.8	38.6	20.7	9.2	4.6
12		1.8	17.5	36.0	25.8	16.4	9.7	4.9
13		0.0	26.2	67.6	72.3	34.6	11.3	5.6
Total		2.8	62.2	146.4	136.8	71.6	30.2	15.12

## Appendix C: Capacity Installed by NEMS region (MW) - cont.

Hot Dry Rock		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11	0.0	0.0	0.0	0.0	0.2	0.2	0.1
	12	0.0	0.0	0.0	0.0	0.0	0.2	0.1
	13	0.0	0.0	0.0	0.0	0.5	0.2	0.1
	Total	0.0	0.0	0.0	0.0	0.6	0.6	0.28

Solar Thermal Dish- Hybrid		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
	1	0.0	7.8	15.4	10.1	4.6	1.9	1.0
	2	0.1	4.4	6.3	3.5	1.6	1.0	0.5
	3	0.0	8.0	13.8	8.0	3.6	1.5	0.7
	4	0.0	2.4	3.2	1.5	0.7	0.4	0.2
	5	0.0	0.7	2.5	2.1	0.9	0.3	0.1
	6	0.0	2.8	2.4	0.2	0.2	0.2	0.1
	7	0.0	2.4	2.1	0.4	0.3	0.3	0.1
	8	0.1	7.7	20.3	15.5	6.7	2.4	1.2
	9	0.2	23.2	61.0	46.4	20.1	7.1	3.5
	10	0.1	4.8	7.9	5.0	2.2	1.2	0.6
	11	0.0	1.1	2.6	2.2	1.2	0.6	0.3
	12	0.0	1.3	2.8	2.0	1.3	0.8	0.4
	13	0.0	1.2	3.1	3.3	1.6	0.5	0.3
	Total	0.4	68.1	143.3	100.2	45.1	18.0	8.99

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Solar Thermal Dish Alone		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Solar Central Receiver- Firm		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2	0.7	9.9	18.8	13.9	9.2	10.0	5.0
	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	1.2	6.6	8.1	4.9	2.4	1.2
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10	0.7	10.8	23.8	20.0	12.9	11.8	5.9
	11	0.1	2.6	7.7	8.9	7.1	6.1	3.1
	12	0.3	3.0	8.3	8.0	7.3	7.7	3.9
	13	0.0	2.6	9.2	13.1	9.0	5.3	2.6
	Total	1.7	30.1	74.5	72.1	50.5	43.4	21.69

Solar Central Receiver- Intermittent		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.00

## Appendix C: Capacity Installed by NEMS region (MW) - cont.

Solar Thermal Trough		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.1	4.3	12.4	9.7	5.6	4.5	2.2
2		0.0	2.7	5.0	3.2	1.9	2.3	1.1
3		0.3	4.7	11.1	7.5	4.4	3.5	1.7
4		0.1	1.5	2.6	1.3	0.8	1.1	0.5
5		0.0	0.3	1.9	2.1	1.2	0.6	0.3
6		0.2	1.9	2.0	0.0	0.1	0.4	0.2
7		0.1	1.6	1.7	0.2	0.3	0.7	0.3
8		0.0	3.7	16.3	15.1	8.4	5.6	2.8
9		0.0	11.2	48.8	45.2	25.3	16.7	8.4
10		0.0	2.8	6.3	4.7	2.7	2.7	1.4
11		0.0	0.5	2.0	2.1	1.6	1.4	0.7
12		0.0	0.7	2.1	1.8	1.6	1.8	0.9
13		0.0	0.5	2.4	3.2	2.1	1.2	0.6
Total		0.8	36.4	114.5	96.2	56.0	42.5	21.23

\* Includes Subtractions of NEMS "Floor" Capacity Additions

PV Residential		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		7.2	79.2	180.4	139.6	40.9	2.3	1.2
2		2.3	24.9	56.7	43.4	13.0	1.1	0.5
3		6.5	71.6	163.0	126.3	37.1	1.8	0.9
4		0.7	7.9	18.0	13.8	3.9	0.5	0.3
5		0.4	4.5	10.2	7.8	2.2	0.3	0.2
6		0.3	3.4	7.8	6.0	1.7	0.2	0.1
7		0.5	5.4	12.3	9.5	2.7	0.4	0.2
8		12.0	132.8	302.5	234.7	69.1	2.9	1.5
9		36.1	398.4	907.6	704.0	207.3	8.8	4.4
10		2.5	27.8	63.3	48.5	14.5	1.3	0.6
11		0.6	6.2	14.0	10.7	3.1	0.4	0.2
12		1.0	10.9	24.9	19.1	5.5	0.7	0.4
13		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		70.0	773.0	1,761.0	1,363.4	400.9	20.8	10.38

\* Includes Additions of MSR Capacity Additions

Central Station PV		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.0	0.8	9.3	8.6	2.5	5.7	2.8
2		0.0	0.5	3.4	2.2	0.4	2.6	1.3
3		0.0	2.0	8.7	7.2	2.2	4.4	2.2
4		0.0	0.5	2.0	0.9	0.1	1.3	0.6
5		0.0	0.0	1.3	1.9	0.6	0.7	0.4
6		0.0	1.4	1.8	0.0	0.0	0.6	0.3
7		0.0	1.1	1.4	0.0	0.0	0.9	0.4
8		0.0	0.0	12.2	14.3	4.5	7.2	3.6
9		0.0	0.0	36.6	43.0	13.4	21.5	10.7
10		0.0	0.5	4.2	3.5	0.9	3.1	1.5
11		0.0	0.0	1.1	1.7	0.9	1.5	0.7
12		0.0	0.0	1.1	1.2	0.8	1.8	0.9
13		0.0	0.0	1.4	3.0	1.4	1.4	0.7
Total		0.0	6.9	84.4	87.4	27.9	52.6	26.31

\* Includes Subtractions of NEMS "Floor" Capacity Additions

Concentrator PV		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.0	1.3	8.6	10.4	6.3	3.6	1.8
2		0.0	1.5	3.5	3.6	2.2	1.9	0.9
3		0.0	1.3	7.7	8.3	5.0	2.8	1.4
4		0.0	0.0	1.8	1.5	1.0	0.9	0.4
5		0.0	0.0	1.4	2.2	1.2	0.5	0.3
6		0.0	0.0	1.3	0.2	0.3	0.4	0.2
7		0.0	0.0	1.2	0.4	0.5	0.6	0.3
8		0.0	2.7	11.4	15.9	9.2	4.5	2.3
9		0.0	8.0	34.1	47.8	27.7	13.5	6.8
10		0.0	1.5	4.4	5.1	3.1	2.2	1.1
11		0.0	0.0	0.9	2.3	1.7	1.1	0.6
12		0.0	0.0	1.5	2.0	1.7	1.4	0.7
13		0.0	0.0	0.0	3.4	2.2	1.0	0.5
Total		0.0	16.4	77.7	103.1	62.0	34.4	17.19

08/11/03

## Appendix C: Capacity Installed by NEMS region (MW) - cont.

Wind - Class 5- dropped		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		0.0	0.0	0.0	0.0	0.0	0.0	0.0
2		0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		0.0	0.0	0.0	0.0	0.0	0.0	0.0
4		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5		0.0	0.0	0.0	0.0	0.0	0.0	0.0
6		0.0	0.0	0.0	0.0	0.0	0.0	0.0
7		0.0	0.0	0.0	0.0	0.0	0.0	0.0
8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
10		0.0	0.0	0.0	0.0	0.0	0.0	0.0
11		0.0	0.0	0.0	0.0	0.0	0.0	0.0
12		0.0	0.0	0.0	0.0	0.0	0.0	0.0
13		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		0.0	0.0	0.0	0.0	0.0	0.0	0.00

Wind - Class 4 and Class 6 Avg		2005	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
1		31.2	267.4	299.3	125.7	67.3	43.6	21.8
2		11.9	139.0	165.7	83.5	41.6	27.2	13.6
3		59.1	299.7	221.0	16.1	17.5	18.4	9.2
4		19.2	164.9	184.6	77.5	41.5	26.9	13.4
5		1.6	37.8	99.1	76.9	35.4	11.6	5.8
6		39.4	199.8	147.3	10.7	11.6	12.3	6.1
7		31.9	185.1	133.6	22.2	20.8	20.1	10.0
8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
10		11.9	157.4	229.1	136.8	65.8	34.4	17.2
11		2.1	35.2	68.6	56.9	32.8	15.8	7.9
12		3.7	33.1	57.7	38.0	25.9	16.6	8.3
13		0.0	49.7	108.4	106.6	54.7	19.3	9.6
Total		212.0	1,569.0	1,714.4	751.0	414.8	246.0	123.02

## Appendix D: Green Power Market Assumptions

From: Swezey, Blair, R. Wiser, M. Bolinger, and E. Holt. 2001. Growing the Green Power Market: forecasting the Impacts of Customer Demand for Renewable Energy. National Renewable Energy Laboratory, US Department of Energy. NREL/TP-620-30101 LBNL-48611)

Table 1- Pace of Restructuring- IOU's

Census Region/State	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no Firm date	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Pace of Restructuring in IOU's - assumes all states already open to deregulation remain open - high growth assumes- states not already deregulated will continue on schedule -Fast States (50% to 100% in 2 yrs) and Slow States (20% to 100% in 5yrs) Current Conditions						
				Actual (1998)			2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>													
Connecticut	7/1/2000	Year_01		38,769	90%	100%							
Maine	3/1/2000	Year_01		10,935	96%	28%	100%	100%	100%	100%	100%	100%	100%
Massachusetts	3/1/1998	Year_03		3,589	96%	9%	100%	100%	100%	100%	100%	100%	100%
New_Hampshire	5/1/2001	Year_00		16,388	85%	42%	100%	100%	100%	100%	100%	100%	100%
Rhode Island	1/1/1998	Year_03		3,384	88%	9%	0%	100%	100%	100%	100%	100%	100%
Vermont	1/1/2008	Year_00	Fast	2,522	99%	7%	100%	100%	100%	100%	100%	100%	100%
				1,951	78%	5%	0%	0%	100%	100%	100%	100%	100%
<b><u>Middle Atlantic</u></b>													
New Jersey	#####	Year_01		104,788	91%	100%							
New York	7/1/2001	Year_00		23,191	98%	22%	100%	100%	100%	100%	100%	100%	100%
Pennsylvania	1/1/1999	Year_02		40,240	84%	38%	0%	100%	100%	100%	100%	100%	100%
				41,358	95%	39%	67%	100%	100%	100%	100%	100%	100%
<b><u>East North Central</u></b>													
Illinois	5/1/2002	Year_00		160,431	84%	100%							
Indiana	1/1/2008	Year_00	Fast	39,685	88%	25%	0%	100%	100%	100%	100%	100%	100%
Michigan	1/1/2002	Year_00		27,334	73%	17%	0%	0%	100%	100%	100%	100%	100%
Ohio	1/1/2001	Year_00		29,808	89%	19%	0%	100%	100%	100%	100%	100%	100%
Wisconsin	1/1/2008	Year_00	Fast	44,516	86%	28%	0%	100%	100%	100%	100%	100%	100%
				19,087	80%	12%	0%	0%	100%	100%	100%	100%	100%
<b><u>West North Central</u></b>													
Iowa	1/1/2008	Year_00	Slow	84,066	55%	100%							
Kansas	1/1/2008	Year_00	Slow	11,855	65%	14%	0%	0%	60%	100%	100%	100%	100%
Minnesota	1/1/2008	Year_00	Slow	11,832	73%	14%	0%	0%	60%	100%	100%	100%	100%
Missouri	1/1/2008	Year_00	Slow	17,378	51%	21%	0%	0%	60%	100%	100%	100%	100%
Nebraska	1/1/2008	Year_00	Slow	28,265	63%	34%	0%	0%	60%	100%	100%	100%	100%
North Dakota	1/1/2008	Year_00	Slow	8,160	0%	10%	0%	0%	60%	100%	100%	100%	100%
South Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0%	0%	60%	100%	100%	100%	100%
				3,303	44%	4%	0%	0%	60%	100%	100%	100%	100%
<b><u>South Atlantic</u></b>													
Delaware	4/1/2001	Year_00		274,833	72%	100%							
District of Columbia	1/1/2001	Year_00		3,339	71%	1%	0%	100%	100%	100%	100%	100%	100%
Florida	1/1/2008	Year_00	Slow	1,596	100%	1%	0%	100%	100%	100%	100%	100%	100%
Georgia	1/1/2008	Year_00	Slow	95,768	77%	35%	0%	0%	60%	100%	100%	100%	100%
Maryland	7/1/2000	Year_01		41,519	51%	15%	0%	0%	60%	100%	100%	100%	100%
North Carolina	1/1/2008	Year_00	Slow	22,407	90%	8%	33%	100%	100%	100%	100%	100%	100%
South Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0%	0%	60%	100%	100%	100%	100%
Virginia	1/1/2008	Year_00		23,558	57%	9%	0%	0%	60%	100%	100%	100%	100%
West Virginia	1/1/2004	Year_00		34,703	83%	13%	0%	100%	100%	100%	100%	100%	100%
				9,053	99%	3%	0%	0%	60%	100%	100%	100%	100%
<b><u>East South Central</u></b>													
Alabama	1/1/2008	Year_00	Slow	100,817	35%	100%							
Kentucky	1/1/2008	Year_00	Slow	27,327	58%	27%	0%	0%	60%	100%	100%	100%	100%
Mississippi	1/1/2008	Year_00	Slow	21,669	54%	21%	0%	0%	60%	100%	100%	100%	100%
Tennessee	1/1/2008	Year_00	Slow	16,392	43%	16%	0%	0%	60%	100%	100%	100%	100%
				35,428	2%	35%	0%	0%	60%	100%	100%	100%	100%
<b><u>West South Central</u></b>													
Arkansas	#####	Year_00		170,993	71%	100%							
Louisiana	1/1/2008	Year_00	Slow	14,339	58%	8%	0%	0%	100%	100%	100%	100%	100%
Oklahoma	1/1/2008	Year_00	Slow	26,709	76%	16%	0%	0%	60%	100%	100%	100%	100%
Texas	1/1/2002	Year_00		19,511	68%	11%	0%	0%	60%	100%	100%	100%	100%
				110,434	72%	65%	0%	100%	100%	100%	100%	100%	100%
<b><u>Mountain</u></b>													
Arizona	1/1/2001	Year_00		64,980	80%	100%							
Colorado	1/1/2008	Year_00	Slow	21,611	94%	33%	0%	100%	100%	100%	100%	100%	100%
Idaho	1/1/2008	Year_00	Slow	12,652	57%	19%	0%	0%	60%	100%	100%	100%	100%
Montana	7/1/2004	Year_00		6,610	82%	10%	0%	0%	60%	100%	100%	100%	100%
Nevada	1/1/2008	Year_00	Slow	3,722	63%	6%	0%	100%	100%	100%	100%	100%	100%
New Mexico	1/1/2008	Year_00		7,975	94%	12%	0%	0%	60%	100%	100%	100%	100%
Utah	1/1/2008	Year_00	Slow	4,642	74%	7%	0%	0%	100%	100%	100%	100%	100%
Wyoming	1/1/2008	Year_00	Slow	5,756	75%	9%	0%	0%	60%	100%	100%	100%	100%
				2,013	58%	3%	0%	0%	60%	100%	100%	100%	100%
<b><u>Pacific</u></b>													
California	1/1/2008	Year_00	Fast	128,059	67%	100%							
Oregon	1/1/2008	Year_00	Slow	74,792	78%	58%	0%	0%	100%	100%	100%	100%	100%
Washington	1/1/2008	Year_00	Slow	17,496	71%	14%	0%	0%	60%	100%	100%	100%	100%
Alaska	1/1/2008	Year_00	Slow	31,362	41%	24%	0%	0%	60%	100%	100%	100%	100%
Hawaii	1/1/2008	Year_00	Slow	1,768	9%	1%	0%	0%	60%	100%	100%	100%	100%
				2,641	100%	2%	0%	0%	60%	100%	100%	100%	100%

## Appendix D: Green Power Market Assumptions (cont.)

Table 2- Pace of Restructuring- Public

Census Region/State	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no Firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh) Actual (1998)	% of sales to IOU	% of region's electricity use	Pace of Restructuring in Public						
							- All States assumed at 2.5% (in 3rd yr after IOU opens) increasing to 20% in 10th yr Current Conditions						
	2000	2005	2010	2015	2020	2025	2030						
<b><u>New England</u></b>				38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%	0.0%	10.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Maine	3/1/2000	Year_01		3,589	96%	9%	0.0%	10.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	2.5%	15.0%	20.0%	20.0%	20.0%	20.0%	20.0%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%	20.0%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	2.5%	15.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	0.0%	10.0%	20.0%	20.0%	20.0%	20.0%	20.0%
New York	7/1/2001	Year_00		40,240	84%	38%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%	20.0%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	0.0%	12.5%	20.0%	20.0%	20.0%	20.0%	20.0%
<b><u>East North Central</u></b>				160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0.0%	5.0%	17.5%	20.0%	20.0%	20.0%	20.0%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Michigan	1/1/2002	Year_00		29,808	89%	19%	0.0%	5.0%	17.5%	20.0%	20.0%	20.0%	20.0%
Ohio	1/1/2001	Year_00		44,516	86%	28%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%	20.0%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
<b><u>West North Central</u></b>				84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
<b><u>South Atlantic</u></b>				274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%	20.0%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%	20.0%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Maryland	7/1/2000	Year_01		22,407	90%	8%	0.0%	10.0%	20.0%	20.0%	20.0%	20.0%	20.0%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Virginia	1/1/2004	Year_00		34,703	83%	13%	0.0%	0.0%	12.5%	20.0%	20.0%	20.0%	20.0%
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
<b><u>East South Central</u></b>				100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
<b><u>West South Central</u></b>				170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0.0%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Texas	1/1/2002	Year_00		110,434	72%	65%	0.0%	5.0%	17.5%	20.0%	20.0%	20.0%	20.0%
<b><u>Mountain</u></b>				64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0.0%	7.5%	20.0%	20.0%	20.0%	20.0%	20.0%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Montana	7/1/2004	Year_00		3,722	63%	6%	0.0%	0.0%	12.5%	20.0%	20.0%	20.0%	20.0%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
<b><u>Pacific</u></b>				128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0.0%	0.0%	2.5%	15.0%	20.0%	20.0%	20.0%

## Appendix D: Green Power Market Assumptions (cont.)

Table 3- Percentage of Market Deregulated (Competitive % of all market)

Census Region/State	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh)	% of sales to IOU	% of region's electricity use	Percentage of Market Deregulated (Competitive % of all market) -calculated as (% restructured IOU * IOU %) + (% restructured public * (1- IOU%))						
	Current Conditions						2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%							
Maine	3/1/2000	Year_01		3,589	96%	9%	96%	96%	97%	97%	97%	97%	97%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	86%	88%	88%	88%	88%	88%	88%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0%	89%	90%	90%	90%	90%	90%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	99%	99%	99%	99%	99%	99%	99%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0%	0%	79%	82%	83%	83%	83%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	98%	98%	98%	98%	98%	98%	98%
New York	7/1/2001	Year_00		40,240	84%	38%	0%	85%	87%	87%	87%	87%	87%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	63%	96%	96%	96%	96%	96%	96%
<b><u>East North Central</u></b>				160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0%	89%	90%	91%	91%	91%	91%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0%	0%	73%	77%	78%	78%	78%
Michigan	1/1/2002	Year_00		29,808	89%	19%	0%	90%	91%	91%	91%	91%	91%
Ohio	1/1/2001	Year_00		44,516	86%	28%	0%	87%	89%	89%	89%	89%	89%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0%	0%	81%	83%	84%	84%	84%
<b><u>West North Central</u></b>				84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0%	0%	40%	71%	72%	72%	72%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0%	0%	44%	77%	78%	78%	78%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0%	0%	32%	58%	61%	61%	61%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0%	0%	39%	69%	70%	70%	70%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0%	0%	3%	15%	20%	20%	20%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0%	0%	31%	57%	60%	60%	60%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0%	0%	28%	52%	55%	55%	55%
<b><u>South Atlantic</u></b>				274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0%	73%	77%	77%	77%	77%	77%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0%	100%	100%	100%	100%	100%	100%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0%	0%	47%	80%	82%	82%	82%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0%	0%	32%	58%	61%	61%	61%
Maryland	7/1/2000	Year_01		22,407	90%	8%	30%	91%	92%	92%	92%	92%	92%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0%	0%	41%	72%	74%	74%	74%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0%	0%	35%	64%	66%	66%	66%
Virginia	1/1/2004	Year_00		34,703	83%	13%	0%	83%	85%	86%	86%	86%	86%
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0%	0%	59%	99%	99%	99%	99%
<b><u>East South Central</u></b>				100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0%	0%	36%	64%	66%	66%	66%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0%	0%	33%	61%	63%	63%	63%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0%	0%	27%	52%	54%	54%	54%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0%	0%	4%	17%	21%	21%	21%
<b><u>West South Central</u></b>				170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0%	0%	61%	66%	66%	66%	66%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0%	0%	46%	79%	81%	81%	81%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0%	0%	41%	72%	74%	74%	74%
Texas	1/1/2002	Year_00		110,434	72%	65%	0%	73%	77%	78%	78%	78%	78%
<b><u>Mountain</u></b>				64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0%	94%	95%	95%	95%	95%	95%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0%	0%	35%	64%	66%	66%	66%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0%	0%	50%	85%	86%	86%	86%
Montana	7/1/2004	Year_00		3,722	63%	6%	0%	63%	68%	71%	71%	71%	71%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0%	0%	56%	95%	95%	95%	95%
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0%	0%	75%	78%	79%	79%	79%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0%	0%	46%	79%	80%	80%	80%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0%	0%	36%	64%	66%	66%	66%
<b><u>Pacific</u></b>				128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0%	0%	78%	81%	82%	82%	82%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0%	0%	43%	75%	77%	77%	77%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0%	0%	26%	50%	53%	53%	53%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0%	0%	8%	23%	27%	27%	27%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0%	0%	60%	100%	100%	100%	100%

Table 4- Regional Percentage of Market Deregulated (Competitive % of all market)

Census Region/State	Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh)	% of sales to IOU	% of region's electricity use	Regional Percentage of Market Deregulated (Competitive % of all market) -calculated as (% restructured IOU * IOU %) + (% restructured public * (1- IOU%))						
	Current Conditions						2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%		79%	87%	92%	92%	92%	92%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%		47%	92%	93%	93%	93%	93%
<b><u>East North Central</u></b>				160,431	84%	100%		0%	63%	86%	87%	87%	87%
<b><u>West North Central</u></b>				84,066	55%	100%		0%	0%	34%	62%	64%	64%
<b><u>South Atlantic</u></b>				274,833	72%	100%		2%	19%	52%	77%	78%	78%
<b><u>East South Central</u></b>				100,817	35%	100%		0%	0%	23%	45%	48%	48%
<b><u>S.Atl + ES Central</u></b>				375,650	62%	100%		2%	14%	44%	68%	70%	70%
<b><u>West South Central</u></b>				170,993	71%	100%		0%	47%	67%	76%	77%	77%
<b><u>Mountain</u></b>				64,980	80%	100%		0%	35%	65%	83%	84%	84%
<b><u>Pacific</u></b>				128,059	67%	100%		0%	0%	59%	72%	74%	74%

## Appendix D: Green Power Market Assumptions (cont.)

Table 5- Access to Green Power - Competitive Markets

Census Region/State	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no Firm date	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Access to Green Power- Competitive % - calculated as (% of IOU open*% of power that is IOU) +(% of public deregualted**% of power that is public) * 100% of open has access to GP -assumes 100% constant in all open markets Current Conditions							
							2000	2005	2010	2015	2020	2025	2030	
<b><u>New England</u></b>				38,769	90%	100%								
Connecticut	7/1/2000	Year_01		10,935	96%	28%	96%	96%	97%	97%	97%	97%	97%	
Maine	3/1/2000	Year_01		3,589	96%	9%	96%	96%	97%	97%	97%	97%	97%	
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	86%	88%	88%	88%	88%	88%	88%	
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0%	89%	90%	90%	90%	90%	90%	
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	99%	99%	99%	99%	99%	99%	99%	
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0%	0%	79%	82%	83%	83%	83%	
<b><u>Middle Atlantic</u></b>				104,788	91%	100%								
New Jersey	#####	Year_01		23,191	98%	22%	98%	98%	98%	98%	98%	98%	98%	
New York	7/1/2001	Year_00		40,240	84%	38%	0%	85%	87%	87%	87%	87%	87%	
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	63%	96%	96%	96%	96%	96%	96%	
<b><u>East North Central</u></b>				160,431	84%	100%								
Illinois	5/1/2002	Year_00		39,685	88%	25%	0%	89%	90%	91%	91%	91%	91%	
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0%	0%	73%	77%	78%	78%	78%	
Michigan	1/1/2002	Year_00		29,808	89%	19%	0%	90%	91%	91%	91%	91%	91%	
Ohio	1/1/2001	Year_00		44,516	86%	28%	0%	87%	89%	89%	89%	89%	89%	
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0%	0%	81%	83%	84%	84%	84%	
<b><u>West North Central</u></b>				84,066	55%	100%								
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0%	0%	40%	71%	72%	72%	72%	
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0%	0%	44%	77%	78%	78%	78%	
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0%	0%	32%	58%	61%	61%	61%	
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0%	0%	39%	69%	70%	70%	70%	
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0%	0%	3%	15%	20%	20%	20%	
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0%	0%	31%	57%	60%	60%	60%	
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0%	0%	28%	52%	55%	55%	55%	
<b><u>South Atlantic</u></b>				274,833	72%	100%								
Delaware	4/1/2001	Year_00		3,339	71%	1%	0%	73%	77%	77%	77%	77%	77%	
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0%	100%	100%	100%	100%	100%	100%	
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0%	0%	47%	80%	82%	82%	82%	
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0%	0%	32%	58%	61%	61%	61%	
Maryland	7/1/2000	Year_01		22,407	90%	8%	30%	91%	92%	92%	92%	92%	92%	
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0%	0%	41%	72%	74%	74%	74%	
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0%	0%	35%	64%	66%	66%	66%	
Virginia	1/1/2004	Year_00		34,703	83%	13%	0%	83%	85%	86%	86%	86%	86%	
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0%	0%	59%	99%	99%	99%	99%	
<b><u>East South Central</u></b>				100,817	35%	100%								
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0%	0%	36%	64%	66%	66%	66%	
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0%	0%	33%	61%	63%	63%	63%	
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0%	0%	27%	52%	54%	54%	54%	
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0%	0%	4%	17%	21%	21%	21%	
<b><u>West South Central</u></b>				170,993	71%	100%								
Arkansas	#####	Year_00		14,339	58%	8%	0%	0%	61%	66%	66%	66%	66%	
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0%	0%	46%	79%	81%	81%	81%	
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0%	0%	41%	72%	74%	74%	74%	
Texas	1/1/2002	Year_00		110,434	72%	65%	0%	73%	77%	78%	78%	78%	78%	
<b><u>Mountain</u></b>				64,980	80%	100%								
Arizona	1/1/2001	Year_00		21,611	94%	33%	0%	94%	95%	95%	95%	95%	95%	
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0%	0%	35%	64%	66%	66%	66%	
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0%	0%	50%	85%	86%	86%	86%	
Montana	7/1/2004	Year_00		3,722	63%	6%	0%	63%	68%	71%	71%	71%	71%	
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0%	0%	56%	95%	95%	95%	95%	
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0%	0%	75%	78%	79%	79%	79%	
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0%	0%	46%	79%	80%	80%	80%	
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0%	0%	36%	64%	66%	66%	66%	
<b><u>Pacific</u></b>				128,059	67%	100%								
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0%	0%	78%	81%	82%	82%	82%	
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0%	0%	43%	75%	77%	77%	77%	
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0%	0%	26%	50%	53%	53%	53%	
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0%	0%	8%	23%	27%	27%	27%	
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0%	0%	60%	100%	100%	100%	100%	

Table 6- Access to Green Power - Regional Competitive

Census Region/State	Case-Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Access to Green Power- Regional Competitive							
							Current Conditions							
					Actual (1998)			2000	2005	2010	2015	2020	2025	2030
<u>New England</u>					38,769	90%	100%	79%	87%	92%	92%	92%	92%	92%
<u>Middle Atlantic</u>					104,788	91%	100%	47%	92%	93%	93%	93%	93%	93%
<u>East North Central</u>					160,431	84%	100%	0%	63%	86%	87%	87%	87%	87%
<u>West North Central</u>					84,066	55%	100%	0%	0%	34%	62%	64%	64%	64%
<u>South Atlantic</u>					274,833	72%	100%	2%	19%	52%	77%	78%	78%	78%
<u>East South Central</u>					100,817	35%	100%	0%	0%	23%	45%	48%	48%	48%
<u>S.Atl + ES Central</u>					375,650	62%	100%	2%	14%	44%	68%	70%	70%	70%
<u>West South Central</u>					170,993	71%	100%	0%	47%	67%	76%	77%	77%	77%
<u>Mountain</u>					64,980	80%	100%	0%	35%	65%	83%	84%	84%	84%
<u>Pacific</u>					128,059	67%	100%	0%	0%	59%	72%	74%	74%	74%

## Appendix D: Green Power Market Assumptions (cont.)

Table 7- Access to Green Power - Regulated Markets

Table 7 - Access to Green Power - Regulated Markets							Access to Green Power- Regulated (as a % of All customers)									
Census Region/State	FY05 Case-Specific	Model Year in 2000	Fast vs. Slow	Residential Total Sales EIA Table 14	%	%	- calculated as (1-% market deregulated) * % of regulated with access to GP -% of regulated with access to GP is increasing from 10% (2001) to 55% (2010) over ten years for both IOU and Public customers									
	Direct Access		for states with no	(10^6 kWh)	of sales to IOU	of region's electricity use	Current Conditions									
	Date		firm date	Actual (1998)			2000	2005	2010	2015	2020	2025	2030			
<b><u>New England</u></b>							38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%	0%	1%	2%	2%	2%	2%	2%			
Maine	3/1/2000	Year_01		3,589	96%	9%	0%	1%	2%	2%	2%	2%	2%			
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	0%	4%	6%	6%	6%	6%	6%			
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0%	3%	5%	5%	5%	5%	5%			
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	0%	0%	0%	0%	0%	0%	0%			
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0%	30%	12%	10%	10%	10%	10%			
<b><u>Middle Atlantic</u></b>							104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	0%	1%	1%	1%	1%	1%	1%			
New York	7/1/2001	Year_00		40,240	84%	38%	0%	4%	7%	7%	7%	7%	7%			
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	0%	1%	2%	2%	2%	2%	2%			
<b><u>East North Central</u></b>							160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0%	3%	5%	5%	5%	5%	5%			
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0%	30%	15%	13%	12%	12%	12%			
Michigan	1/1/2002	Year_00		29,808	89%	19%	0%	3%	5%	5%	5%	5%	5%			
Ohio	1/1/2001	Year_00		44,516	86%	28%	0%	4%	6%	6%	6%	6%	6%			
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0%	30%	11%	9%	9%	9%	9%			
<b><u>West North Central</u></b>							84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0%	30%	33%	16%	15%	15%	15%			
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0%	30%	31%	13%	12%	12%	12%			
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0%	30%	38%	23%	22%	22%	22%			
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0%	30%	34%	17%	16%	16%	16%			
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0%	30%	54%	47%	44%	44%	44%			
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0%	30%	38%	23%	22%	22%	22%			
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0%	30%	40%	26%	25%	25%	25%			
<b><u>South Atlantic</u></b>							274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0%	8%	13%	13%	13%	13%	13%			
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0%	0%	0%	0%	0%	0%	0%			
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0%	30%	29%	11%	10%	10%	10%			
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0%	30%	38%	23%	22%	22%	22%			
Maryland	7/1/2000	Year_01		22,407	90%	8%	0%	3%	4%	4%	4%	4%	4%			
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0%	30%	32%	15%	14%	14%	14%			
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0%	30%	36%	20%	19%	19%	19%			
Virginia	1/1/2004	Year_00		34,703	83%	13%	0%	5%	8%	7%	7%	7%	7%			
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0%	30%	22%	0%	0%	0%	0%			
<b><u>East South Central</u></b>							100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0%	30%	35%	20%	19%	19%	19%			
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0%	30%	37%	22%	20%	20%	20%			
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0%	30%	40%	27%	25%	25%	25%			
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0%	30%	53%	46%	43%	43%	43%			
<b><u>West South Central</u></b>							170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0%	30%	22%	19%	19%	19%	19%			
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0%	30%	30%	11%	11%	11%	11%			
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0%	30%	32%	15%	14%	14%	14%			
Texas	1/1/2002	Year_00		110,434	72%	65%	0%	8%	13%	12%	12%	12%	12%			
<b><u>Mountain</u></b>							64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0%	2%	3%	3%	3%	3%	3%			
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0%	30%	36%	20%	19%	19%	19%			
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0%	30%	28%	8%	8%	8%	8%			
Montana	7/1/2004	Year_00		3,722	63%	6%	0%	11%	18%	16%	16%	16%	16%			
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0%	30%	24%	3%	3%	3%	3%			
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0%	30%	14%	12%	11%	11%	11%			
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0%	30%	30%	11%	11%	11%	11%			
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0%	30%	35%	20%	18%	18%	18%			
<b><u>Pacific</u></b>							128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0%	30%	12%	10%	10%	10%	10%			
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0%	30%	31%	14%	13%	13%	13%			
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0%	30%	41%	27%	26%	26%	26%			
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0%	30%	51%	42%	40%	40%	40%			
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0%	30%	22%	0%	0%	0%	0%			

Table 8- Regional Access to Green Power - Regulated

Census Region/State	Case-Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Regional Access to Green Power- Regulated						
				Actual (1998)			Current Conditions						
							2000	2005	2010	2015	2020	2025	2030
New England				38,769	90%	100%	0%	3.8%	4.5%	4.4%	4.4%	4.4%	4.4%
Middle Atlantic				104,788	91%	100%	0%	2.4%	3.8%	3.8%	3.8%	3.8%	3.8%
East North Central				160,431	84%	100%	0%	11.2%	7.8%	7.2%	7.0%	7.0%	7.0%
West North Central				84,066	55%	100%	0%	30.0%	36.3%	21.2%	19.9%	19.9%	19.9%
South Atlantic				274,833	72%	100%	0%	24.2%	26.3%	12.8%	12.1%	12.1%	12.1%
East South Central				100,817	35%	100%	0%	30.0%	42.6%	30.5%	28.7%	28.7%	28.7%
S. Atl + ES Central				375,650	62%	100%	0%	25.7%	30.6%	17.5%	16.6%	16.6%	16.6%
West South Central				170,993	71%	100%	0%	15.8%	18.3%	13.0%	12.8%	12.8%	12.8%
Mountain				64,980	80%	100%	0%	19.5%	19.3%	9.5%	9.0%	9.0%	9.0%
Pacific				128,059	67%	100%	0%	30.0%	22.3%	15.2%	14.3%	14.3%	14.3%

## Appendix D: Green Power Market Assumptions (cont.)

Table 9- Access to Green Power - Total

Table 9- Access to Green Power - Total							Access to Green Power- Total (Regulated + Competitive)							
FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use		= (table 5 * table 3 + (table 7)) : (access to GP in comp * % of market comp) + (access to GP in reg * % of market still reg)							
Census Region/State							% of All customers with opportunity to buy Green Power							
							Current Conditions	2000	2005	2010	2015	2020	2025	2030
New England				38,769	90%	100%								
Connecticut	7/1/2000	Year_01		10,935	96%	28%		92%	94%	95%	95%	95%	95%	95%
Maine	3/1/2000	Year_01		3,589	96%	9%		92%	94%	96%	96%	96%	96%	96%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%		74%	80%	84%	84%	84%	84%	84%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%		0%	82%	87%	87%	87%	87%	87%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%		98%	99%	99%	99%	99%	99%	99%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%		0%	30%	74%	77%	78%	78%	78%
Middle Atlantic				104,788	91%	100%								
New Jersey	#####	Year_01		23,191	98%	22%		96%	97%	98%	98%	98%	98%	98%
New York	7/1/2001	Year_00		40,240	84%	38%		0%	77%	83%	83%	83%	83%	83%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%		40%	93%	94%	94%	94%	94%	94%
East North Central				160,431	84%	100%								
Illinois	5/1/2002	Year_00		39,685	88%	25%		0%	82%	87%	87%	87%	87%	87%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%		0%	30%	68%	72%	73%	73%	73%
Michigan	1/1/2002	Year_00		29,808	89%	19%		0%	84%	88%	88%	88%	88%	88%
Ohio	1/1/2001	Year_00		44,516	86%	28%		0%	79%	85%	85%	85%	85%	85%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%		0%	30%	76%	78%	79%	79%	79%
West North Central				84,066	55%	100%								
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%		0%	30%	49%	66%	67%	67%	67%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%		0%	30%	50%	72%	73%	73%	73%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%		0%	30%	48%	57%	58%	58%	58%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%		0%	30%	49%	64%	66%	66%	66%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%		0%	30%	54%	49%	48%	48%	48%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%		0%	30%	48%	56%	58%	58%	58%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%		0%	30%	47%	54%	55%	55%	55%
South Atlantic				274,833	72%	100%								
Delaware	4/1/2001	Year_00		3,339	71%	1%		0%	61%	72%	72%	72%	72%	72%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%		0%	100%	100%	100%	100%	100%	100%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%		0%	30%	51%	76%	77%	77%	77%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%		0%	30%	48%	57%	58%	58%	58%
Maryland	7/1/2000	Year_01		22,407	90%	8%		9%	86%	89%	89%	89%	89%	89%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%		0%	30%	49%	67%	69%	69%	69%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%		0%	30%	48%	61%	62%	62%	62%
Virginia	1/1/2004	Year_00		34,703	83%	13%		0%	74%	81%	82%	82%	82%	82%
West Virginia	1/1/2008	Year_00		9,053	99%	3%		0%	30%	58%	99%	99%	99%	99%
East South Central				100,817	35%	100%								
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%		0%	30%	48%	61%	62%	62%	62%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%		0%	30%	48%	58%	60%	60%	60%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%		0%	30%	47%	53%	55%	55%	55%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%		0%	30%	53%	49%	48%	48%	48%
West South Central				170,993	71%	100%								
Arkansas	#####	Year_00		14,339	58%	8%		0%	30%	59%	62%	62%	62%	62%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%		0%	30%	51%	74%	76%	76%	76%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%		0%	30%	49%	68%	69%	69%	69%
Texas	1/1/2002	Year_00		110,434	72%	65%		0%	62%	72%	73%	73%	73%	73%
Mountain				64,980	80%	100%								
Arizona	1/1/2001	Year_00		21,611	94%	33%		0%	90%	93%	93%	93%	93%	93%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%		0%	30%	48%	61%	62%	62%	62%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%		0%	30%	52%	81%	82%	82%	82%
Montana	7/1/2004	Year_00		3,722	63%	6%		0%	51%	64%	66%	66%	66%	66%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%		0%	30%	56%	92%	93%	93%	93%
New Mexico	1/1/2008	Year_00		4,642	74%	7%		0%	30%	70%	73%	74%	74%	74%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%		0%	30%	51%	74%	75%	75%	75%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%		0%	30%	48%	61%	63%	63%	63%
Pacific				128,059	67%	100%								
California	1/1/2008	Year_00	Slow	74,792	78%	58%		0%	30%	73%	76%	77%	77%	77%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%		0%	30%	50%	70%	72%	72%	72%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%		0%	30%	47%	53%	54%	54%	54%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%		0%	30%	51%	48%	47%	47%	47%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%		0%	30%	58%	100%	100%	100%	100%

Table 10- Access to Green Power - All customers

Census Region/State	Case-Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Regional Access to Green Power- Total (Regulated + Competitive) % of all customers that are eligible for access to GP							
							Current Conditions							
	2000	2005	2010	2015	2020	2025	2030							
New England				38,769	90%	100%	72%	84%	89%	89%	89%	89%	89%	
Middle Atlantic				104,788	91%	100%	37%	88%	91%	91%	91%	91%	91%	
East North Central				160,431	84%	100%	0%	67%	82%	83%	83%	83%	83%	
West North Central				84,066	55%	100%	0%	30%	49%	62%	63%	63%	63%	
South Atlantic				274,833	72%	100%	1%	41%	58%	73%	74%	74%	74%	
East South Central				100,817	35%	100%	0%	30%	50%	55%	56%	56%	56%	
S.Atl + ES Central				375,650	62%	100%	1%	38%	56%	68%	69%	69%	69%	
West South Central				170,993	71%	100%	0%	51%	65%	71%	72%	72%	72%	
Mountain				64,980	80%	100%	0%	51%	67%	80%	80%	80%	80%	
Pacific				128,059	67%	100%	0%	30%	63%	70%	71%	71%	71%	

## Appendix D: Green Power Market Assumptions (cont.)

Table 11- Green Power Penetration as % of eligible Competitive customers

<u>Census Region/State</u>	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no Firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh)	% of sales to IOU	% of region's electricity use	Green Power Penetration as % of Eligible Competitive Customers - assumes 1% to 15% (over 15 yrs) increase for competitive customers - assume non-residential is a constant 25% of residential demand						
	Current Conditions						2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Maine	3/1/2000	Year_01		3,589	96%	9%	1.0%	6.0%	11.0%	15.0%	15.0%	15.0%	15.0%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	3.0%	8.0%	13.0%	15.0%	15.0%	15.0%	15.0%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	3.0%	8.0%	13.0%	15.0%	15.0%	15.0%	15.0%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	1.0%	6.0%	11.0%	15.0%	15.0%	15.0%	15.0%
New York	7/1/2001	Year_00		40,240	84%	38%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	2.0%	7.0%	12.0%	15.0%	15.0%	15.0%	15.0%
<b><u>East North Central</u></b>				160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0.0%	4.0%	9.0%	14.0%	15.0%	15.0%	15.0%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Michigan	1/1/2002	Year_00		29,808	89%	19%	0.0%	4.0%	9.0%	14.0%	15.0%	15.0%	15.0%
Ohio	1/1/2001	Year_00		44,516	86%	28%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>West North Central</u></b>				84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>South Atlantic</u></b>				274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Maryland	7/1/2000	Year_01		22,407	90%	8%	1.0%	6.0%	11.0%	15.0%	15.0%	15.0%	15.0%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Virginia	1/1/2004	Year_00		34,703	83%	13%	0.0%	2.0%	7.0%	12.0%	15.0%	15.0%	15.0%
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>East South Central</u></b>				100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>West South Central</u></b>				170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0.0%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Texas	1/1/2002	Year_00		110,434	72%	65%	0.0%	4.0%	9.0%	14.0%	15.0%	15.0%	15.0%
<b><u>Mountain</u></b>				64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Montana	7/1/2004	Year_00		3,722	63%	6%	0.0%	2.0%	7.0%	12.0%	15.0%	15.0%	15.0%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>Pacific</u></b>				128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%

Table 12- Regional Green Power Penetration as % of eligible Competitive customers

<u>Census Region/State</u>	Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh)	% of sales to IOU	% of region's electricity use	Regional Green Power Penetration as % of Eligible Competitive Customers calculated as sum of states' (GP pen % of elig comp customers * % of market comp * power sales)/(regional sales * regional % of market comp) * - 0 substituted in cell when denominator is 0						
	Current Conditions						2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%	1.7%	6.6%	11.2%	14.7%	14.9%	15.0%	15.0%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%	1.5%	6.1%	11.0%	15.0%	15.0%	15.0%	15.0%
<b><u>East North Central</u></b>				160,431	84%	100%	0.0%	4.4%	7.7%	12.7%	14.5%	15.0%	15.0%
<b><u>West North Central</u></b>				84,066	55%	100%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>South Atlantic</u></b>				274,833	72%	100%	1.0%	3.8%	5.2%	9.4%	13.5%	15.0%	15.0%
<b><u>East South Central</u></b>				100,817	35%	100%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%
<b><u>S Atl + ES Central</u></b>				375,650	62%	100%	1.0%	0.0%	4.9%	9.1%	13.4%	15.0%	15.0%
<b><u>West South Central</u></b>				170,993	71%	100%	0.0%	4.0%	7.6%	12.1%	14.5%	15.0%	15.0%
<b><u>Mountain</u></b>				64,980	80%	100%	0.0%	4.7%	6.6%	10.9%	13.9%	15.0%	15.0%
<b><u>Pacific</u></b>				128,059	67%	100%	0.0%	0.0%	3.0%	8.0%	13.0%	15.0%	15.0%

## Appendix D: Green Power Market Assumptions (cont.)

Table 13- Green Power Penetration as % of eligible Regulated customers

Census Region/State	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh)	% of sales to IOU	% of region's electricity use	Green Power Penetration as % of Eligible Regulated Customers - assumes .75% to 7.5% (over 10yrs) increase for Regulated customers - assume non-residential is a constant 25% of residential demand						
	Date			Actual (1998)			Current Conditions						
							2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%	0.75%	4.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Maine	3/1/2000	Year_01		3,589	96%	9%	0.75%	4.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	2.25%	6.00%	7.50%	7.50%	7.50%	7.50%	7.50%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%	7.50%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	2.25%	6.00%	7.50%	7.50%	7.50%	7.50%	7.50%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	0.75%	4.50%	7.50%	7.50%	7.50%	7.50%	7.50%
New York	7/1/2001	Year_00		40,240	84%	38%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%	7.50%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	1.50%	5.25%	7.50%	7.50%	7.50%	7.50%	7.50%
<b><u>East North Central</u></b>				160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0.00%	3.00%	6.75%	7.50%	7.50%	7.50%	7.50%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Michigan	1/1/2002	Year_00		29,808	89%	19%	0.00%	3.00%	6.75%	7.50%	7.50%	7.50%	7.50%
Ohio	1/1/2001	Year_00		44,516	86%	28%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%	7.50%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>West North Central</u></b>				84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>South Atlantic</u></b>				274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%	7.50%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%	7.50%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Maryland	7/1/2000	Year_01		22,407	90%	8%	0.75%	4.50%	7.50%	7.50%	7.50%	7.50%	7.50%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Virginia	1/1/2004	Year_00		34,703	83%	13%	0.00%	1.50%	5.25%	7.50%	7.50%	7.50%	7.50%
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>East South Central</u></b>				100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>West South Central</u></b>				170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0.00%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Texas	1/1/2002	Year_00		110,434	72%	65%	0.00%	3.00%	6.75%	7.50%	7.50%	7.50%	7.50%
<b><u>Mountain</u></b>				64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0.00%	3.75%	7.50%	7.50%	7.50%	7.50%	7.50%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Montana	7/1/2004	Year_00		3,722	63%	6%	0.00%	1.50%	5.25%	7.50%	7.50%	7.50%	7.50%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>Pacific</u></b>				128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%

Table 14- Regional Green Power Penetration as % of eligible Regulated customers

Census Region/State	Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow for states with no firm date	Residential Total Sales EIA Table 14 (10 <sup>6</sup> kWh)	% of sales to IOU	% of region's electricity use	Regional Green Power Penetration as % of Eligible Regulated Customers calculated as sum of states' (GP pen % of elig reg customers * (1-% of market comp) * power sales)/(regional sales * (1-regional % of market comp))						
	Date			Actual (1998)			Current Conditions						
							2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%	0.69%	3.29%	6.82%	7.33%	7.50%	7.50%	7.50%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%	0.41%	4.12%	7.50%	7.50%	7.50%	7.50%	7.50%
<b><u>East North Central</u></b>				160,431	84%	100%	0.00%	0.75%	4.73%	6.82%	7.50%	7.50%	7.50%
<b><u>West North Central</u></b>				84,066	55%	100%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>South Atlantic</u></b>				274,833	72%	100%	0.04%	0.10%	2.47%	6.17%	7.50%	7.50%	7.50%
<b><u>East South Central</u></b>				100,817	35%	100%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%
<b><u>S. Atl + ES Central</u></b>				375,650	62%	100%	0.03%	0.07%	2.39%	6.09%	7.50%	7.50%	7.50%
<b><u>West South Central</u></b>				170,993	71%	100%	0.00%	0.98%	4.41%	7.10%	7.50%	7.50%	7.50%
<b><u>Mountain</u></b>				64,980	80%	100%	0.00%	0.16%	2.66%	6.30%	7.50%	7.50%	7.50%
<b><u>Pacific</u></b>				128,059	67%	100%	0.00%	0.00%	2.25%	6.00%	7.50%	7.50%	7.50%

## Appendix D: Green Power Market Assumptions (cont.)

Table 15a- Regional Green Power Penetration as % of All eligible customers

Census Region/State	FY05 Case-Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no firm date	Residential			Green Power Penetration as % of All Eligible Customers calculated as (% penetration of eligible regulated*%access of regulated)+(% penetration of eligible competitive*% access of competitive) - (table 13*table 7) + (table 11* table 5)						
				Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Current Conditions						
				Actual (1998)			2000	2005	2010	2015	2020	2025	2030
<b>New England</b>				38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%	0.00%	4.86%	9.80%	14.63%	14.63%	14.63%	14.63%
Maine	3/1/2000	Year_01		3,589	96%	9%	0.96%	5.83%	10.78%	14.66%	14.66%	14.66%	14.66%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	2.57%	7.23%	11.96%	13.73%	13.73%	13.73%	13.73%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0.00%	4.57%	9.44%	13.96%	13.96%	13.96%	13.96%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	2.97%	7.95%	12.93%	14.92%	14.92%	14.92%	14.92%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0.00%	0.00%	2.63%	7.14%	11.47%	13.12%	13.12%
<b>Middle Atlantic</b>				104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	0.98%	5.92%	10.89%	14.82%	14.82%	14.82%	14.82%
New York	7/1/2001	Year_00		40,240	84%	38%	0.00%	4.42%	9.24%	13.60%	13.60%	13.60%	13.60%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	1.26%	6.76%	11.68%	14.56%	14.56%	14.56%	14.56%
<b>East North Central</b>				160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0.00%	3.65%	8.48%	13.06%	13.97%	13.97%	13.97%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0.00%	0.00%	2.53%	6.91%	11.06%	12.62%	12.62%
Michigan	1/1/2002	Year_00		29,808	89%	19%	0.00%	3.68%	8.53%	13.15%	14.06%	14.06%	14.06%
Ohio	1/1/2001	Year_00		44,516	86%	28%	0.00%	4.49%	9.33%	13.75%	13.75%	13.75%	13.75%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0.00%	0.00%	2.66%	7.20%	11.58%	13.26%	13.26%
<b>West North Central</b>				84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0.00%	0.00%	1.94%	6.62%	10.54%	11.99%	11.99%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0.00%	0.00%	2.02%	6.91%	11.06%	12.62%	12.62%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0.00%	0.00%	1.80%	6.03%	9.50%	10.71%	10.71%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0.00%	0.00%	1.92%	6.52%	10.37%	11.78%	11.78%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0.00%	0.00%	1.28%	4.01%	5.90%	6.30%	6.30%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0.00%	0.00%	1.79%	6.00%	9.44%	10.64%	10.64%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0.00%	0.00%	1.73%	5.76%	9.02%	10.13%	10.13%
<b>South Atlantic</b>				274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0.00%	3.95%	8.63%	12.46%	12.46%	12.46%	12.46%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0.00%	5.00%	10.00%	15.00%	15.00%	15.00%	15.00%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0.00%	0.00%	2.06%	7.08%	11.37%	13.00%	13.00%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0.00%	0.00%	1.79%	6.03%	9.49%	10.70%	10.70%
Maryland	7/1/2000	Year_01		22,407	90%	8%	0.30%	5.59%	10.46%	14.15%	14.15%	14.15%	14.15%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0.00%	0.00%	1.96%	6.69%	10.67%	12.14%	12.14%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0.00%	0.00%	1.86%	6.29%	9.97%	11.28%	11.28%
Virginia	1/1/2004	Year_00		34,703	83%	13%	0.00%	1.74%	6.39%	10.93%	13.52%	13.52%	13.52%
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0.00%	0.00%	2.29%	7.96%	12.93%	14.91%	14.91%
<b>East South Central</b>				100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0.00%	0.00%	1.87%	6.31%	10.00%	11.33%	11.33%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0.00%	0.00%	1.83%	6.16%	9.72%	10.98%	10.98%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0.00%	0.00%	1.72%	5.72%	8.95%	10.04%	10.04%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0.00%	0.00%	1.30%	4.08%	6.03%	6.46%	6.46%
<b>West South Central</b>				170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0.00%	0.00%	3.85%	8.01%	11.31%	11.31%	11.31%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0.00%	0.00%	2.05%	7.03%	11.27%	12.88%	12.88%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0.00%	0.00%	1.97%	6.71%	10.70%	12.18%	12.18%
Texas	1/1/2002	Year_00		110,434	72%	65%	0.00%	3.18%	7.78%	11.79%	12.56%	12.56%	12.56%
<b>Mountain</b>				64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0.00%	4.77%	9.70%	14.44%	14.44%	14.44%	14.44%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0.00%	0.00%	1.86%	6.29%	9.96%	11.28%	11.28%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0.00%	0.00%	2.12%	7.30%	11.76%	13.48%	13.48%
Montana	7/1/2004	Year_00		3,722	63%	6%	0.00%	1.43%	5.68%	9.69%	11.80%	11.80%	11.80%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0.00%	0.00%	2.23%	7.74%	12.55%	14.44%	14.44%
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0.00%	0.00%	2.56%	6.97%	11.18%	12.76%	12.76%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0.00%	0.00%	2.05%	7.02%	11.25%	12.86%	12.86%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0.00%	0.00%	1.87%	6.32%	10.02%	11.34%	11.34%
<b>Pacific</b>				128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0.00%	0.00%	2.62%	7.11%	11.42%	13.07%	13.07%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0.00%	0.00%	2.00%	6.84%	10.94%	12.48%	12.48%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0.00%	0.00%	1.70%	5.66%	8.84%	9.91%	9.91%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0.00%	0.00%	1.38%	4.38%	6.56%	7.11%	7.11%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0.00%	0.00%	2.30%	8.00%	13.00%	15.00%	15.00%

Table 15b- Regional Green Power Penetration as % of ALL eligible customers

Census Region/State	High Case (10^6 kWh)	Model Year in 2000	Base Year	Fast vs. Slow	Residential Total Sales EIA Table 14 (10^6 kWh)	% of sales to IOU	% of region's electricity use	Regional Green Power Penetration as % of Eligible Customers						
								* - 0 substituted in cell when denominator is 0						
			** delayed 2 yrs due to Low Case	for states with no firm date	Actual (1998)			Current Conditions						
			1/3/2001	firm date				2000	2005	2010	2015	2020	2025	2030
<b>New England</b>					38,769	90%	100%	1.49%	6.04%	10.66%	13.91%	14.10%	14.17%	14.17%
<b>Middle Atlantic</b>					104,788	91%	100%	1.10%	5.76%	10.64%	14.28%	14.28%	14.28%	14.28%
<b>East North Central</b>					160,431	84%	100%	0.00%	3.46%	7.25%	11.71%	13.22%	13.65%	13.65%
<b>West North Central</b>					84,066	55%	100%	0.00%	0.00%	1.83%	6.27%	9.93%	11.24%	11.24%
<b>South Atlantic</b>					274,833	72%	100%	0.30%	1.50%	4.01%	8.26%	11.63%	12.76%	12.76%
<b>East South Central</b>					100,817	35%	100%	0.00%	0.00%	1.62%	5.49%	8.57%	9.57%	9.57%
<b>S.Atif + ES Central</b>					375,650	62%	100%	0.30%	1.18%	3.44%	7.66%	10.97%	12.07%	12.07%
<b>West South Central</b>					170,993	71%	100%	0.00%	2.51%	6.28%	10.19%	12.06%	12.48%	12.48%
<b>Mountain</b>					64,980	80%	100%	0.00%	2.87%	5.80%	10.02%	12.51%	13.42%	13.42%
<b>Pacific</b>					128,059	67%	100%	0.00%	0.00%	2.36%	6.81%	10.88%	12.40%	12.40%

## Appendix D: Green Power Market Assumptions (cont.)

Table 16- Green Power Penetration as % of All Customers- Total (Regulated and Competitive)

Census Region/State	FY05 Case- Specific Direct Access Date	Model Year in 2000	Fast vs. Slow For states with no Firm date	Residential Total Sales			Green Power Penetration as % of All Customers- Total (Regulated and Competitive) - Calculated as 15a* Table 9						
				EIA Table 14 (10*6 kWh)	% of sales to IOU	% of region's electricity use	= penetration of GP as % of all eligible customers * % of all customers with access to green power - assume non-residential is a constant 25% of residential demand						
Current Conditions							2000	2005	2010	2015	2020	2025	2030
<b><u>New England</u></b>				38,769	90%	100%							
Connecticut	7/1/2000	Year_01		10,935	96%	28%	0.0%	4.5%	9.3%	13.9%	13.9%	13.9%	13.9%
Maine	3/1/2000	Year_01		3,589	96%	9%	0.9%	5.5%	10.3%	14.0%	14.0%	14.0%	14.0%
Massachusetts	3/1/1998	Year_03		16,388	85%	42%	1.9%	5.8%	10.1%	11.6%	11.6%	11.6%	11.6%
New_Hampshire	5/1/2001	Year_00		3,384	88%	9%	0.0%	3.8%	8.2%	12.2%	12.2%	12.2%	12.2%
Rhode Island	1/1/1998	Year_03		2,522	99%	7%	2.9%	7.8%	12.8%	14.8%	14.8%	14.8%	14.8%
Vermont	1/1/2008	Year_00	Fast	1,951	78%	5%	0.0%	0.0%	1.9%	5.5%	8.9%	10.2%	10.2%
<b><u>Middle Atlantic</u></b>				104,788	91%	100%							
New Jersey	#####	Year_01		23,191	98%	22%	0.9%	5.7%	10.6%	14.5%	14.5%	14.5%	14.5%
New York	7/1/2001	Year_00		40,240	84%	38%	0.0%	3.4%	7.7%	11.3%	11.3%	11.3%	11.3%
Pennsylvania	1/1/1999	Year_02		41,358	95%	39%	0.5%	6.3%	11.0%	13.7%	13.7%	13.7%	13.7%
<b><u>East North Central</u></b>				160,431	84%	100%							
Illinois	5/1/2002	Year_00		39,685	88%	25%	0.0%	3.0%	7.4%	11.4%	12.2%	12.2%	12.2%
Indiana	1/1/2008	Year_00	Fast	27,334	73%	17%	0.0%	0.0%	1.7%	5.0%	8.1%	9.2%	9.2%
Michigan	1/1/2002	Year_00		29,808	89%	19%	0.0%	3.1%	7.5%	11.6%	12.4%	12.4%	12.4%
Ohio	1/1/2001	Year_00		44,516	86%	28%	0.0%	3.6%	7.9%	11.7%	11.7%	11.7%	11.7%
Wisconsin	1/1/2008	Year_00	Fast	19,087	80%	12%	0.0%	0.0%	2.0%	5.6%	9.2%	10.5%	10.5%
<b><u>West North Central</u></b>				84,066	55%	100%							
Iowa	1/1/2008	Year_00	Slow	11,855	65%	14%	0.0%	0.0%	1.0%	4.4%	7.1%	8.1%	8.1%
Kansas	1/1/2008	Year_00	Slow	11,832	73%	14%	0.0%	0.0%	1.0%	5.0%	8.1%	9.2%	9.2%
Minnesota	1/1/2008	Year_00	Slow	17,378	51%	21%	0.0%	0.0%	0.9%	3.4%	5.5%	6.2%	6.2%
Missouri	1/1/2008	Year_00	Slow	28,265	63%	34%	0.0%	0.0%	0.9%	4.2%	6.8%	7.8%	7.8%
Nebraska	1/1/2008	Year_00	Slow	8,160	0%	10%	0.0%	0.0%	0.7%	2.0%	2.8%	3.0%	3.0%
North Dakota	1/1/2008	Year_00	Slow	3,272	50%	4%	0.0%	0.0%	0.9%	3.4%	5.5%	6.2%	6.2%
South Dakota	1/1/2008	Year_00	Slow	3,303	44%	4%	0.0%	0.0%	0.8%	3.1%	5.0%	5.8%	5.8%
<b><u>South Atlantic</u></b>				274,833	72%	100%							
Delaware	4/1/2001	Year_00		3,339	71%	1%	0.0%	2.4%	6.2%	8.9%	8.9%	8.9%	8.9%
District of Columbia	1/1/2001	Year_00		1,596	100%	1%	0.0%	5.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Florida	1/1/2008	Year_00	Slow	95,768	77%	35%	0.0%	0.0%	1.1%	5.3%	8.7%	10.0%	10.0%
Georgia	1/1/2008	Year_00	Slow	41,519	51%	15%	0.0%	0.0%	0.9%	3.4%	5.5%	6.2%	6.2%
Maryland	7/1/2000	Year_01		22,407	90%	8%	0.0%	4.8%	9.3%	12.6%	12.6%	12.6%	12.6%
North Carolina	1/1/2008	Year_00	Slow	42,890	67%	16%	0.0%	0.0%	1.0%	4.5%	7.3%	8.4%	8.4%
South Carolina	1/1/2008	Year_00	Slow	23,558	57%	9%	0.0%	0.0%	0.9%	3.8%	6.2%	7.0%	7.0%
Virginia	1/1/2004	Year_00		34,703	83%	13%	0.0%	1.3%	5.1%	9.0%	11.1%	11.1%	11.1%
West Virginia	1/1/2008	Year_00		9,053	99%	3%	0.0%	0.0%	1.3%	7.9%	12.8%	14.7%	14.7%
<b><u>East South Central</u></b>				100,817	35%	100%							
Alabama	1/1/2008	Year_00	Slow	27,327	58%	27%	0.0%	0.0%	0.9%	3.8%	6.2%	7.1%	7.1%
Kentucky	1/1/2008	Year_00	Slow	21,669	54%	21%	0.0%	0.0%	0.9%	3.6%	5.8%	6.6%	6.6%
Mississippi	1/1/2008	Year_00	Slow	16,392	43%	16%	0.0%	0.0%	0.8%	3.0%	4.9%	5.5%	5.5%
Tennessee	1/1/2008	Year_00	Slow	35,428	2%	35%	0.0%	0.0%	0.7%	2.0%	2.9%	3.1%	3.1%
<b><u>West South Central</u></b>				170,993	71%	100%							
Arkansas	#####	Year_00		14,339	58%	8%	0.0%	0.0%	2.3%	5.0%	7.1%	7.1%	7.1%
Louisiana	1/1/2008	Year_00	Slow	26,709	76%	16%	0.0%	0.0%	1.0%	5.2%	8.5%	9.7%	9.7%
Oklahoma	1/1/2008	Year_00	Slow	19,511	68%	11%	0.0%	0.0%	1.0%	4.5%	7.4%	8.4%	8.4%
Texas	1/1/2002	Year_00		110,434	72%	65%	0.0%	2.0%	5.6%	8.6%	9.1%	9.1%	9.1%
<b><u>Mountain</u></b>				64,980	80%	100%							
Arizona	1/1/2001	Year_00		21,611	94%	33%	0.0%	4.3%	9.0%	13.4%	13.4%	13.4%	13.4%
Colorado	1/1/2008	Year_00	Slow	12,652	57%	19%	0.0%	0.0%	0.9%	3.8%	6.2%	7.0%	7.0%
Idaho	1/1/2008	Year_00	Slow	6,610	82%	10%	0.0%	0.0%	1.1%	5.9%	9.6%	11.0%	11.0%
Montana	7/1/2004	Year_00		3,722	63%	6%	0.0%	0.7%	3.6%	6.4%	7.8%	7.8%	7.8%
Nevada	1/1/2008	Year_00	Slow	7,975	94%	12%	0.0%	0.0%	1.2%	7.2%	11.6%	13.4%	13.4%
New Mexico	1/1/2008	Year_00		4,642	74%	7%	0.0%	0.0%	1.8%	5.1%	8.3%	9.5%	9.5%
Utah	1/1/2008	Year_00	Slow	5,756	75%	9%	0.0%	0.0%	1.0%	5.2%	8.5%	9.7%	9.7%
Wyoming	1/1/2008	Year_00	Slow	2,013	58%	3%	0.0%	0.0%	0.9%	3.9%	6.3%	7.1%	7.1%
<b><u>Pacific</u></b>				128,059	67%	100%							
California	1/1/2008	Year_00	Slow	74,792	78%	58%	0.0%	0.0%	1.9%	5.4%	8.8%	10.1%	10.1%
Oregon	1/1/2008	Year_00	Slow	17,496	71%	14%	0.0%	0.0%	1.0%	4.8%	7.9%	9.0%	9.0%
Washington	1/1/2008	Year_00	Slow	31,362	41%	24%	0.0%	0.0%	0.8%	3.0%	4.8%	5.4%	5.4%
Alaska	1/1/2008	Year_00	Slow	1,768	9%	1%	0.0%	0.0%	0.7%	2.1%	3.1%	3.4%	3.4%
Hawaii	1/1/2008	Year_00	Slow	2,641	100%	2%	0.0%	0.0%	1.3%	8.0%	13.0%	15.0%	15.0%

## Appendix D: Green Power Market Assumptions (cont.)

Table 17a- Regional Green Power Penetration as % of All Customers- Total (Regulated and Competitive)

Census Region/State	Case-	Model	Fast	Residential			Regional Green Power Penetration as % of All Customers- Total (Regulated and Competitive)						
	SpeciFic	Year	vs.	Total Sales	%	%	- assume non-residential is a constant 25% of residential demand						
	Direct Access Date	in 2000	Slow For states with no Firm date	EIA Table 14 (10*6 kWh)	of sales to IOU	of region's electricity use							
Current Conditions							2000	2005	2010	2015	2020	2025	2030
<u>New England</u>				38,769	90%	100%	1.07%	5.09%	9.50%	12.42%	12.59%	12.65%	12.65%
<u>Middle Atlantic</u>				104,788	91%	100%	0.41%	5.05%	9.65%	12.96%	12.96%	12.96%	12.96%
<u>East North Central</u>				160,431	84%	100%	0.00%	2.30%	5.94%	9.72%	11.02%	11.37%	11.37%
<u>West North Central</u>				84,066	55%	100%	0.00%	0.00%	0.90%	3.87%	6.26%	7.09%	7.09%
<u>South Atlantic</u>				274,833	72%	100%	0.00%	0.61%	2.31%	6.03%	8.60%	9.44%	9.44%
<u>East South Central</u>				100,817	35%	100%	0.00%	0.00%	0.81%	3.01%	4.76%	5.31%	5.31%
<u>S.Atl + ES Central</u>				375,650	62%	100%	0.00%	0.45%	1.91%	5.22%	7.57%	8.33%	8.33%
<u>West South Central</u>				170,993	71%	100%	0.00%	1.27%	4.07%	7.27%	8.65%	8.96%	8.96%
<u>Mountain</u>				64,980	80%	100%	0.00%	1.47%	3.89%	7.98%	10.05%	10.78%	10.78%
<u>Pacific</u>				128,059	67%	100%	0.00%	0.00%	1.49%	4.75%	7.72%	8.80%	8.80%

Table 17b- (check) Regional Green Power Penetration as % of All Customers- Total (Regulated and Competitive)

Census Region/State	Case-	Model	Fast	Residential			Regional Green Power Penetration as % of All Customers- Total (Regulated and Competitive)						
	SpeciFic	Year	vs.	Total Sales	%	%	- Calculated as Table 15 * Table 10 (% penetration of all eligible customers * % of all customers with green power access)						
	Direct Access Date	in 2000	Slow For states with no Firm date	EIA Table 14 (10*6 kWh)	of sales to IOU	of region's electricity use							
Current Conditions							2000	2005	2010	2015	2020	2025	2030
<u>New England</u>				38,769	90%	100%	1.07%	5.09%	9.50%	12.42%	12.59%	12.65%	12.65%
<u>Middle Atlantic</u>				104,788	91%	100%	0.41%	5.05%	9.65%	12.96%	12.96%	12.96%	12.96%
<u>East North Central</u>				160,431	84%	100%	0.00%	2.30%	5.94%	9.72%	11.02%	11.37%	11.37%
<u>West North Central</u>				84,066	55%	100%	0.00%	0.00%	0.90%	3.87%	6.26%	7.09%	7.09%
<u>South Atlantic</u>				274,833	72%	100%	0.00%	0.61%	2.31%	6.03%	8.60%	9.44%	9.44%
<u>East South Central</u>				100,817	35%	100%	0.00%	0.00%	0.81%	3.01%	4.76%	5.31%	5.31%
<u>S.Atl + ES Central</u>				375,650	62%	100%	0.00%	0.45%	1.91%	5.22%	7.57%	8.33%	8.33%
<u>West South Central</u>				170,993	71%	100%	0.00%	1.27%	4.07%	7.27%	8.65%	8.96%	8.96%
<u>Mountain</u>				64,980	80%	100%	0.00%	1.47%	3.89%	7.98%	10.05%	10.78%	10.78%
<u>Pacific</u>				128,059	67%	100%	0.00%	0.00%	1.49%	4.75%	7.72%	8.80%	8.80%

## Appendix E: Regional Adjustments to Capacity Factors and Cost of Energy

	2000	2005	2010	2015	2020	2025	2030
<b>Direct-Fired Biomass</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
New England Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Mid. Atlantic Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
E. N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
W.N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
S. Atl. & E.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
W.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
	2000	2005	2010	2015	2020	2025	2030
<b>Biomass Gasification</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
New England Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Mid. Atlantic Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
E. N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
W.N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
S. Atl. & E.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
W.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%	80.00%
	2000	2005	2010	2015	2020	2025	2030
<b>Landfill Gas</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
New England Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
Mid. Atlantic Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
E. N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
W.N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
S. Atl. & E.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
W.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%

## Appendix E: Regional Adjustments to Capacity Factors and Cost of Energy (cont.)

	2000	2005	2010	2015	2020	2025	2030
<b>Flash Geothermal</b>							
National Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New England Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	92.00%	93.00%	95.00%	95.50%	96.00%	96.00%	96.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	92.00%	93.00%	95.00%	95.50%	96.00%	96.00%	96.00%
	2000	2005	2010	2015	2020	2025	2030
<b>Binary Geothermal</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	92.00%	93.00%	95.00%	95.50%	96.00%	96.00%	96.00%
New England Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	92.00%	93.00%	95.00%	95.50%	96.00%	96.00%	96.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	92.00%	93.00%	95.00%	95.50%	96.00%	96.00%	96.00%
	2000	2005	2010	2015	2020	2025	2030
<b>Hot Dry Rock</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	81.00%	82.00%	83.00%	84.00%	85.00%	85.00%	85.00%
New England Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	81.00%	82.00%	83.00%	84.00%	85.00%	85.00%	85.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	81.00%	82.00%	83.00%	84.00%	85.00%	85.00%	85.00%

## Appendix E: Regional Adjustments to Capacity Factors and Cost of Energy (cont.)

	2000	2005	2010	2015	2020	2025	2030
<b>CSP Trough</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	33.30%	41.70%	51.20%	51.20%	51.20%	51.20%	51.20%
New England Adjustment	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Cap Factor	23.03%	28.84%	35.41%	35.41%	35.41%	35.41%	35.41%
Mid. Atlantic Adjustment	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Cap Factor	23.42%	29.32%	36.00%	36.00%	36.00%	36.00%	36.00%
E. N. Central Adjustment	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Cap Factor	23.95%	29.99%	36.82%	36.82%	36.82%	36.82%	36.82%
W.N. Central Adjustment	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Cap Factor	27.07%	33.90%	41.62%	41.62%	41.62%	41.62%	41.62%
S. Atl. & E.S. Central Adjustment	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Cap Factor	25.05%	31.37%	38.52%	38.52%	38.52%	38.52%	38.52%
W.S. Central Adjustment	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Cap Factor	30.42%	38.09%	46.77%	46.77%	46.77%	46.77%	46.77%
Mountain Adjustment	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Cap Factor	32.71%	40.96%	50.29%	50.29%	50.29%	50.29%	50.29%
Pacific Adjustment	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Cap Factor	27.81%	34.82%	42.76%	42.76%	42.76%	42.76%	42.76%
	2000	2005	2010	2015	2020	2025	2030
<b>CSP Dish Hybrid</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%
New England Adjustment	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Cap Factor	45.28%	45.28%	45.28%	45.28%	45.28%	45.28%	45.28%
Mid. Atlantic Adjustment	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap Factor	45.95%	45.95%	45.95%	45.95%	45.95%	45.95%	45.95%
E. N. Central Adjustment	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Cap Factor	46.94%	46.94%	46.94%	46.94%	46.94%	46.94%	46.94%
W.N. Central Adjustment	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Cap Factor	53.23%	53.23%	53.23%	53.23%	53.23%	53.23%	53.23%
S. Atl. & E.S. Central Adjustment	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Cap Factor	49.08%	49.08%	49.08%	49.08%	49.08%	49.08%	49.08%
W.S. Central Adjustment	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Cap Factor	59.71%	59.71%	59.71%	59.71%	59.71%	59.71%	59.71%
Mountain Adjustment	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Cap Factor	64.28%	64.28%	64.28%	64.28%	64.28%	64.28%	64.28%
Pacific Adjustment	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Cap Factor	54.46%	54.46%	54.46%	54.46%	54.46%	54.46%	54.46%
	2000	2005	2010	2015	2020	2025	2030
<b>CSP - Solar Central Receiver</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	43.00%	44.00%	65.00%	71.00%	77.00%	77.00%	77.00%
New England Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Cap Factor	45.78%	46.84%	69.20%	75.59%	81.97%	81.97%	81.97%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Cap Factor	51.35%	52.54%	77.62%	84.78%	91.95%	91.95%	91.95%
Mountain Adjustment	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Cap Factor	55.28%	56.57%	83.57%	91.28%	99.00%	99.00%	99.00%
Pacific Adjustment	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Cap Factor	46.84%	47.92%	70.80%	77.33%	83.87%	83.87%	83.87%

## Appendix E: Regional Adjustments to Capacity Factors and Cost of Energy (cont.)

	2000	2005	2010	2015	2020	2025	2030
<b>CSP - Solar Central Receiver</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New England Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mountain Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pacific Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2000	2005	2010	2015	2020	2025	2030
<b>CSP Dish</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New England Adjustment	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S. Atl. & E.S. Central Adjustment	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mountain Adjustment	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pacific Adjustment	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

## Appendix E: Regional Adjustments to Capacity Factors and Cost of Energy (cont.)

	2000	2005	2010	2015	2020	2025	2030
<b>Residential PV (Neighborhood ownership)</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	20.50%	20.50%	20.50%	20.50%	20.50%	20.50%	20.50%
New England Adjustment	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap Factor	18.88%	18.88%	18.88%	18.88%	18.88%	18.88%	18.88%
Mid. Atlantic Adjustment	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Cap Factor	19.09%	19.09%	19.09%	19.09%	19.09%	19.09%	19.09%
E. N. Central Adjustment	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Cap Factor	19.37%	19.37%	19.37%	19.37%	19.37%	19.37%	19.37%
W.N. Central Adjustment	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Cap Factor	21.46%	21.46%	21.46%	21.46%	21.46%	21.46%	21.46%
S. Atl. & E.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	20.54%	20.54%	20.54%	20.54%	20.54%	20.54%	20.54%
W.S. Central Adjustment	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Cap Factor	23.96%	23.96%	23.96%	23.96%	23.96%	23.96%	23.96%
Mountain Adjustment	1.22	1.22	1.22	1.22	1.22	1.22	1.22
Cap Factor	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%	24.95%
Pacific Adjustment	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Cap Factor	22.03%	22.03%	22.03%	22.03%	22.03%	22.03%	22.03%
	2000	2005	2010	2015	2020	2025	2030
<b>Central Station PV (Thin Film)</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	20.70%	20.70%	20.70%	20.70%	20.70%	20.70%	20.70%
New England Adjustment	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap Factor	19.07%	19.07%	19.07%	19.07%	19.07%	19.07%	19.07%
Mid. Atlantic Adjustment	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Cap Factor	19.28%	19.28%	19.28%	19.28%	19.28%	19.28%	19.28%
E. N. Central Adjustment	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Cap Factor	19.56%	19.56%	19.56%	19.56%	19.56%	19.56%	19.56%
W.N. Central Adjustment	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Cap Factor	21.67%	21.67%	21.67%	21.67%	21.67%	21.67%	21.67%
S. Atl. & E.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	20.74%	20.74%	20.74%	20.74%	20.74%	20.74%	20.74%
W.S. Central Adjustment	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Cap Factor	24.19%	24.19%	24.19%	24.19%	24.19%	24.19%	24.19%
Mountain Adjustment	1.22	1.22	1.22	1.22	1.22	1.22	1.22
Cap Factor	25.19%	25.19%	25.19%	25.19%	25.19%	25.19%	25.19%
Pacific Adjustment	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Cap Factor	22.25%	22.25%	22.25%	22.25%	22.25%	22.25%	22.25%
	2000	2005	2010	2015	2020	2025	2030
<b>Concentrator PV</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	24.20%	24.20%	24.20%	24.20%	24.20%	24.20%	24.20%
New England Adjustment	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Cap Factor	21.86%	21.86%	21.86%	21.86%	21.86%	21.86%	21.86%
Mid. Atlantic Adjustment	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap Factor	22.23%	22.23%	22.23%	22.23%	22.23%	22.23%	22.23%
E. N. Central Adjustment	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Cap Factor	22.74%	22.74%	22.74%	22.74%	22.74%	22.74%	22.74%
W.N. Central Adjustment	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Cap Factor	25.70%	25.70%	25.70%	25.70%	25.70%	25.70%	25.70%
S. Atl. & E.S. Central Adjustment	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Cap Factor	23.78%	23.78%	23.78%	23.78%	23.78%	23.78%	23.78%
W.S. Central Adjustment	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Cap Factor	28.88%	28.88%	28.88%	28.88%	28.88%	28.88%	28.88%
Mountain Adjustment	1.28	1.28	1.28	1.28	1.28	1.28	1.28
Cap Factor	31.05%	31.05%	31.05%	31.05%	31.05%	31.05%	31.05%
Pacific Adjustment	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Cap Factor	26.40%	26.40%	26.40%	26.40%	26.40%	26.40%	26.40%

## Appendix E: Regional Adjustments to Capacity Factors and Cost of Energy (cont.)

	2000	2005	2010	2015	2020	2025	2030
<b>Wind - Class 5- dropped</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New England Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mid. Atlantic Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
E. N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	2000	2005	2010	2015	2020	2025	2030
<b>Wind - Class 4 and Class 6 Average</b>							
National Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
New England Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
Mid. Atlantic Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
E. N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
W.N. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
S. Atl. & E.S. Central Adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cap Factor	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
W.S. Central Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
Mountain Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%
Pacific Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cap Factor	36.60%	42.00%	48.10%	48.70%	50.50%	49.60%	48.80%