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# Consumer Preference Not to Choose

*Methodological and Policy Implications*

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# **Consumer Preference Not to Choose: Methodological and Policy Implications**

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## **Abstract**

Residential consumers remain reluctant to choose new electricity suppliers. Even the most successful jurisdictions, four U.S. states and other countries, have had to adopt extensive consumer education procedures that serve largely to confirm that choosing electricity suppliers is daunting. Electricity is not unique in this respect; numerous studies find that consumers are generally reluctant to switch brands, even when they are well-informed about product characteristics. If consumers prefer not to choose, opening regulated markets can reduce welfare, even for some consumers who do switch, as the incumbent can exploit this preference by raising price above the formerly regulated level. Policies to open markets might be successful even if limited to industrial and commercial customers, with residential prices based on those in nominally competitive wholesale markets.

**Key Words:** electricity markets, deregulation, consumer choice, residential markets

**JEL Classification Numbers:** L94, L51, D11, B40

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## Contents

<b>I. Introduction .....</b>	<b>1</b>
<b>II. Looking at the “Best” Jurisdictions .....</b>	<b>2</b>
A. International Examples .....	3
B. Domestic Examples.....	7
<b>III. Modeling Implications .....</b>	<b>13</b>
A. Choosing Not to Choose .....	13
B. Possible Representations .....	16
<b>IV. Policy Commentary .....</b>	<b>19</b>
<b>V. Conclusion.....</b>	<b>20</b>
<b>References.....</b>	<b>23</b>

# Consumer Preference Not to Choose: Methodological and Policy Implications

Timothy J. Brennan\*

“What if they gave a war and nobody came?

Life would ring the bells of Ecstasy and Forever be Itself again.”

Allen Ginsberg, “Graffiti”

## I. Introduction

At the residential level, retail competition in the electricity sector has failed to match the growth of competition at the wholesale level. Specifically, although industrial and commercial customers have shown willingness to shop and switch, with rare exceptions, residential consumers in the United States have shown little interest in choosing electricity from a supplier other than the incumbent. This reluctance may be why half the states have not adopted retail choice. It has also engendered efforts to cope with failures of consumers to make choices, e.g., identify and set rules for default service. Much of the effort of bringing competition to this segment of the market has focused not on individual consumers but on markets to be the default service provider.

The leading explanation for the general lack of consumer choice is that the political package to enact retail competition typically has included cuts in the incumbent’s retail prices below already-regulated levels. Such cuts discourage competition by reducing the profitability of entry. Other explanations include the inability of competitors to offer differentiated products or convince consumers that they will offer reliable service.

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These reasons are amenable to conventional economic analysis and accordingly have received considerable attention. Less attention has been given to the possibility that consumers *prefer* a lack of choice.<sup>1</sup> As the benefit of expanding choice sets is fundamental in theoretical modeling, a willingness to pay not to choose raises profound questions about how or even whether retail residential electricity choice can be viewed in efficiency or cost/benefit terms. Our objective is to examine the methodological implications of preferring not to choose and suggest approaches policymakers might apply to evaluate the worthiness of expanding markets. We might be better off declaring victory by leaving retail choice to industrial and large commercial customers.

The paper proceeds as follows. Section II looks at the record of retail electricity competition in the best national and domestic state jurisdictions, as rated by the Center for the Advancement of Electricity Markets (CAEM) “Retail Electricity Deregulation” or RED Index.<sup>2</sup> Section III discusses the theoretical rationales for the observed reluctance to choose and contains a model where the fixed costs of having to choose can cause a welfare loss for both consumers who elect to remain with the incumbent provider and some of those who switch to an entrant. Section IV reviews some of the policy commentary on the observed reluctance of consumers to switch. Section V concludes with a summary and recommendations for both policy and methodology.

## II. Looking at the “Best” Jurisdictions

One might think that a commodity as homogenous and familiar as electricity would be readily amenable to residential choice. One can think of milk or gasoline as ready examples. Reviewing the retail electricity market experience provides some insight into how electricity does not appear to match those other commodities in that amenability. To see this, we look at the best cases. We define “best” as the seven highest-rated jurisdictions in CAEM’s most recent

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<sup>1</sup> Wilson and Price (2005) offer empirical findings from the British residential electricity markets indicating that more choice may make consumers worse off not because they prefer not to choose but that more choices lead to more errors. Their findings complement those here, in that both consumers may prefer not to have more choices because they realize that they will, as Wilson and Price (2003, 3) “suffer an ‘information-overload’ due to the higher decision complexity resulting from an increased number of options.” We differ from Wilson and Price in claiming that if consumers find choice complex and therefore costly, their preference for fewer choices is not “irrational.”

<sup>2</sup> In the interest of disclosure and not necessarily full endorsement, the author has served on CAEM’s advisory committee for the RED Index.

“Retail Electricity Deregulation” Index, for April 2003 (Treadway and Malloy 2003).<sup>3</sup> The top two are countries: Britain and New Zealand. The list also includes the Canadian province of Alberta, along with four U.S. states: Texas, Pennsylvania, Maine, and New York.

### ***A. International Examples***

**England.**<sup>4</sup> By most comparisons, the English retail experience appears to be fairly successful, justifying its CAEM ranking of 88, substantially above that of New Zealand’s second-place 75.<sup>5</sup> The main way entrants attract customers is from door-to-door sales.<sup>6</sup> To help consumers choose among suppliers, compare prices, answer questions, and resolve complaints, the Department of Trade, under the Minister of Energy, has created a consumer advocacy organization, Energywatch. According to the Office of Gas and Electricity Markets (OFGEM), the British energy regulator, consumers do switch primarily for lower prices, but that they do not always choose the least expensive supplier, despite limited differentiation. As of 2004, more than half of electricity customers had switched suppliers, although some had switched back to the incumbent retail utility. Stephen Littlechild, Director General of Electricity Supply from 1989 to 1998, has attributed the success of the English experience to full separation of competitive generation from monopoly distribution and transmission, as distinguished from limited “functional unbundling”—that is, rules for separate operations that nonetheless keep these stages within the same corporation, which prevails in the United States (Littlechild 2005).

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<sup>3</sup> The “RED” index is a weighted average of 22 attributes of electricity markets applied to states, Canadian provinces, three Australian states, England, Wales, and New Zealand. The attributes pertain to facets of the retail competition institutions, generation markets, consumer protection, distribution regulation, and regulatory commissions. The factors getting the most weight are anti-favoritism safeguards, standardized business practices, generation market structure, liberalization of the wholesale market, and the limited marketplace role for regulated default service.

<sup>4</sup> Information in this section is from Energywatch, “How to Change Supplier,” [http://www.energywatch.org.uk/help\\_and\\_advice/how\\_to\\_change\\_supplier/index.asp](http://www.energywatch.org.uk/help_and_advice/how_to_change_supplier/index.asp); Office of Gas and Electricity Markets (OFGEM), “Competition in Gas and Electricity Supply—Separating Fact from Fiction” (Jan. 29, 2002), [http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/993\\_factsheet0102\\_29jan.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/993_factsheet0102_29jan.pdf); and OFGEM, “Energy Competition Working for Customers: The State of Competition in Domestic Gas and Electricity Supply” (Apr. 5, 2004), [http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/6702\\_factsheet40\\_april04.pdf](http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/6702_factsheet40_april04.pdf), all accessed Apr. 12, 2005.

<sup>5</sup> By comparison, CAEM’s average score for the United States in the last RED Index was 17.

<sup>6</sup> Colin Loxley characterized this door-to-door marketing effort as “a disaster” and attributed the relative success of residential competition in England to the dual-fuel sales discounts described below.

As of April 2004, even in this best case, 60 percent of customers were still using the incumbent, despite the possibility of saving up to £75 for a “dual-fuel deal.”<sup>7</sup> When they do not switch, it is because “they do not wish to, rather than because they are wary of or unaware of the opportunities competition offers.” Using survey data, OFGEM found in 2002 that it would take savings of 28 percent (£72) to induce switching of this magnitude (OFGEM 2002, 23, based on a 2001 working paper by Waterson published in 2003). Even with the more recent successes, OFGEM finds that prepayment customers are switching at less than expected rates.<sup>8</sup>

**New Zealand.** New Zealand, the second-ranked country, appears to have a retail switching rate somewhat under England’s; a variety of sources suggest that it is around 25 percent.<sup>9</sup> New Zealand’s experience begins to illustrate some of the difficulties residential consumers seem to face in switching suppliers. To provide consumers with some assistance, New Zealand’s Consumer Institute, a product-testing and advocacy organization similar to the Consumers’ Union in the United States, provides an online “Powerswitch” Web site to guide consumers through the retail electricity forest,<sup>10</sup> beginning with a three-page, instructional guide on how to interpret pricing plans and answers to frequently asked questions.

The site’s main feature is a multi-page step-by-step worksheet, which works consumers through their choices by asking them questions on (i) location, (ii) numbers in the household, (iii) whether people are home during the week, (iv) type of home and water heating, and (v) eligibility for discounts. If one has usage data from a bill, the site will use that in calculating

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<sup>7</sup> England has opened retail gas markets as well.

<sup>8</sup> Prepayment customers apparently are those that pay for electricity in advance, rather than either through automatic debit or after the fact by check. Prepayment customers typically have low incomes and lack bank accounts. Prepayment customers typically pay more for electricity than either automatic debit or subsequent payment customers. Why is not clear, since presumably the risk of nonpayment disappears with prepayment. National Energy Action, “Prepayment Meters” (updated March 2004) [http://www.nea.org.uk/Policy\\_&\\_Research/Policy\\_position\\_papers/Prepayment\\_Meters](http://www.nea.org.uk/Policy_&_Research/Policy_position_papers/Prepayment_Meters), accessed Apr. 13, 2005.

<sup>9</sup> For 2003, CAEM’s scored New Zealand as 1 on a 1–5 scale for retail switching, indicating a number in the 10–30 percent range. More recent data from the New Zealand Electricity Commission on incumbent switching by supplier indicates switching rates between about 5 percent and 45 percent by network and “installation contact point,” with most still below 25 percent (<http://www.electricitycommission.govt.nz/opdev/retail/regstats/regstatspdfs/incumbent/incumbent-retailer-graph-jan05.pdf>, accessed Apr. 14, 2005). However, time limitations prevented me from translating those figures into aggregate customer switching rates.

<sup>10</sup> <http://www.consumer.org.nz/powerswitch/default.asp>, accessed Apr. 14, 2005.



savings, otherwise the site estimates monthly consumption.<sup>11</sup> It will then list the five least expensive suppliers and annual estimated costs, with separate lists depending on whether the electric company is able to control power to one's water heater.<sup>12</sup> The site also describes the process of switching, noting that it can take up to 29 working days, including coordinating an "event date" at which the actual or estimated meter reading is used by the old supplier to complete billing and the new supplier to commence it. These difficulties nevertheless ensued in a retail market rated as the second most successful in the world, suggesting that most consumers might find shopping for electricity more trouble than it's worth.

**Alberta.** CAEM scored Alberta only 61, as much below New Zealand as New Zealand is below England. At that, it exceeds all but three U.S. states, virtually tied with the fourth best, New York. So, one would view it as a relative success in retail electricity deregulation. Still, according to CAEM, only about 6 percent of residents in Alberta had switched from the incumbent by 2003.

To help out residential consumers, Alberta's Energy Utilities Board, its energy regulator, offers a "Customer Choice" Web site to reassure them that the process is "not as complex as many think."<sup>13</sup> The site offers customers a full-page, small-print "worksheet," displayed below in Figure 1, to help them choose a provider, albeit with a disclaimer that "[t]he contents of this worksheet are only suggestions of possible considerations for consumers. This worksheet is not intended to be a comprehensive guide, nor is it a substitute for your own judgment."<sup>14</sup>

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<sup>11</sup> In much of New Zealand, particularly the most populous city, Auckland, the climate is sufficiently mild and constant that many residences do not have air conditioning and only limited home heating. One might expect that monthly consumption does not vary greatly, although marginal supply costs could vary depending on the availability of hydropower across seasons.

<sup>12</sup> *Ibid.*, with descriptions of the pricing plans available via the "Pricing Plans" link.

<sup>13</sup> Alberta Energy and Utilities Board, "Customer Choice," <http://www.customerchoice.gov.ab.ca/index.html>, accessed Apr. 14, 2005.

<sup>14</sup> [http://www.customerchoice.gov.ab.ca/Documents/Fact\\_Sheets/TalkAboutEnergy-Comparative\\_Shopping\\_Worksheet.pdf](http://www.customerchoice.gov.ab.ca/Documents/Fact_Sheets/TalkAboutEnergy-Comparative_Shopping_Worksheet.pdf).

## Comparative Electricity and Natural Gas Shopping Worksheet

Name of energy supplier	
Contact name	
Phone number	
Energy supplier type (competitive retailer/regulated service provider)	
References of supplier (e.g., Existing customers, Better Business Bureau, credit references, etc.)	
Is there a basic service charge, even if I don't consume any electricity or natural gas?	Yes/ No
What is the fixed rate?	\$
What is the variable rate?	\$
What is the energy charge per kilowatt-hour (kWh) or per gigajoule (GJ) (Gas Cost Recovery Rate for Natural Gas)	\$ /kWh or \$ /GJ
Are there price breaks for different levels of consumption?	Yes No
Any built-in price increases? (Electricity Only)	\$ /kWh Date:
If yes, amount and when.	
What are the retail service fees?	
Are there additional components to the energy charge? (Electricity Only)	Yes No
Unaccounted for energy	If Yes, explain:
Pool service charge	
Distribution loss charge	
Is there a premium for green power? (Electricity Only)	Yes No
Terms of the agreement?	
What does the clause concerning supply interruption indicate?	
Does the price depend on the time of year that I consume electricity or natural gas?	Yes No
Does the price depend on the time of day that I consume electricity? (Electricity Only)	Yes No
What is, if any, the switching fee or other up-front charges?	\$
What are the exit provisions for cancelling the contract?	
Are there meter-reading fees?	Yes No
How frequently will I be billed?	
Can you bill me at a regular date of my choice?	Yes No
Am I buying anything other than electricity or natural gas?	Yes No
Are services available to help me use electricity or natural gas more efficiently?	Yes No
Who will inform my previous gas supplier about my new arrangement?	
Who do I call if I have questions or problems?	
Contact: Retailer number	
Is the price/supply tied to a specific electricity generation plant? (Electricity Only)	Yes No
What occurs in the event of an outage at that plant? (Electricity Only)	

**Disclaimer:** The contents of this worksheet are only suggestions of possible considerations for consumers. This worksheet is not intended to be a comprehensive guide nor is it a substitute for your own judgment. The Government of Alberta makes no warranty or representation of any kind in respect of the contents of this worksheet and has no liability for any damages that may be caused to any person in connection with or arising out of the use of this worksheet.

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Figure 1: Alberta's residential consumer worksheet

However, the Alberta regulators apparently believe that many consumers are not inclined to exercise this judgment. They have recently extended the regulated retail tariff for residential, farm, and small commercial customers from Dec. 15, 2005 until July 1, 2006, and even beyond that point, Albertans will be able to remain on a default service under which they pay the wholesale market price plus the transmission and distribution tariff.<sup>15</sup> Even in the most open market in Canada, the preference of Albertans to avoid choice is not surprising to some industry observers. Cairine MacDonald, Deputy Minister for Management Services in British Columbia and former President of EPCOR Energy Services in Edmonton, has observed

One of the outstanding questions is to what degree residential customers will want to exercise their choice in electricity. This is not a product with intrinsic differentiation. Even in the telecommunications market, where there were real and significant savings in long distance plans offered by competitors, the majority of customers remained with AT&T over ten years after deregulation. Customer inertia is even more of a reality for a product with little to distinguish options in terms of price savings or consumer benefits, although there are pricing, electricity source, and billing options which offer some elements of choice.

Electricity will never be high on the customer radar screen except when prices are higher than anticipated, as has been the case in many of the jurisdictions going through deregulation, or where there are issues with reliability, customer service and billing (MacDonald 2003).

MacDonald goes on to detail the set of rebates, price caps, and other reversals of retail deregulation instituted in the face of expected higher prices (particularly when close to dates of provincial elections) and difficulty of shopping with inaccurate or infrequent meter readings, particularly in rural areas.

### ***B. Domestic Examples***

**Texas.** CAEM scores Texas most recently at 69, below New Zealand but higher than any other U.S. state. Texas began offering consumers the right to choose a supplier in February 2001. For the 2003 RED Index, CAEM listed a retail switching rate of about 7.5 percent. As of September 2004, retail switching had increased to about 18 percent (Public Utility Commission of Texas (PUCT) 2005, 60). This relatively low success rate—82 percent still not switching—follows extensive efforts to educate the public, including radio advertising, media appearances, and “educational e-mails.” The “campaign” to persuade residents to consider a new supplier

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<sup>15</sup> Alberta Energy and Utilities Board, “EnerFAQs No. 7,” June, 2004: 4.

involved numerous civic organizations throughout the state (PUCT 2005, 39–40). The PUCT found that entrants “face several challenges” including increased customer protection requirements, “substantial customer acquisition costs” such as advertising and financial incentives, and costs of service centers dealing with billing, calling, and customer complaints (PUCT 2005, 60–61).

The practical workings of the Texas retail market remain institutionally complex. The Electricity Reliability Council of Texas (ERCOT), acting as the independent system operator, manages customer switching in coordination with the local distribution company. It collects meter data from the distribution companies and forwards them to the designated retail energy provider. ERCOT reportedly has had difficulties carrying out these duties, resulting from software failures, database errors, and processing delays resulting in either multiple or no retail providers for some customers, with many not receiving bills for many months (Zarnikau 2005, 22–23).<sup>16</sup> Part of the reason for increased switching rates, such as they are, may have been that the PUCT in 2004 raised the rates charged by some of the incumbents for default service and, in the words of PUCT chair Paul Hudson, told consumers that they “must shop for a better offer.”<sup>17</sup>

**Pennsylvania.** The wholesale market serving Pennsylvania, PJM, is touted as one of the most successful U.S. models.<sup>18</sup> The retail experience has been less smooth, despite scoring just under Texas in the CAEM Red Index (67 compared with 69). All Pennsylvania customers were able to choose suppliers by January 2000.<sup>19</sup> After an early peak of about 10 percent of customers switching in April 2001, participation dropped by almost two thirds by July 2003 (O’Donnell,

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<sup>16</sup> Despite the publication date of 2005, the article has a 2003 copyright and with most data ending by the end of 2002. Matters may have improved, as the switching rate approximately doubled from the end of 2002 until Sept. 2004 (PUCT 2005, 61).

<sup>17</sup> “Texas PUC Approves Three Rate Hikes, Tells Customers They Need to Shop to Save,” *Power Markets Week* (August 2, 2004): 16.

<sup>18</sup> Electric Power Supply Association, “New State of the Market Report Confirms Competitiveness, Continued Downward Pressure on Prices in PJM’s Power Markets,” *Current Buzz* (Mar. 18, 2005). However, one might take this as a cautionary tale. The thrust of the article is that the average load-weighted energy price fell by 4.2 percent, net of fuel costs. This may be the result of increased efficiency. But to the extent it reflects absorption of higher gas prices by the generating sector, it indicates that that sector had rents it could use to absorb those costs, suggesting some market power.

<sup>19</sup> National Energy Affordability and Accessibility Project, U.S. Dept. of Health and Human Services, “Pennsylvania” (updated Nov. 20, 2003), <http://neaap.ncat.org/restructuring/pa-re.htm>, accessed Apr. 16, 2005.

Attanasio, and Shutran 2003).<sup>20</sup> *Consumer Reports* called the reversal “a jolt of free-market reality [that was] a major setback for the Pennsylvania success story.”<sup>21</sup>

As with other jurisdictions, efforts to encourage consumers to switch illustrate some of the difficulty. The Pennsylvania Public Utility Commission (PPUC) distributes online a “Consumer’s Guide to Choosing an Electric Generation Supplier.”<sup>22</sup> This guide features an eight-step form—the steps are described in Figure 2a—to fill out based on average usage (data supplied by the customer) and rate differentials to calculate monthly savings, somewhat akin to an IRS tax calculation worksheet. As shown in Figure 2b, it also includes a dozen “questions to ask electric generation suppliers” as one shops around.<sup>23</sup> Two utilities have seen somewhat substantial switching rates (25 percent in one case, 10 percent in another), but switching from other utilities has been minuscule (O’Donnell, Attanasio, and Shutran 2003, 6).

In response to these low rates, the PPUC has recently concluded that it needs somewhat permanent rules for offering “provider of last resort” or “default” service for customers who choose not to choose a supplier.<sup>24</sup> The PPUC proposes that the incumbent local electric distribution company (EDC) in a particular area become the default provider, rather than hold a competitive auction to choose the lowest-cost supplier or adopt a single supplier statewide.<sup>25</sup> The EDC would be directed to procure energy at wholesale through competitive bidding, although price need not be the only criterion for choosing suppliers. Default service prices would be set to recover energy, distribution, and customer service costs, with allowances for recovery of costs associated with consumer migration. Non-residential customers with peak demand exceeding 500 kW will get service priced on an hourly basis.

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<sup>20</sup> The percentage figure is estimated from CAEM data; the actual peak figure was approximately 700,000 customers.

<sup>21</sup> Consumer Reports.org, “Electricity: False Freedom,” July 2002.

<sup>22</sup> Council for Utility Choice, <http://www.puc.state.pa.us/utilitychoice/downloads/electric/workbooke.pdf> (June 2003), accessed Apr. 16, 2005.

<sup>23</sup> Reginald Barua of the PPUA staff has pointed out that the source of the difficulties in implementing retail competition lies not with public utility commission policies as with the underlying enabling legislation, over which commissions have no authority.

<sup>24</sup> Pennsylvania Public Utility Commission, “Proposed Rulemaking Order,” Rulemaking re Electric Distribution Companies’ Obligation to Serve Retail Customers at the Conclusion of the Transition Period Pursuant to 66 Pa. C.S. §2807(e)(2), Docket No. L-00040169, Dec. 16, 2004.

<sup>25</sup> An EDC could petition the PPUC to have the default service obligation removed. This would initiate an unspecified competitive process; the EDC could exit only if that process reached a “successful completion.” *Ibid.* at 9.

## Shopping is easy

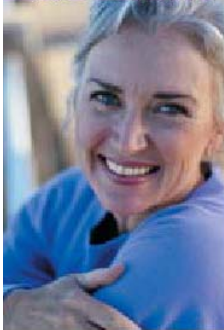


### How to Shop for an Electric Generation Supplier:

1. Using the chart on the opposite page, enter the supplier's name on the top line and write your electric distribution company's price to compare on Line 1. This price is given in cents per kilowatt hour (kWh).
2. Call each electric generation supplier to find out what price they are offering for their electric generation, or refer to the Office of Consumer Advocate (OCA) pricing list. Write that price on Line 2. See the checklist on the back of this brochure for other questions to ask suppliers.
3. For you to save, the supplier's price must be lower than your present provider's price to compare. Subtract the new supplier price from the present price to compare and write that number on Line 3.
4. Write the average number of kilowatt-hours (kWh) your household uses in a month on Line 4. This can be found on your current electric bill.
5. Multiply Line 3 by Line 4 and put that number on Line 5.
6. Divide the subtotal by 100 to calculate your savings per month in dollars and cents (Line 6).
7. Some suppliers charge a monthly fee in addition to the charge for generation. If the supplier charges a fee, write the amount on Line 7. If the supplier does not charge a monthly fee, put a zero on Line 7.
8. Subtract the monthly fee from your savings per month (Line 7 from Line 6) and enter this on line 8. This will show you what your "Final Monthly Savings" may be. You can then easily compare prices like you would with any other product like gasoline and groceries.

Figure 2a: Eight Steps in Shopping for an Electricity Supplier

## Questions to Ask Electric Generation Suppliers:



What is your price per kWh? (Enter price on Line 2 of Comparison Worksheet.)

Is your price fixed or does it depend on time of day or usage?

Can your price change? If it can change, when can it change and how will I be notified?

What is the length of the agreement?

Is there a cancellation fee?

Are there any other fees, such as a monthly service fee?  
(Enter monthly fee on Line 7 of Comparison Worksheet.)

Will I receive one bill or two?

Is there a bonus for signing up with you?

Do you offer a choice of energy sources, such as renewable energy?

Do you offer any other services?

Contact name and phone number?

Customer service hours?

Monthly savings? (Enter amount from Line 8 of Comparison Worksheet.)

Figure 2b: Questions to Ask Each Potential Supplier

**Maine.** Despite scoring third-highest of all the states (64) on CAEM's index, CAEM reported very little retail switching as of 2003, just about 1 percent when it went to press. Thomas Welch (2003), chairman of the Maine Public Utilities Commission, reports that most of Maine's load has switched to competitive suppliers, "nearly 50 percent" by the spring of 2002, but almost the entire switched load was from medium to large users. Reports by the end of 2002 paint a different picture, indicating a switching rate of 10 percent, often to purchase green power.<sup>26</sup>

Residential users are officially no longer served by their distribution utility but receive standard-offer service at regulated rates. The standard offer provider is the lowest-cost bidder for each service area, determined through periodic auctions held by the Maine Public Utilities Commission (MPUC) (Welch 2003). The residential switching rate remained quite low despite \$1 million in consumer education efforts, including encouraging consumers to join private or public buying groups as well as to purchase electricity on their own (MPUC 2000).<sup>27</sup> To avoid taking advantage of rate averaging, customers also have to pay an "opt-out fee" if they use standard-offer service for less than 12 months.<sup>28</sup> MPUC's *Everybody's Power Handbook* contains a "Comparative Shopping Worksheet," which does not include load estimates but does offer consumers a convenient way to specify the percentage of energy a supplier gets from up to nine fuel sources, not including "other" (MPUC 2000, 8). Switching rates may rise, as MPUC accepted bids for standard offer service that will have the effect of raising its price by 40 percent from March 2005 through February 2006.<sup>29</sup>

**New York.** The only other entity evaluated by CAEM with a RED Index score of at least 60 is New York, which just hits that mark, placing it right below Alberta. According to CAEM, New York's rate of switching fell from about 10 percent from 2000–2002 to a little more than 5 percent in 2003. To help consumers, the New York Public Service Commission (NYPSC)

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<sup>26</sup> Electricity Forum News, "Innovative Approaches to Deregulation in Maine" (Feb. 2003) <http://www.electricityforum.com/news/feb03/mainedereg.html>, accessed Apr. 16, 2005.

<sup>27</sup> *Ibid.*; MPUC, *Group Power: A Guide to Group Buying and Aggregation*, <http://mainegov-images.informe.org/mpuc/industries/electricity/electric%20restructuring/GroupPower.pdf>, accessed Apr. 16, 2005.

<sup>28</sup> MPUC, "'Opt-Out Fee' Frequently Asked Questions" (Apr. 2002), <http://mainegov-images.informe.org/mpuc/industries/electricity/ElectricSupplier/OptOutFactSheet20410.pdf>, accessed Apr. 16, 2005.

<sup>29</sup> U.S. Department of Energy, Energy Efficiency and Renewable Energy, Federal Energy Management Program, "Restructuring Status of Electric Markets, Maine" (updated Sept. 27, 2005), [http://www.eere.energy.gov/femp/program/utility/utilityman\\_elec\\_me.cfm](http://www.eere.energy.gov/femp/program/utility/utilityman_elec_me.cfm), accessed Nov. 8, 2005.



provides a “consumer guide” describing competition, highlighting green power options, and a checklist of factors (Figure 3 below) that consumers should consider.<sup>30</sup> Consumers can learn about current offers in their area by going to the “Power to Choose” page on the NYPSC Web site, where by clicking on their incumbent utility, they can find matrices of offers including estimated monthly bills, contract terms, cancellation notices and fees, and other service options.<sup>31</sup>

On August 25, 2004, the NYPSC issued a “Policy Statement,” finding that “migration rates for small customers have lagged those of larger users” (NYPSC 2004, 2). As of February 2005, 5.7 percent of eligible residential customer accounts had switched suppliers, compared to 53.1 percent of large time-of-use based customers, representing 65.9 percent of load in that category and about 15 percent of the total load in the state.<sup>32</sup> Switching rates vary widely across utility service areas in the state. Toward the low end, Consolidated Edison, serving most of New York City, has had about 2.6 percent of residential customers switch.

At the high end, Orange and Rockland Utilities (ORU), has had a switching rate of nearly 31 percent. ORU serves a triangle bordered on the east by the Hudson River, the north by the Catskills, and the southwest by New Jersey. Its high switching rate is attributed to a “Switch and Save” program (NYPSC 2004, 15-16, Appendix D). New subscribers, who enroll through ORU, obtain a 7 percent discount for two months. These customers are assigned to competing electricity service companies (ESCOs) randomly. ORU purchases back the accounts receivable of these customers “without recourse,” which means that ORU cannot bill the ESCO for failures to pay. Thus, the ESCOs apparently are insulated from initial nonpayment liability. NYPSC is considering other options to encourage migration, including auctioning off customers from the utilities to ESCOs; those customers would then have the option of returning to the incumbent or switching to another ESCO (NYPSC 2004, 27–28). The NYPSC’s Policy Statement stopped short of forcing consumers to move to an ESCO (NYPSC 2004, 23–24).

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<sup>30</sup> New York Public Service Commission (NYPSC), “Your Energy... Your Choice: A PSC Consumer Guide,” <http://www.dps.state.ny.us/UseYourPowerToChoose.pdf>, page 8, accessed Apr. 12, 2005.

<sup>31</sup> NYPSC, “Power to Choose,” <http://www.askpsc.com/campaigns/?action=viewCampaign&id=1047>, accessed Apr. 16, 2005.

<sup>32</sup> NYPSC, “February 2005 NYS Electric Retail Access Migration Reports,” [http://www.dps.state.ny.us/Electric\\_RA\\_Migration.htm](http://www.dps.state.ny.us/Electric_RA_Migration.htm), accessed Apr. 16, 2005.



# Suppliers' Offers

## *How to compare*

It's your choice to switch to another energy supplier or remain with your current utility. To make an **informed choice**, you may want to use the checklist.

**INQUIRE ABOUT THE ESCOs**

- ☐ Make sure the ESCO is eligible to sell you energy by contacting the NYS Public Service Commission or your utility company.

**COMPARE PRICES AND SERVICES**

- ☐ What did the ESCO charge last month and what was included in the price?
- ☐ Is the price fixed or variable?
- ☐ If it's fixed, is it guaranteed?
- ☐ Does it include taxes?
- ☐ Are there any discounts, bonuses or credits?
- ☐ Are other services available?

**REVIEW TERMS AND CONDITIONS**

- ☐ What is the length of the agreement?
- ☐ Are there penalties for breaking the agreement?
- ☐ Are there additional fees?
- ☐ Is a deposit required?

**CONSIDER UTILITY-SPECIFIC CHOICE PROGRAMS**

Utilities offer choice programs such as Power Switch, Energy Choice, and Power Move. You can contact your utility and sign up for the choice program where:

- ☐ You could receive guaranteed savings (typically around 7%) provided by ESCOs off of your current utility supply portion of your bill for at least two months.

- ☐ You can extend the relationship with the ESCO on mutually agreeable terms and conditions.
- ☐ You can return to the utility after two months if you choose.

**CONSIDER CUSTOMER SERVICE**

- ☐ What are the office hours?
- ☐ What is the complaint-handling process?
- ☐ Are there toll-free numbers?

**CONSIDER ENERGY OPTIONS**

- ☐ Are environmentally-friendly generation sources such as solar, wind, or hydro power available?
- ☐ Are you a member of a group that has a program in place to purchase energy together to increase buying power?

**CONSIDER BILLING AND PAYMENT OPTIONS**

- ☐ Will I receive separate bills from the utility and the ESCO?

**WHAT HAPPENS AFTER YOU CHOOSE A SUPPLIER?**

- ☐ You will receive a confirmation letter from the ESCO with the contract and terms and conditions.
- ☐ You will receive a confirmation letter from the utility with the effective date of the contract. That date is usually the day after your meter reading date.
- ☐ Your supply will continue uninterrupted.

Figure 3: New York's Electricity Consumer Checklist

### III. Modeling Implications

#### A. Choosing Not to Choose

The settings described here are among the most successful implementations of retail competition, yet their success in the residential sector is limited at best. The nature and breadth of the efforts to attempt to encourage residential competition suggest that consumers regard competition as less than transparent. Virtually all jurisdictions recognize a need to educate consumers as to the virtues of getting to choose an electricity supplier. Most offer guides and

checklists to help consumers make price comparisons and to obtain information on terms and conditions of the contracts, and most recognize a need to offer “provider of last resort” or “default” service for consumers who refuse to choose. In New York, successful “choice” is obtained by having entrants obtain consumer accounts directly from incumbents, forcing consumers to choose to stay with the entrant, return to the incumbent, or pick another supplier.

By conventional economic norms, such behavior appears puzzling. Buyers are supposed to welcome competition for the opportunity to choose a most preferred alternative under a process that forces prices as close to cost as can reasonably be expected. This does appear to be the case for large buyers, where switching rates in many jurisdictions appear significant. Were that the case in general, however, one presumably would not need extensive educational efforts, worksheets, initial forced reallocation to entrants, and rules and regulations for default service, particularly for residential customers.

That these efforts and policies appear necessary suggests that to some degree and for many, if not most residential customers, increasing choice in and of itself entails a welfare loss. This cannot be attributed to higher prices; in many cases, choice in fact does allow one to do better than one can with the incumbent or default service. Consumers may prefer the old regime if moving to competition causes all prices to rise, but that in and of itself should not make retail choice less valuable.

An obvious candidate for cost of competition would be search. Search costs may play a significant role, particularly in terms of assessing non-price aspects of additional alternative services. At least in terms of online information availability, the marginal cost of finding out a second alternative’s price is fairly low, once one has done the research necessary to obtain a first price. But it is that initial level of research, indicated by the worksheets, checklists, and sample questionnaires, which indicates a high fixed cost for even having to use a market at all.

Such costs can lead to adverse outcomes, with prices for each nominally competitive firm potentially as great as the monopoly price, even if the investment in search allows one to learn everyone’s costs (Salop and Stiglitz 1977). However, the problem in retail electricity markets is not simply a matter of customers choosing to search among competitors prior to purchasing a good. It is that they already had a supplier—the regulated incumbent distribution utility. Hence, being asked to switch can make them worse off than they were before, even if the resulting price were no lower than what would have ensued under continued regulation.

As Cairine MacDonald has noted, electricity may be a particularly homogenous good, hence with little reason to switch absent the prospect of a lower price. However, the problem

may be more endemic. In touting the success of its relatively high switching rate, OFGEM notes that consumers switch electricity suppliers considerably more often than they do banks, telecom companies, mortgage lenders, or home insurers.<sup>33</sup> This comparison begs a question of whether consumers are generally resistant to switching and whether a policy move to encourage switching in other sectors would be equally costly.

Consumers appear generally reluctant to switch in many areas. Littlechild (2005) reports that after 20 years of opportunity to choose different telephone service providers, 82 percent of residential access lines remain with the incumbent in Britain. Walker Information (2004) and Pombriant (2004) reported that about 75 percent of customers viewed themselves as loyal to a variety of information technology products, either out of high opinion for the product or because they felt locked in despite not liking the product. Only 3 percent of customers were viewed as “accessible” to competitors. In surveying brand loyalty of food, beverage, and other products, The Grocery Manufacturers of America (GMA) reported that 67 percent of respondents would “‘chase [a national] brand’ to a different store it wasn’t available or do without until the next shopping excursion.”<sup>34</sup>

GMA found that loyalty to brands appears positively related to both income and education.<sup>35</sup> The opportunity cost of time allocated to search may outweigh the potential reduced cost in processing the information obtained via search. GMA also suggests that brand loyalty is also associated with differentiation.<sup>36</sup> This is contrary to suggestions that homogeneity in electricity makes customers likely to switch. Habituation or aversion to risk in supply of an essential product may outweigh the gains from simply basing purchases on easily obtained price information. Electricity differentiation in terms of service contracts (terms, cancellation fees) may create a competitive advantage for the incumbent or default provider.

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<sup>33</sup> OFGEM, “Competition in Gas and Electricity Supply,” note 2 above. The OFGEM report contains an inconsistency, citing a 38 percent switching rate for electricity in the text yet graphing only a 28 percent switching rate. For purposes of the discussion and because OFGEM subsequently reported higher switching rates, I assume the rate in the text is correct and the graph incorrect.

<sup>34</sup> GMA, “New Survey Shows National Brand Loyalty High Among American Consumers,” Press release, June 12, 2002, [http://www.gmabrands.com/news/docs/newsrelease\\_p.cfm?DocID=971](http://www.gmabrands.com/news/docs/newsrelease_p.cfm?DocID=971), accessed Apr. 17, 2005.

<sup>35</sup> GMA, “Branding the ‘Ultimate Consumer,’ New GMA/Roper Starch Report Reveals Traits of Consumers Loyal to National Brands,” Press Release, Sep. 6, 2000, [http://www.gmabrands.com/news/docs/newsrelease\\_p.cfm?DocID=619](http://www.gmabrands.com/news/docs/newsrelease_p.cfm?DocID=619), accessed Apr. 17, 2005.

<sup>36</sup> *Ibid.*

### ***B. Possible Representations***

As noted above, costs of acquiring information have long been recognized as a factor in distorting markets (Salop and Stiglitz 1977). Customers with low information costs will get a competitive price at minimum average costs, but if there are enough consumers with sufficiently high information costs, it will pay some or all providers to sell reduced levels of output at a high monopolistic price that just covers a higher average cost. Here, as noted above, the setting is somewhat different, in that we begin with customers who already have a supplier. The effect is important, in that the incumbent already has the capacity to sell a large amount and the entrants would all be appealing to the low-cost sellers. They might be expected to evaluate retail electricity markets not by comparing them to the absence of any supply, but to the previous case where supply was available from a single supplier at a regulated price. This suggests that the entrants' price would be relatively low, with the incumbent able to earn no more than the rents from search.

This analysis suggests a setting to examine whether retail competition is beneficial. Suppose there are  $N$  customers, with  $M < N$  having relatively high search costs  $F$ . Define the following three retail prices for electricity:

$P_R$ : The regulated price

$P_I$ : The price the incumbent can charge to those who find search costly

$P_C$ : The competitive price charged to those customers with less aversion to going into the electricity market; assume for convenience that this equals a constant cost  $C$ .

We can assume that  $P_C$  is dictated by cost conditions and competition;  $N - M$  consumers with low search costs obtain their supplies at  $P_C$  in an open retail market.

Assume that  $P_R$  reflects some capture or production inefficiency indicated by the parameter  $X$ , so that

$$P_R = P_C[1 + X] = C[1 + X].$$

$P_I$  is set endogenously by the incumbent selling to the  $M$  customers who reluctant to switch. For modeling convenience, assume that we can order the  $M$  consumers such that the amount that any consumer  $i$  purchases at price  $p$ ,  $Q(i, p)$ , increases with  $i$ . With costs equal to  $C$ , the incumbent sets  $P_I$  to maximize profits  $\Pi_I$  from the  $K(P_I)$  low demand customers who purchase from it; the  $M - K(P_I)$  high demand customers find it worthwhile to incur search.

$$\Pi_I(P_I) = [P_I - C] \int_0^{K(P_I)} Q(i, P_I) di, \quad (1)$$

where  $K(P_I)$  and  $dK/dP_I$  are defined by the marginal consumer for whom search pays,

$$\int_{P_C}^{P_I} Q(K, p) dp = F. \quad (2)$$

The first-order condition defining the profit maximizing  $P_I$  from (1) satisfies

$$\int_0^{K(P_I)} Q(i, P_I) di + [P_I - C] \left[ Q(K, P_I) \frac{dK}{dP_I} + \int_0^{K(P_I)} Q_P(i, P_I) di \right] = 0. \quad (3)$$

The first term is the increased revenue from selling output at a higher price. The second term is the reduction in output from reduced demand. The first term in the brackets is the reduced sales from customers who elect to search rather than pay the higher price; the second term is the reduced sales from the customers still reluctant to search.<sup>37</sup>

Opening markets thus has three effects on consumers:

1. The  $N - M$  with low search costs each gain surplus because  $P_C < P_R$ . If  $j$  indexes these consumers in order of increasing demand, their welfare gain is given by

$$\text{Welfare gain to low search cost customers} = \int_0^{N-M} \int_{P_C}^{P_R} Q(j, p) dp dj.$$

2. The  $K(P_I)$  consumers who stick with the incumbent lose, if  $P_I > P_R$ . Their welfare loss is given by<sup>38</sup>

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<sup>37</sup> From (2) we can show that

$$\frac{dK}{dP_I} = - \frac{Q(K, P_I)}{\int_{P_C}^{P_I} Q_I(K, p) dp}.$$

<sup>38</sup> Note that the demand function  $Q$  in this integral is different from that immediately above, because the set of consumers with high search costs need not be the same size nor have the same demand as those with low search costs.

$$\text{Welfare loss to consumers who remain with the incumbent} = \int_0^K \int_{P_R}^{P_I} Q(i,p) dp di.$$

3. The overall welfare effect on the  $M - K(P_I)$  high demand, high search-cost consumers who leave the incumbent is ambiguous. They get a lower price than they had under regulation, but only by incurring a cost  $F$  to avoid paying the high  $P_I$ . Because  $P_R < P_I$ , at least some of these consumers are worse off despite switching, and all of them might be. The effect in the aggregate is

$$\text{Welfare effects on high search cost consumers who switch} = \int_K^{MP_R} \int_{P_C}^{P_I} Q(i,p) dp di - F[M - K].$$

Opening markets can reduce consumer welfare if the losses to the high-cost consumers, either those who switch or those who remain with the incumbent, exceed the gains to the low-cost consumers who switch. To incorporate aggregate welfare effects, one would want to add to the (possibly negative) net effect on consumers the profits gained by the incumbent in raising price. A more important effect is likely to be the cost reductions from introducing potentially more efficient entrants into the market and any reductions in cost that the incumbent institutes as it is able to collect profits. However, this model suggests that it is hardly impossible for opening markets to reduce welfare for customers for whom shopping is unwelcome.

One could modify this model in a variety of ways. A very simple variation would be to assume that all consumers buy at  $P_C$  but that all bear costs of doing so, simply from having to add electricity choice to the set of things they now have to deal with.<sup>39</sup> If on average the “dealing” costs exceed the surplus gain in moving from the regulated price, opening markets reduces welfare. One could strengthen the case for opening markets, e.g., by allowing product differentiation and allowing searchers to gain more by finding more preferred products from new entrants. Further modifications that allow for market power among the differentiated entrants would tilt the other way.

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<sup>39</sup> Cognition costs can affect how much normative weight to place on market outcomes (Brennan 1994, 159–60).

#### IV. Policy Commentary

Concerns regarding the state of the retail markets go back certainly to the beginnings of the market-opening era in electricity, predating such crises as the 2000–01 market implosion in California and the August 2003 Northeast blackout. In 1998, the National Conference on State Legislatures published a report suggesting that consumer education would be necessary for low-usage customers who “may not have the time or resources to fully understand or research their options” (Brown, Eisenberg, and Hill 1998). The report noted that during a pilot retail competition program in New Hampshire, many consumers “said that they felt overwhelmed by the array of choices available to them.” The report additionally recommended simple, standardized billing. It suggested that aggregators—municipalities, churches, credit unions, or other “affinity groups” could do the researching and buying. The report took for granted that there will be a default provider to serve “customers that do not choose a new supplier.”

Even these early recommendations called into question some potential benefits of retail competition. Standardized billing can make choosing easier. Doing so, however, substantially limits the degree to which entrants can differentiate themselves through fee structures, real time pricing or rate averaging, cancellation fees, contract length, and the like. Aggregation may be useful, but in theory the formation could and is left to markets in general without regulatory mandate or encouragement, if they are cost-effective means for procuring electricity. Grocery stores, for example, might be thought of as “food aggregators,” and consumers can shop around for who does the most preferred “aggregating” along the price/quality continuum. Implicit in the advocacy for aggregation is the idea that the aggregator would become the default provider, taking over the choice role for its consumer members.

Beginning by quoting Woody Allen that “it’s a sin to buy retail,” Paul Joskow in 2000 argued that incumbent distribution companies should offer retail customers a “Basic Electricity Service” (BES) passing through ostensibly competitive wholesale energy prices (Joskow 2000). Entrants would compete by coming up with value-added services such as bundling with other utilities, green power, hedging, and energy management. If they cannot—and Joskow appears skeptical that they can—it would be inefficient for policymakers to set “shopping credits” above the wholesale price or to provide subsidies in order to encourage switching away from the BES. Steven Littlechild (2000) has disagreed, arguing that retail competition can reduce prices and provide a wider variety of hedging options. The market can provide BES if consumers want it. The debate between Joskow and Littlechild turns on whether consumers are better off given a

reasonable passive choice, or if they should exercise their preference through active supplier selection.

Around the same time Theresa Flaim, then Vice President for Strategic Planning at Niagara Mohawk, noted the lack of consumer interest in switching, even in Pennsylvania where switching was “deliberately subsidized” (Flaim 2000). She attributed this to both economics—the absence of value added service relative to the transaction costs of serving small customers, and policy conflicts—the tension between opening markets, encouraging switching, and insulating residential buyers from price volatility and price increases. She notes that “forcing” retail competition absent identifiable benefits is not worth it, in part because of real “customer search and hassle costs” (Flaim 2000, 52). For political and legal as well as economic reasons, she recommends a default service based on spot prices without hedging similar to Joskow’s BES, most likely provided by the incumbent utility; entrants can provide hedged contract prices if consumers demand it.

Other observers have reached similar conclusions. Weil (2000) has argued that even after efforts to educate consumers and protect them against misleading claims or market power, residential users will need a default provider as “many people are indifferent to potential price savings because they do not want to deal with another choice.” Jurewitz (2002) noted that default provision, particularly under traditional averaged prices, will leave consumers “largely uneducated and incompetent to cope with [market] forces at the end of the transition period” to full competition. However, opening retail markets “overnight” is not feasible because of consumer inertia and the political consequences of higher prices or unserved customers during switching periods. To promote the development of retail competition, which he still regarded as a policy goal, he offered design principles including making default service less attractive over time, high back-and-forth switching costs, and separation of low-income assistance obligations.

## V. Conclusion

“The best policy is to declare victory and leave.”

Senator George D. Aiken (R-Vt.), 1966, about the Viet Nam War

The evidence, empirical, theoretical, and expert, that opening residential electricity markets to competition may hurt consumers because of the costs they perceive of having to choose is compelling. Even the best jurisdictions, with the possible exception of England, have seen low switching rates. A key reason why one might need a default provider is not merely that



electricity is “different,” but that the rapid transition to open markets would force consumers to switch when they are reluctant to do so in general. A model with costs of switching away from an incumbent indicates that net welfare effects, taking switching/search costs into account, can be negative. Those who remain with the incumbent rather than switch have to pay higher prices, and those with high costs who do switch nevertheless may have been better off with the unregulated price. Considerable commentary bears out these concerns.

Perhaps these conclusions are pessimistic, in that as states rescind “standard offer” prices enacted in the initial stages of retail restructuring, more entry and switching may be forthcoming, particularly if “provider of last resort obligations” charges incorporate a premium to reflect the risk of customer churn and nonpayment.<sup>40</sup> Nevertheless, the analyses above suggest some policy recommendations. A first would be to realize that much of the value of opening electricity markets will be achieved in offering choice to industrial and commercial users. The residential portion of the market in the United States comprises only about 36.4 percent of total electricity use.<sup>41</sup> Competition for the other 63.6 percent will not only be beneficial on its own but could also lead to lower benchmark prices for residential customers. Over time, residential users might overcome reluctance to choose if it appears to be bringing benefits to other parts of the sector. But until that point, rather than lament the failure of small users to jump on the competition bandwagon, electricity market advocates might follow Senator Aiken’s advice and declare victory.

Such a declaration entails that consumers continue to be offered a default alternative. The model suggests that a primary cost of that alternative will be that a default provider would have the market power to capture the rents from consumer reluctance to choose. Consequently, for economic as well as political reasons, one may not only need to designate a default provider to avoid forcing consumers to make choices they would rather not (Sutherland 2001). That default provider may also need to have its prices regulated so that it is unable to exploit its privileged position. In the model, the closer the incumbent’s price  $P_I$  is to the regulated price  $P_R$ , the less

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<sup>40</sup> The model in Section III.B above indicates that switching induced by higher incumbent prices may not increase economic welfare relative to regulation.

<sup>41</sup> Calculated from U.S. Department of Energy data on electricity use by sector for 2004, [http://www.eia.doe.gov/cneaf/electricity/epm/table5\\_1.html](http://www.eia.doe.gov/cneaf/electricity/epm/table5_1.html), accessed Apr. 18, 2005. Colin Loxley, Director, Resource Planning, Public Service Enterprise Group of New Jersey, reports that 60 percent of the total load in New Jersey is served by competitive suppliers.

high search—costs consumers will be harmed by opening markets.<sup>42</sup> This explains why the political bargain for opening markets typically includes retail price ceilings, if not cuts. But one needs to be sure that price ceilings do not insulate consumers from facing real increases in wholesale costs to prevent a repeat of the inelastic demand and bankruptcies substantially responsible for the California 2000–01 crisis (Brennan 2001).

A last set of lessons is methodological. Economics paradigmatically assumes that choice is always preferred. This entails that consumers do not find competition inherently costly rather than transparent. The experience in electricity—and before that in telecommunications—suggests that consumers do not always regard open choice as a favor. A look at the marketing literature suggests that consumers in general have a limited propensity to reevaluate the choices of all the goods in their consumption bundle; only a few may be up for competitive grabs at any one time. If economics is to take revealed preference seriously, it should do so when the revealed preference is not to have to choose.

A policy implication is that interference with markets may be justified outside of the usual market failure categories of market power, externalities, or asymmetric information. Regulation of a franchised monopoly, or public provision, may well be justified if the gains from competition and differentiated entry are less than the costs of search. For relatively undifferentiated products where the costs of error in supplier choice from unreliability are large, it may well economize on search and certification costs to let the public sector do the searching and buying rather than for each of us to do so ourselves, even if the relevant markets are quite competitive.

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<sup>42</sup> This could arise not just from a low  $P_I$  but also from a high  $P_R$  due to regulation-induced inefficiency, i.e., a high  $K$  value in the model.

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