

# REPP

Renewable Energy Policy Project

## ISSUE BRIEF

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### **ELECTROFINANCE: A New Insurance Product for a Restructured Electric Market**

by Joel N. Gordes and Jeremy Leggett<sup>1</sup>

*The American insurance industry could lose billions of dollars from weather disasters related to climate change. "Electrofinance" represents an innovative consumer product that profit-minded insurers could offer; it would bundle electricity, a retirement annuity, energy efficiency and renewable energy. By selling electrofinance, insurers can take modest, but important, initial steps in helping to control carbon emissions, and thereby prevent climate change.*

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### A Message from the Staff of the Renewable Energy Policy Project

From time to time, the public gaze lights momentarily on renewable energy. It may be news of a technical breakthrough, a ribbon-cutting at a new facility, a siting controversy, or a breath of scandal. Still, renewable energy is a minor figure in the economy and in American consciousness. Most Americans do not go out of their way to purchase renewable energy; many don't even know why it matters.

Partly for this reason, the renewable energy community continues to search for partners. For instance, wind and biopower advocates seek to show the agriculture community that renewable energy constitutes a value-added product improving the profitability of farming. The photovoltaic industry has sought to make its products the norm for remote power in telecommunications. Such strategies have resulted in productive partnerships. Yet a true prize among potential partnerships has so far remained largely out of reach: the integration of renewable energy into the global financial structure, as represented in the following paper by the insurance industry.

The accumulating momentum of global climate change gives this potential partnership even greater significance. The insurance industry (including a U.S. insurance industry that has been mum on climate change compared to its European counterpart) stands to lose hundreds of billions of dollars from weather-related losses due to climate change, even more than the \$90 billion in costs from natural disasters in 1998—or the most damage in any single year according to the Red Cross and Red Crescent. The industry is starting to scale back their “markets”, as they pull out of the Caribbean because of its increasing vulnerability to turbulent tropical weather. Other regions, including coastal areas, may also become more difficult to insure as greenhouse gas concentrations steadily rise. That means fewer money-making opportunities, which is a bad trend by any industry standard.

Insurers therefore represent potential allies in the struggle to stabilize the climate. More important for the renewable energy industries, were insurers to decide that their survival depends on a stable climate, they might begin to direct their enormous investment portfolios toward low- and zero-carbon energy technologies, including renewables.

The following paper proposes “electrofinance,” a bundled product that insurance companies could offer, blending electric service, energy efficiency, solar power and an annuity. The paper represents the latest in REPP's series of examinations of finance options for renewable energy. Readers will note that it is not centrally a paper about renewable energy. Rather, it proposes an innovative mechanism by which insurers, acting in their own, short-term financial interest, might also be brought to support and sell sustainable energy products.

As this paper suggests, the insurance industry would be a powerful ally. But forging that partnership will be hard. In the early stages, renewable energy will be an important but modest component of larger developments. But the partnership remains truly valuable, and worth pursuing by any means.

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**July 28, 1999**

## ELECTROFINANCE: A New Insurance Product for a Restructured Electric Market

by Joel Gordes and Jeremy Leggett

### EXECUTIVE SUMMARY

The contention that global climate change could disrupt the world's weather is not new, but the potential losses it represents have drawn attention from the financial community—particularly property-casualty insurers that face large damage claims when climate change occurs. With the deregulation of the electricity sector, the specter of climate change can be transformed from a potential threat into an exciting opportunity for insurers, bankers, and other financiers who have the need, foresight, and capacity to invest in energy efficiency and renewable energy as mitigation strategies.

The European insurance industry has already publicly conceded that the science predicting global warming is worth worrying about. Unfortunately, with few notable exceptions, U.S. insurers have not followed suit. If American insurers are to become players, it will be for economic reasons at first, and they must be shown clear, immediate benefits that improve their bottom line profits. Electric restructuring has the potential to accomplish just that.

Under electric restructuring, many believe the bundling of services such as electricity with telecommunications services to be innovative. The electrofinance proposal described in this paper goes further: it bundles property-casualty insurance, a retirement fund, and electrical service into a single bill. Any savings from reduced electricity bills due to aggregation and encouraged energy efficiency flows into the retirement fund.

For the sake of illustration, suppose that a homeowner purchases a package of home insurance at \$50 per month, a retirement annuity at \$50 per month, and leveled electricity service at \$50 per month, for a total bill of \$150 per month. With access to a competitive electric market, the insurer would purchase power on behalf of the homeowner at a far lower cost than otherwise available. The first savings come immediately from the insurer's ability to aggregate demand and provide buying power, which could bring costs 5% below the current norm.

The second and most lucrative way to achieve savings—and the key to the environmental benefits of the electrofinance concept—is through the encouragement of aggressive energy efficiency and load management. Depending on numerous variables, this might lower electric bills by an additional 15–40%.

The key for electrofinance purposes would be the subsequent addition of this sum to the base annuity; in the example cited, this along with the aggregated demand savings represents an additional \$20 added to the \$50 base annuity amount, for a total of \$70 per month. Further premium reductions and annuity additions would be possible for clients who choose safer appliances that are preapproved by the insurer as reducing fire and other hazards to property.

How much of a difference might such changes make in a client's annuity? This would obviously depend on a number of factors, but over 20 years the value of the annuity could increase from \$20,000 to \$30,000.

In addition, clients could elect to purchase a photovoltaic (PV) system under a low-interest, long-term loan that could be partially paid for with the savings from efficiency measures and load management. In the example used here, with an up-front cost of \$7,000 and with a 20-year, 5% loan, a 1-kilowatt PV system would add \$46.20 a month to an electrofinance customer's payment plan, for a total monthly payment of \$196.20 for all services. If the output of the PV system is 1,400 kilowatt-hours (kWh) per year at equivalent value of 8¢/kWh, this would translate into an additional monthly savings on electricity of \$9.33 that could be put into the annuity portion of the plan.

The driving force behind this concept will not be environmental concerns but the retirement of 76 million baby boomers in the United States. There are few prospects that they will be able to sustain their current lifestyles with the small amount of savings they have put away. While there are still many uncertainties surrounding the exact effects of global climate change, there is little doubt that this massive retirement group will have profound consequences on American society.

Perhaps the most important aspect of electrofinance is that it brings the American insurance industry into the struggle to contain climate change—not through moral arm-twisting but through the appeal of short-term profit. And electrofinance, combined with accumulating losses from extreme weather events, may open the true prize at stake for clean energy: the massive investment portfolios of the insurance sector.

## ELECTROFINANCE

Although the potential profitability of this market-driven tool appears to be extremely lucrative for insurers, a number of regulatory, business, and perceptual barriers must be surmounted before companies will even consider offering such a product. The very act of bringing such a seemingly radical concept to a high decisionmaking level is the foremost obstacle to overcome if electrofinancing is to succeed.

## ELECTROFINANCE: A New Insurance Product for a Restructured Electric Market

by Joel Gordes and Jeremy Leggett<sup>2</sup>

Opponents of climate protection policies often assert that action to prevent global warming would cost too much, and suggest that world industry stands united against needless and exorbitant measures to curb greenhouse gas emissions. Yet some industries fear climate change as much if not more than the most ardent environmentalists: among these, the insurance industry stands out. (See Box 1.)

In this paper, we propose electrofinance as a product that could prove attractive to insurance and other financial service companies purely for business reasons. At the same time, electrofinance could prove immensely beneficial for environmental reasons. Simply put, electrofinance combines property-casualty insurance, electricity service, and an annuity into a single product, whereby

any savings from reduced electricity bills due to aggregated demand and increased efficiency goes either into the annuity portion or to pay down a low-interest, long-term loan on a photovoltaic system.

### PART I... INSURANCE AND FINANCIAL SECTOR VULNERABILITY

#### THE GREENPEACE REPORT

Through the early 1990s, most insurance firms showed little interest in climate change, and most managers believed that meteorological conditions would remain relatively stable.<sup>3</sup> In 1993,

#### BOX 1: THE INSURANCE INDUSTRY

The “insurance industry” has two principal sectors. This paper focuses exclusively on property-casualty insurers as opposed to health and life insurers, although climate change may affect the latter businesses as well. Within the property-casualty sector, straight insurers differ from reinsurers, which insure the insurers, thereby spreading the risk.

Most insurance firms undertake two major activities: collecting premiums from clients for insurance services, and operating investment and pension funds. As industry insiders sometimes acknowledge, the two sides of a single company may not communicate. Thus while managers in the insurance branch may fear climate change’s effects on losses and income, their colleagues may be investing in fossil fuel industries that could worsen the situation.

The industry already ranks among the most significant sectors of the economy:

- The U.S. insurance industry has a surplus of more than \$311 billion held in reserve.
- The insurance industry and pension funds account for as much as one-third of the money invested in global stock markets (which represent a total capitalization of \$15 trillion).
- U.S. insured coastal property along the Atlantic and Gulf coasts alone is worth at least \$3.15 trillion.
- Total global insurance premiums were \$2,129 billion in 1997, with \$1,232 billion of life premiums and \$897 billion of non-life.

<sup>2</sup> The authors wish to thank Dr. Adam Serchuk, Frederick Zalzman, Esq., Carl Weinberg and Eugene Lecomte for their comments on early drafts of this paper. The views expressed here are the authors and do not necessarily reflect the opinions of REPP, the REPP Board of Directors, or the reviewers.

<sup>3</sup> Dr. Jeremy Leggett, *Climate Change and the Insurance Industry: Solidarity Among the Risk Community* (London: Greenpeace, May 1993 (out of print)). Large portions of this section are taken from that document.

however, Greenpeace International's Climate Campaign published *Climate Change and the Insurance Industry: Solidarity Among the Risk Community?* This report suggested that some of the unprecedented losses suffered by the property-casualty insurance industry between 1987 and 1993 (see Figure 1) might reflect the early effects of climate change. During that period, the industry experienced its first-ever billion-dollar losses—in fact, there were 16 of them. Eleven of the events provoking those losses were windstorms.

Collectively, these events accounted for \$44.2 billion lost as the result of windstorms. In 1992, global catastrophic losses ran \$27.1 billion, up 87% from the previous year. As Greenpeace noted, the 10-year period 1983 to 1992 showed 10 times the insured losses as the 1960s, after adjustment for inflation.<sup>4</sup> The report also noted that much of the increased loss reflected “proliferation and concentration of values” in more vulnerable areas.

The Greenpeace report included a number of provocative statements on climate change by some of the world's largest insurers and reinsurers. Taken as a group, these statements reflect a departure from previously held convictions regarding the near-term stability of the Earth's climate.

■ **Swiss Reinsurance:** “There is a significant body of scientific evidence indicating that [1990's] record insurance losses from natural catastrophes was not a random occurrence. Instead it may be the result of climatic changes that will enormously expand the liability of the property-casualty industry.”

■ **Munich Reinsurance:** “The present problems will be dramatically aggravated if the greenhouse predictions come true. The increased intensity of all convective processes in the atmosphere will force up the frequency and severity of tropical cyclones, tornadoes, hailstorms, floods and storm surges in many parts of the world with serious consequences for all types of property insurance.”

■ **Lloyd's of London** (statement of one anonymous syndicate): “Somebody had got off the fence...they said, if

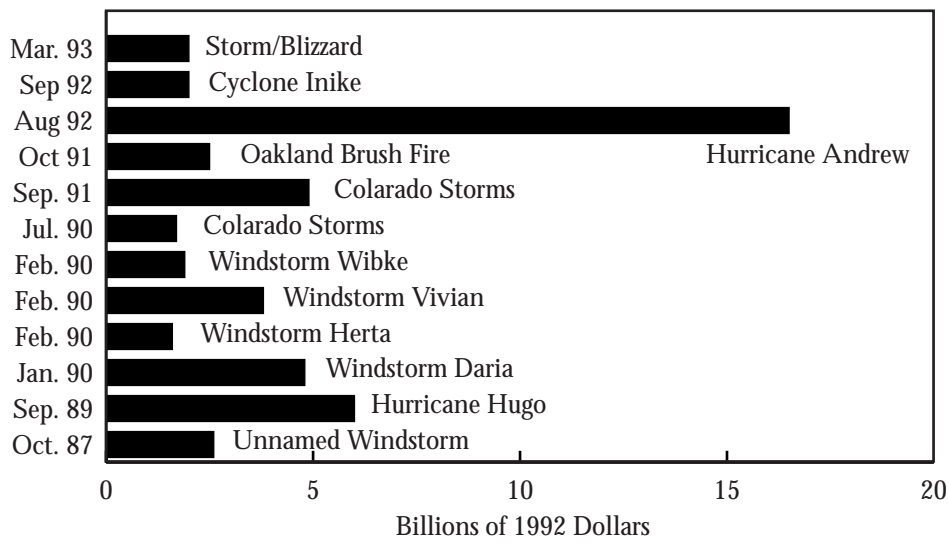
you're asking us, yes, there's a direct link, and this could have an effect on your business...We started to incorporate the statements that we had received and the areas we had been warned about, into our whole rating base, which we are glad to say resulted in us reducing our commitments in areas like Florida.”

■ **Tokyo Marine and Fire Insurance Co.:** “[t]he recent large-scale disasters in Japan and abroad do not seem to be coincidental. It seems that behind these events are global-scale changes in climate patterns.”

## EUROPEAN FINANCIAL COMMUNITY PERSPECTIVES

Since publication of the Greenpeace report, European financial institutions—and insurers in particular—have increased their active consideration of climate issues. In January 1995, for instance, Munich Reinsurance (Munich Re), one of the largest reinsurers in the world, announced that the floods in Europe may be linked to global warming and expressed fears that the worst is yet to come.<sup>5</sup> Just prior to the second Conference of the Parties (COP II) to the Framework Convention on Climate Change in Berlin in late March 1995, Munich Re called for reductions in carbon emissions on a worldwide basis. Gerhard Berz, head of its Geoscience Research Group, pronounced that “there is no longer any doubt to us that a warming of the atmosphere

**FIGURE 1: CATASTROPHIC WEATHER-RELATED LOSSES 1987- EARLY 1993**



<sup>4</sup> Ibid., p. 17.

<sup>5</sup> Jolene Anderson, “How Policy Makers Have Responded to Global Climate Change,” *Wisconsin Energy News*, May–June 1995, p. 6.

and the oceans is causing an increased likelihood of storms, tidal waves, hailstorms, floods and other extreme events.”<sup>6</sup>

At COP II itself, prominent insurers or reinsurers such as Lloyds of London, Munich Re, and Swiss Reinsurance (Swiss Re) combined to press for emission reductions. As one journalist ironically described it, “a chief Lloyd’s underwriter, Richard Keeling, and other top European insurance executives made the rounds of leading delegations Wednesday in a newfound role as friends of the Earth.”<sup>7</sup>

Following the momentum of Berlin, European and Asian insurance company positions were solidified in November 1995 when, under the auspices of the United Nations Environment Programme (UNEP), 14 insurance companies from around the world signed a *Statement of Environmental Commitment* to incorporate environmental considerations into risk management and to adopt best practices. Its Preamble states:

The insurance industry recognizes that economic development needs to be compatible with human welfare and a healthy environment. To ignore this is to risk increasing social, environmental and financial cost. Our Industry plays an important role in managing and reducing environmental risk, in conjunction with governments, individuals and organizations. We are committed to work together to address key issues such as pollution reduction, the efficient use of resources, and climate change. We endeavor to identify realistic, sustainable solutions.<sup>8</sup>

Not one of the 14 initial signatories or the 6 later signatories was from the U.S. insurance industry.

In anticipation of the Third Conference of the Parties (COP III) in Kyoto in 1997, in July 1996 the group issued a stronger version of its statement. Among other things it stated: “We insist that...[i]n accordance with the precautionary principle, the negotiations for the Framework Convention on Climate Change must achieve early, substantial reductions in greenhouse gas emissions.”<sup>9</sup> This time, there was one U.S. signatory among 71 firms—Employers Reinsurance.

Just prior to the Kyoto COP, a third document reaffirmed the UNEP insurers’ commitment to emissions reduction and pro-

vided support for clean energy technologies, including renewable resources. More promising (but not yet fully realized) is their pronouncement that:

Insurance companies, pension fund managers and banks have taken the lead in creating new investment instruments which favor companies that are committed to substantially lowering their greenhouse gas emissions and demonstrate best practices in energy efficiency. However, the amount of money under management in such is still very small. Investment managers of insurance companies, pension funds and banks should work together to develop environmental reporting standards which are generally accepted and therefore used in practice besides benchmarks for profitability and security.<sup>10</sup>

In short, many European insurers have at least made several important public statements that depict climate change as a substantial risk and a threat to the world economy. One effect of this has been to call into question the frequent claims, for example by some fossil fuel and automobile firms, that climate change is an illusion, that measures to address it cost too much to contemplate, and that world industry stands united against such measures.

## U.S. INSURERS: MUCH MORE CONSERVATIVE

Like European insurers, U.S. property-casualty insurance companies also suffered serious losses and reduced earnings between 1987 and 1993. Although American firms seem less willing to hypothesize a systemic cause of these losses, industry concern has risen. Most companies have reached modest consensus that future losses from events such as hurricanes—whatever the root cause—could have severe repercussions. For example, the Natural Disaster Coalition, based on models, estimates that a Class Five hurricane striking Miami could cause \$54 billion in losses, while a Class Four storm striking New Jersey, New York, Connecticut, and Massachusetts could cost \$51 billion.<sup>11</sup>

In a similar vein, Eugene Lecomte, former CEO of the Insurance Institute for Property Loss Reduction (now called the Institute for Business and Home Safety) commented that:

There is the potentiality for one or more \$50 billion losses to occur within a close time proximity of one another. That

<sup>6</sup> Stefan Thiel and Bill Powell, “While the Earth Burns,” *Newsweek*, 10 April 1995, p. 44.

<sup>7</sup> “Friends of Earth Getting Powerful New Allies: Insurance Executives,” *Hartford Courant*, 30 March 1995.

<sup>8</sup> *United Nations Environment Programme, Statement of Commitment by the Insurance Industry*, 23 November 1995; full text available at <<http://www.unep.ch/finance/stat-in.html>>.

<sup>9</sup> The full text may be accessed at <<http://www.unep.ch/eteu/envr-fin.htm>>.

<sup>10</sup> *United Nations Environment Programme Insurance Industry Initiative: Position Statement on Climate Change*, December 1997.

<sup>11</sup> Ariel Sabar, “Greenhouse 101,” *Whole Earth Review*, Winter 1994, p.11.

potentiality would, if it became a reality, erode a significant portion the Industry's \$180 billion surplus. The Industry would then lose the capital needed to take on new risks thus, creating a severe property insurance availability crisis.<sup>12</sup>

Lecomte attributed a large part of the problem to increased amounts of high-value property in harm's way and inflationary pressures.

Much milder but potentially significant has been Allstate's position. An early statement by this industry behemoth is found in their 1998 annual report:

The question of the magnitude of potential impacts of global climate change will be a continuing source of discussion. However, the Intergovernmental Panel on Climate Change reported that there is a discernible human influence on the climate change being observed. In light of this, Allstate continues to explore and analyze credible scientific evidence, including, but not limited to, the impact of climate change, that may affect Allstate's potential exposure under its insurance policies.<sup>13</sup>

In general, though, most observers concede that the U.S. property-casualty insurance industry has been far more reticent and noncommittal on the subject of climate change.<sup>14</sup> There is less agreement as to why this should be so. This question begs for further research, but speculative reasons include the following:<sup>15</sup>

- Many European insurers have staff climatologists with access to high-level executives, while most American companies do not.
- European firms have more exposure to global losses.
- Europe does not suffer from a massive misinformation campaign on climate change by fossil fuel, automobile, and other special interest groups.
- Some European firms do provide for flood insurance, which raises the monetary stakes; in contrast, flood insurance in the United States is partly a governmental function.

- U.S. companies have a greater fear of future litigation.
- U.S. companies do not wish to frighten away customers and stockholders.
- Many U.S. property-casualty insurers also sell auto insurance, which might suffer from any climate change treaty emission limitations.
- Insurance company directors may also serve on boards of fossil fuel or auto companies, and many insurers have extensive investments in fuel, auto, and utility companies.
- U.S. insurers are an extremely conservative group and simply may not have accepted the science of climate change.<sup>16</sup>
- U.S. insurers may view environmentalists as simply going after companies' "deep pockets" to advance their own social agenda.<sup>17</sup>
- U.S. insurers may feel more comfortable with traditional responses, such as premium and deductible increases or withdrawal of coverage in risk-prone areas, and new financial instruments, such as catastrophe bonds, that spread risk.<sup>18</sup>

What seems clear is that the best way to spur the American insurance sector to action is to show them that such activities can rapidly provide a profit through new business opportunities or through loss mitigation.<sup>19</sup> Carbon reduction must be seen only as an incidental benefit. In the past few years, many new avenues have opened for insurers to earn those profits as lines between insurance, banking, and other services begin to blur.

## PART II... CONVERGENCE BETWEEN THE INSURANCE AND BANKING INDUSTRIES: NEW FINANCIAL PRODUCTS

Old-fashioned comedians joke about the insurance industry and its agents' fearsome ability to sell policies to the unwilling. While this doggedness has produced healthy profits for the industry and could represent a valuable asset in dealing with climate change,

<sup>12</sup> Eugene Lecomte, CEO of Insurance Institute for Property Loss Reduction (IIPLR), letter to Joel Gordes, 27 November 1995. Note that the current surplus is in excess of \$311 billion.

<sup>13</sup> The Allstate Corporation, Annual Report, 27 March 1998, p. A-24.

<sup>14</sup> David Blecker, MSB Associates, interview by Joel Gordes, 8 July 1995.

<sup>15</sup> The authors stress the speculative nature of these points. Nevertheless, they result from fairly extensive conversations with experts in the field.

<sup>16</sup> Charles Edinger of the College of Insurance, New York, personal communication, 21 December 1998.

<sup>17</sup> Ibid.

<sup>18</sup> Fred Zalcman, Esq., Pace University, New York, personal communication, 21 December 1998.

<sup>19</sup> Eugene Lecomte, CEO of IIPLR, personal communication, 7 June 1996.

it has also led states to regulate the industry quite strictly. And federal laws prevent some transactions and require others—chief among them is the Bank Holding Company Act, which prevents insurers from entering the banking business and, likewise, stops bankers from offering insurance services and securities. Congress passed this law and others like it as the result of abuses that contributed to the Great Depression of the 1930s.<sup>20</sup>

Since then, though, some of the firewalls placed between these financial sectors have begun to crumble, as the world insurance industry has begun to restructure and—in other countries—privatize. Although skeptics warn that without adequate protections, these changes could threaten privacy and stifle innovation and efficiency, fans hail their capacity to produce innovative new financial products.<sup>21</sup> Examples of new financial products on offer include the following:

- Minnesota insurer ReliastarFinancial Corp. recently bought Citizens Community Bancshares in order to offer consumer credit, including credit cards, certificates of deposit, and money market accounts.<sup>22</sup>
- In Ireland, Prospectus, a consulting firm for the *Financial Times*, has found that a number of European retailers are set to offer insurance products. The firm believes that it is only a matter of time before department stores such as Marks and Spencer enter the Irish insurance market.<sup>23</sup>
- PowerCor, an electricity retailer in the Australia's Western Victoria, now also sells BankWest housing loans; BankWest's new customers receive discounts on electricity bills.<sup>24</sup>

The ability of the financial industry to offer more than in the past opens a broad range of products that can be structured to benefit both the environment and the renewable energy industry. While some groups are skeptical of any solutions involving big business, others disagree. For instance, in *The Ecology of Commerce*, Paul Hawken contends that only through the power of big business and market forces will we be able to overcome environmental problems: "Business is the problem and it must be part of the solution...It must, because no other institution in the

modern world is powerful enough to foster the necessary changes."<sup>25</sup>

### **PART III... ELECTRIC RESTRUCTURING AND ELECTROFINANCE: AN OPPORTUNITY FOR INSURERS**

In 1994, the California Public Utilities Commission issued a Bluebook outlining that state's initial plan to restructure its electric industry by introducing competition among retail power providers for customers. Since then, a number of other states have passed legislation or have administratively enabled electricity providers to engage in some degree of competition. The process reflects both the judgment on the part of some interests that competition can provide better service at lower cost—at least to some customers—and an ideological dissatisfaction with government regulation on the part of some policymakers.

In response to these regulatory changes, and helping to drive them, increasing numbers of firms have entered or are considering entering the power marketing business. These include unregulated affiliates of established utilities, small start-ups, and large nonenergy companies attracted to new opportunities. Other entities have entered the fray as well, including municipalities, cooperatives, and for-profit go-betweens anxious to act on behalf of customers to secure favorable terms from power suppliers. Many of these "aggregators" seek to market electricity in new and interesting ways, often "bundled" with other consumer services. (See Box 2.)

In contrast to permutations based on consumer products, we suggest electrofinance. In a deregulated electric market, insurers, other financial institutions, or those who offer such services could be the foremost aggregators of electrical customers. They would do so in a way that would bundle property-casualty insurance, a retirement annuity, and electricity all into one bill. Any savings from reduced electricity bills from aggregation and conservation would flow seamlessly into the annuity portion of the bill. Another appealing option would be for those same savings to help procure a photovoltaic (PV) system with a low-interest, long-term loan.

<sup>20</sup> "House Passes Bill Allowing Financial Firms to Affiliate," *Hartford Courant*, 14 May 1998.

<sup>21</sup> Marcy Gordon, "Groups Say Bill Threatens Financial Privacy," *Hartford Courant*, 3 September 1998.

<sup>22</sup> American Banker, "Sign of Times: Minnesota Insurer Buying a Thrift," *The PointCast Network*, 6 May 1997.

<sup>23</sup> Barry O'Keeffe, "Report Calls for Major Changes in Insurance" *The Irish Times*, 30 May 1997.

<sup>24</sup> Anne Lampe, "Utilities' Databases May be New Line to Banks," *The Age* (Sydney, Australia), 14 October 1997. This was the first reference found outside of internal Solar Century discussions that linked financial services with gas or electric utilities. The basic electrofinance concept, described in more detail below, was faxed to Dr. Andrew Dlugolecki, Group Assistant General Manager of General Accident on 21 December 1996 and made public in April 1997.

<sup>25</sup> Paul Hawken, *The Ecology of Commerce* (New York: HarperCollins, 1993), p. 17.

## Box 2: BUNDLING

One marketing tool that will be used increasingly is “bundling” electric service with others such as natural gas, telephone, home security, Internet access, and cable into a unified consumer product. In the United Kingdom, the giant food chain Tesco offers natural gas to its customers with the claim that they can save up to 20% on their current bills. The company has recently been joined by the food chain Sainsbury’s, which now offers cut-rate electricity. Yet another option bundles appliance and computer repair services. And DTE Edison of Detroit envisions partnering with businesses such as dry cleaners, which “might offer a 25% discount for people who belong to the company’s self-styled ‘America’s First Energy Club’.” In short, the possibilities are endless.

The basic idea of electrofinance has at least one precedent: United Services Automobile Association (USAA), the sixth largest auto and home insurer in the nation, began offering long-distance telephone services to its members in 1990. While USAA is a special case, in that it is a member-owned firm, it provides a model of one-stop shopping.

### THE BASIC PLAN

The electrofinance package could take several forms. At its most basic, it will provide property-casualty insurance, a retirement annuity, and electricity. Clients will choose varieties of each portion of the package most suited to their specific needs. Normal underwriting criteria would guide the coverage provided by the property-casualty portion, specifying the amount insured as well as the amount of the deductible. The annuity could be a standard low-interest, low-risk annuity, or one with higher returns and higher risk, according to client preference. The client would also specify a base amount that would be invested on a monthly basis. For purposes of simplicity, we will refer to this in a generic way as the “annuity.”

The electricity portion presents slightly different choices. For an existing home, analysis of prior bills could supply a base figure

on which to estimate future usage. For a new home, a simple analysis could determine approximate usage. In either case, it would make sense to levelize monthly usage to an average annual figure, so as to smooth out seasonal and monthly variations.<sup>26</sup> Provision of such a flat fee is offered by some heating fuel dealers, with benefits both for their own annual cash flows and those of their customers.

For the sake of illustration, suppose that a homeowner purchases a package of home insurance at \$50 per month, a retirement annuity at \$50 per month, and levelized electricity service at \$50 per month, for a total bill of \$150 per month. With access to a competitive electric market, the insurer would purchase power on behalf of the homeowner at a far lower cost than otherwise available. The first savings come immediately from the insurer’s ability to aggregate demand and provide buying power. According to some analysts observing states that have already introduced competition to the retail electric sector, this might be 5% below the current norm.<sup>27</sup> The savings might be greater, given more participants or aggregation by the insurer of clients’ usage with the insurance company’s own usage as well as that of their extensive offices, property, and management holdings, said to be in excess of \$50 billion.<sup>28</sup>

The second and most lucrative way to achieve savings—and the key to the environmental benefits of the electrofinance concept—is through the encouragement of aggressive energy efficiency and load management (EE&LM).<sup>29</sup> These measures might include limited fuel switching. States that make EE&LM programs available through system benefits charges would be particularly attractive markets for electrofinance, and insurers could act as information sources, motivators, and facilitators for such programs, which include low-cost acquisition of compact fluorescent lighting, efficient appliances, and even special time-of-day rates for voluntary load reduction or shifting. Depending on numerous variables, aggressive EE&LM might lower electric bills by an additional 15–40% from the base amount. The key for electrofinance purposes would be the subsequent addition of this sum to the base annuity; in the example cited, this represents an additional \$20 added to the \$50 base annuity amount, for a total of \$70 per month. (See Figure 2.)

<sup>26</sup> In April 1999 Shell Energy Services Ltd. introduced their WeatherProof Bill plan, which sets a flat monthly charge for consumers.

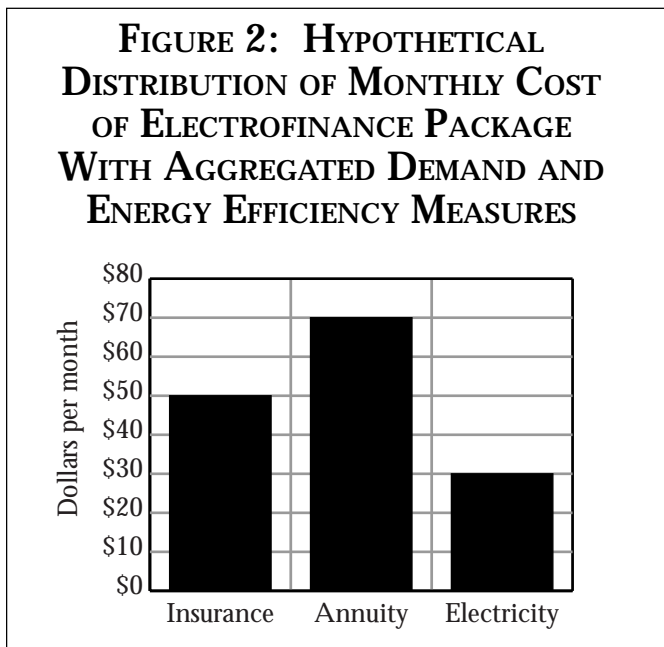
<sup>27</sup> Jim Meyers, “Co-op Buyers Save About 5 Percent On Their Bills,” *Sacramento Business Journal*, 19 October 1998.

<sup>28</sup> Zalcman, op. cit. note 18.

<sup>29</sup> “Load management” refers to the practice of using electricity during the times of day, week, or year when demand for power—and hence its price—is low, thus saving money for both the supplier and user. For example, homeowners might set their washers to operate after midnight, when demand is lower. New two-way communication technology allows electric companies to arrange a cheaper rate for customers willing to allow their appliances to be cycled down at times of high demand.

Insurers are also concerned about reduction of hazards around the home that might lead to property losses for which they would have to pay the replacement costs. Through the work of Lawrence Berkeley National Labs and others, insurers could identify for their clients appliances that are not only efficient but also safer than the market norm. For instance, the electrofinance plan provider might have a list of preferred appliances that included a clothes dryer—an appliance responsible for 24,000 residential fires annually—that was both energy-efficient and engineered with insurance industry inputs to collect fire-prone lint more effectively.<sup>30</sup>

If actuarial evidence suggests that hazard reduction does result, insurers might consider a premium reduction in the base insurance amount for plan participants who choose safe appliances.



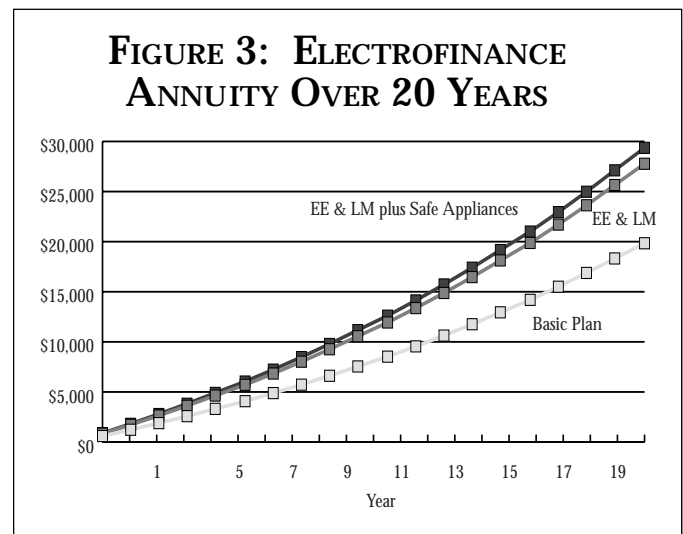
The savings from the property-casualty premium would also be transferred into the annuity portion. Some precedent does exist for such incentives; insurers reduce premiums for customers who install certain types of burglar alarms or sprinklers systems to fight fires. And in the early 1980s, Hanover Insurance Co. of Worcester, Massachusetts, instituted a 10% premium reduction for active and passive solar heating as well as for underground

homes that were energy-efficient. The company reasoned that since backup energy sources would fire less frequently, the probability of a fire would be reduced.<sup>31</sup>

Any such reductions would have to be based on sound business judgments, but some of the internal arguments against them might be lessened with the knowledge that the funds would flow into the annuity division of the same company and remain there for 20–30 years.

How much of a difference might these changes make in a client's annuity? This would depend on a number of factors such as the base amount invested, the amount derived from energy and property-casualty insurance savings, the interest rate of the investment, other enhancements, and the time for which it was invested. Figure 3 illustrates the savings that could be expected to accrue over 20 years at a modest 5% rate for the base of \$50 per month and then with energy savings added and energy safe home premium reduction. For this example, at the end of 20 years the value of the annuity is increased by one-half—from \$20,000 to \$30,000.

But the profit possibilities do not end here. There are innumerable ways that entrepreneurial insurers could further maximize profits for their clients and themselves. (See Appendix A.)



<sup>30</sup> Ann Landers, "Clothes-Dryer Vents Are Potential Fire Traps," *Hartford Courant*, 21 October 1998.

<sup>31</sup> "Insurance Discounts for Solar Homes," *Sun Times*, October 1982, p. 13.

## THE PHOTOVOLTAIC OPTION

The greatest challenge in selling consumer products is branding: how can a firm convince consumers that its product offers key advantages compared with those of its competitors, and then retain those consumers over the long term? In the case of electric power, this problem proves acute. Americans are simply unused to shopping for electricity or comparing one “variety” to another. In fact, electricity suppliers in states that have allowed retail competition have differentiated their products on two grounds: price and environmental impact. In the case of electrofinance, incorporation of home-based renewable energy systems—chiefly PV panels or small wind systems—can provide branding and competitive advantage to the insurer as well as power reliability and satisfaction regarding environmental concerns to the customer.

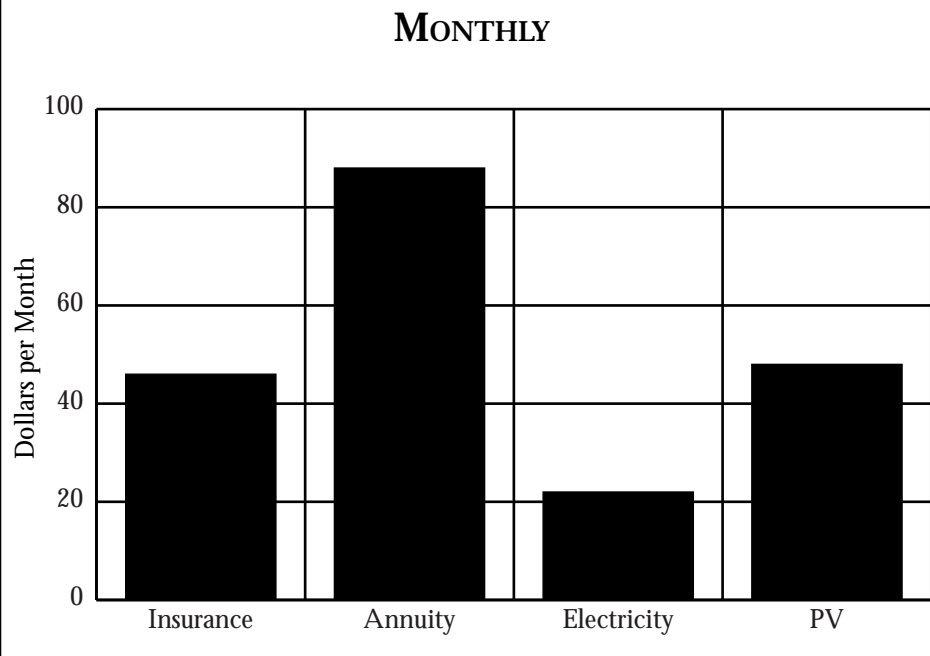
Specifically, the electrofinance package could offer plan holders the opportunity to procure a home PV or wind system through a low-interest, long-term loan. A portion of that loan could be paid for via the savings from energy efficiency and load management. The potential market for such a product might be large. One recent survey notes that 25% of U.S. homeowners are actively considering purchase of backup generating systems, and suggests that affluent consumers, concerned about their computer systems, security, and hobby and home entertainment equipment, would be willing to pay a premium of 10% to their energy supplier to provide backup for their home generators. Proprietors of home businesses show particular interest in a power system that would ensure power quality and protect them during emergencies.<sup>32</sup>

Another group of homeowners potentially interested in PV electrofinance are those facing high hook-up costs for conventional electrical service due to their remote location. Traditionally,

much of this has been paid for by all ratepayers, and it might cost some \$600, but under restructuring this installation has the potential to cost \$6,900—as it did for one couple in the PG&E service territory.<sup>33</sup> At this cost, PV looks far more competitive even as a stand-alone system.

PVs on the roof may also hold additional appeal to insurers for loss mitigation, since they could be designed to act as a Uninterruptible Power System. As such, they might allow certain essential appliances to remain up and running during a hurricane or blizzard. During the massive ice storm in the northeast in January 1998, Prudential Property and Casualty Insurance Company allowed its policyholders to spend up to \$600 for emergency generators, for which they would be reimbursed.<sup>34</sup> During that same ice storm, it was ascertained that solar availability was high enough to allow most normal operations.<sup>35</sup>

**FIGURE 4: HYPOTHETICAL DISTRIBUTION OF MONTHLY COST OF ELECTROFINANCE PACKAGE WITH AGGREGATED DEMAND, ENERGY EFFICIENCY MEASURES AND ROOFTOP PV SYSTEM**



<sup>32</sup> “America Unplugged? Landmark Customer Survey Points to Promising New Markets for Distributed Power Generation,” *Business Wire*, 30 September 1998.

<sup>33</sup> “PG&E Hook-up Costs Hit Home New Fees Stun Windsor Pair,” *The Press Democrat*, 8 September 1998.

<sup>34</sup> “Prudential Responds to Policyholders in Ice Ravaged Northeast,” *Prudential Press Release*, 22 January 1998.

<sup>35</sup> Richard Perez, *Photovoltaic Availability in the Wake of the January 1998 Ice Storm*, <http://lunch.asrc.cestm.albany.edu/~perez/>

In certain locales, some PV roof shingle products might provide the additional benefit of being impervious to hail storms, which cost insurers \$1.5 billion annually. This has been so costly that some insurers are offering 16–35% discounts on their premiums for installation of hail-resistant roofing.<sup>36</sup> While not translating into large amounts of dollars, in tandem with other values accorded on-site generation, insurance incentives may provide the margin for more homeowners to install PV systems.

In the example used here, with an up-front cost of \$7,000 and with a 20-year, 5% loan, a 1-kilowatt PV system would add \$46.20 a month to an electrofinance customer's payment plan, for a total monthly payment of \$196.20 for all services. If the output of the PV system is 1,400 kilowatt-hours (kWh) per year at equivalent value of 8¢/kWh, this would translate into an additional monthly savings on electricity of \$9.33 that could be put into the annuity portion of the plan. (See Figure 4.)

Although the PV option does increase the overall cost of the package and might reduce the annuity portion if savings went instead into buying down the PV system, it also introduces another factor that further reduces the cost of the electric portion of the billing. One of the greatest values is that rather than maintaining a continuing expense to purchase electricity, it transfers money to add equity through the purchase of the system. In doing so, along with the energy efficiency savings, it also provides more assurance against loan default for the home and system. Not only would it provide greater choice to the consumer as well as interest payments to the aggregator, it would simultaneously “brand” the company in a positive way.

## RELATION TO INSURERS' CORE BUSINESS

Why would insurers enter the electricity market, which apparently lies well outside their core business? At first glance, most insurers presumably define their core business as offering property-casualty insurance and retirement services to members of the public, to the economic advantage of both parties. Yet a broader answer might include offering total financial security to their clients. This latter definition could justify any number of additional activities in addition to insurance and retirement funds—why not electricity too?

Electrofinance can indeed add value to insurers' core business, by lowering insurers' internal electric costs, drawing new customers into the core insurance business, increasing investment activities of existing customers, and mitigating property-casualty losses in the following ways:

- As part of their existing core business, many financial institutions already purchase electricity for their own extensive property holdings. Aggregating client demand with their own increases their bargaining power in the market. In fact, insurers may prefer to introduce electrofinance in areas where they act as managers of large amounts of property.
- The lower-cost electricity that insurers would sell to clients may act as a “loss leader” to attract customers to the core insurance business. In this respect, insurers are already aggregators and enter no new market but merely employ a new marketing tool.
- Electrofinance offers the potential to sell clients retirement investment services to which they may not currently subscribe. This is particularly true of “baby boomers”—those born between 1946 and 1964—as most surveys indicate they fear they will not have sufficient funds to insure a comfortable retirement.<sup>37</sup> Again, the lure of low electricity bills might be used as the loss leader to sell more of the core products, since it will be more profitable to have a client's money in a 20-year annuity than to make a marginal profit from electricity sales.
- Some control over energy use and choice of appliances has the potential to reduce liability claims.<sup>38</sup> Lawrence Berkeley Laboratory has determined more than 70 ways in which energy efficiency can be used to reduce property-casualty hazards.<sup>39</sup> For instance, high-temperature, 300-watt halogen bulbs in torchiere lamps, which have been responsible for numerous fires, can be replaced with new, 38-watt compact fluorescent tubes. This lowers both electricity bills and the risk of fire—and insured loss.

<sup>36</sup> John F. Waldon, “Roof Discounts Raise Insurers' Hopes for Fewer Claims,” *San Antonio Business Journal*, 2 March 1998; “Hail Resistant Roofs May Save Money in Colorado,” *Business Wire*, 5 August 1998.

<sup>37</sup> “Survey: 30% of Pre-retirees Have Saved Less than \$10,000,” *CNN News*, PointCast Network, 20 May 1997.

<sup>38</sup> “Small Kitchen Appliances Become Deadly According to Tests by Travelers Safety Experts,” *PR Newswire*, 3 October 1997.

<sup>39</sup> Evan Mills and Ivo Knoepfel, “Energy-Efficiency Options for Insurance Loss Prevention,” Ernest Orlando Lawrence Berkeley Laboratory, Berkeley, CA, June 1997.

- Companies can reduce overhead by charging for multiple services via a single bill. If they choose to use electronic payment, they also have the potential to lower their costs 50¢ per bill as well as by outsourcing billing services for others.<sup>40</sup>

Viewed more broadly, there have been several biting critiques of the notion, increasingly popular in the 1990s, that firms should pare away all functions outside their core competence—the activity that they do better than anyone. Michael Porter, for instance, has warned repeatedly against mistaking such simple management mantras for strategic thinking. Porter defines “operational effectiveness” as “performing similar activities *better* than rivals perform them,” and he contrasts this to “strategic positioning [which] means performing *different* activities from rivals.” The former, he argues, seldom succeeds in sustaining a company over a long period, and proves mutually destructive to firms as they slide inevitably toward an undifferentiated commodity market. The latter, by contrast, allows firms to deliver a unique mix of value that exploits the “fit” among a firm’s activities.<sup>41</sup>

Electrofinance indeed can prove a good “fit” with the tools already possessed by insurers. Most important, insurers possess the gold mine sought most feverishly by potential electricity providers: an established customer base contained in extensive electronic databases, and a “brand” familiar to those customers as reliable and stable. Almost as important, insurers have long experience in selling their services to wary individuals in a competitive market; these skills are unmatched—and envied—both by newly established electricity retailers and the affiliates of stodgy electric utilities accustomed to the slower pace of government-granted monopoly markets. Finally, the national scope of many insurers gives them an advantage both in marketing and in negotiating on the wholesale market on behalf of their aggregated customers.

Providing some evidence for the reasonableness of this outlook, several corporations have begun to reassess the concept of core competence. In documented cases, selling these services has provided them with additional profit centers. Perhaps most relevant is American Reinsurance’s technology transfer arm for environmental risk management.<sup>42</sup>

## BEYOND REGULATORY BARRIERS

Insurance is a regulated industry. Not only must it meet federal requirements, it also is subject to vastly different regulations in each state. Thus most insurers have stuck to insurance products not only by inclination but to avoid regulatory infractions. USAA, mentioned earlier, is an exception due to its unique organizational structure.

Our preliminary investigations of this concept uncovered split opinion on the ability of insurers to undertake such activities directly. Attorney Peter Gilles, a former Connecticut Commissioner of Insurance, saw no reason why it would not be possible for an insurer to sell electricity.<sup>43</sup>

Attorney Robert Googins of the Insurance Law Center of the University of Connecticut Law School (and a former Commissioner of Insurance) suspects that no one had conceived of insurers selling electricity when the insurance regulations were written, and it might be a “square peg in a round hole” sort of issue. Thus there might not exist any prohibition against electricity being sold, but because a security is also sold, the transaction may also be subject to federal security laws. Googins felt that insurers might not be able to produce the power themselves, since they are “restricted in what is on their balance sheets,” but could probably procure and resell it. In addition, he noted that this would differ in each state, and figuring out what could and could not be undertaken could prove quite complex.<sup>44</sup>

California’s Chief Property Casualty Actuary, Richard Roth, believed that it would either be already possible for insurers to sell electricity or that “it could be worked out”—although he thought they might not want to deviate too far from their core business.<sup>45</sup>

But the Florida Department of Insurance has noted the following:

At present, the business of insurance, defined as “a contract whereby one undertakes to indemnify another or pay or allow a specified amount or determinable benefit upon determinable contingencies,” is a highly regulated industry with specific requirements for the conduct of business. Among those

<sup>40</sup> “U.S. Utility Companies Can Achieve Annual Cost Reductions of \$1.2 Billion Through the Effective Use of Electronic Bill Presentment and Payment Systems,” *Excite*, 5 August 1998.

<sup>41</sup> Michael Porter, “What Is Strategy?” *Harvard Business Review*, November-December 1996, pp. 61–78.

<sup>42</sup> Mills and Knoepfel, op. cit. note 39, p. 13.

<sup>43</sup> Attorney Peter Gilles, personal communication with Joel Gordes, 24 April 1997.

<sup>44</sup> Attorney Robert Googins, personal communication with Joel Gordes, 29 May 1997.

<sup>45</sup> Richard Roth, personal communication with Joel Gordes, 27 May 1997.

requirements are company licensure, capitalization, asset and investment limitations as well as product specific regulations.

In reviewing the concept of insurers selling electricity, it appears that this business activity does not fall within the allowable insurance lines of business. Additionally, electricity and power issues are regulated by the Public Service Commission.<sup>46</sup>

With the continued breakdown of barriers between financial sectors as well as the ability of the financial community to expand beyond traditional business transactions, the preliminary evidence indicates that it may just be a matter of time until insurers are allowed to sell electricity as a normal course of business in any jurisdiction. Even in the interim, however, there are alternate structures that would allow the joint sale of insurance products and electricity through a third-party aggregator. In fact, with respect to insurance and annuities, the American Association of Retired Persons (AARP) solicits its members to buy numerous forms of insurance as well as retirement savings plans under its umbrella.

Any number of groups might provide this umbrella, including holding companies, cooperatives, chambers of commerce, or any other group that has already aggregated people to increase their buying or political power. Such a structure that is not under the direct auspices of the insurer might have greater appeal for at least two reasons:

- Potential customers might have reservations that a single company could exercise so much financial control over them and would have access to more personal information than they might care to make public.
- If the aggregator requested proposals for each of the services in the bundle, the ensuing competition between potential suppliers might provide lower prices or more innovative plans to participants than if the supplier of insurance and annuities were the aggregator itself.

What is partially lost under this system is the pure profit motivation on the part of an insurer that also offered the annuity to maximize the amount going into the annuity portion through offering energy conservation inducements.

Whether consumers will support such one-stop shopping models is also debatable. Again, using USAA insurance as a model, General Robert F. McDermott, its Chairman Emeritus, attributes that company's growth over the last several decades "to the implementation of the one-stop shopping model, and to the superior service USAA offers its customers....the one-stop financial services concept hinges upon customer loyalty."<sup>47</sup> The mega-merger between Travelers Insurance and Citicorp has been touted as a marriage that would also allow a one-stop financial services model "to reach larger customer bases and attain geographical diversification."<sup>48</sup>

Other reactions, however, may indicate underlying distrust of one financial services industry segment's ability to serve. "Serious people want serious agents. Buying insurance from a bank is kind of like going to a carpenter to get some plumbing done," reflected one long-time insurance agent.<sup>49</sup> Still, the popularity of bundled USAA financial services is high not only with customers but with rating agencies, which have cited them for excellence in several categories such as investment management and universal and whole life.<sup>50</sup> This appears to prove that a diversified financial services company providing a one-stop shopping model can attain excellence in several fields.

Even without the example of USAA, involvement of insurers and utility suppliers is not altogether new, nor is it a one-way street, since some electricity providers have made limited excursions into supplying insurance. One such program, ApplianceGard, offered by Salt River Project and Arizona Public Service, provides appliance repair and replacement insurance from \$9.99 to \$19.49 per month, depending upon which appliances are covered and their age. The 24-hour-per-day service pays for most parts and labor up to the value of the appliance and has no deductible or service fee associated with it. While appliance insurance or extended warranty plans are commonly provided by manufacturers or third parties, the utility, which may often receive the blame for damaging power surges, has an incentive to provide this as a high-value product.

Australians might soon be able to buy insurance through an electricity provider, and the opposite may also be true, since at least one Australian insurer is actively exploring the sales of electricity. FAI General Insurances of Sydney envisions "the convenience of combining three services—insurance, annuity and elec-

<sup>46</sup> Michelle L. Newell, letter to Joel Gordes, 1 October 1997.

<sup>47</sup> Sebastian Weiss, "One-Stop Model Fuels USAA's Fast Growth, McDermott Says," *San Antonio Business Journal*, 27 April 1998.

<sup>48</sup> Ibid.

<sup>49</sup> Brad Hoeschen, "Small-business Customers Balk at One-Stop Financial Services," *The Business Journal*, 17 August 1998.

<sup>50</sup> "USAA Investment Management Company Receives Top Honors," *USAA Magazine*, August-September 1997; universal and whole life from "We're #1—Again!," *USAA Life's Issues and Answers*, September 1998.

tricity into one bill. This is close to the project I am currently working on for an insurance company and a utility company in Australia. We are in the process of pursuing the concept of single billing system: this will comprise of electricity bill and insurance premium in one statement.”<sup>51</sup>

### BRANDING FOR THE NEW MILLENNIUM: DRIVING THE ELECTROFINANCE REVOLUTION

A key premise of the appeal of the entire electrofinance concept is that the nature of “branding” is undergoing fundamental change. As we enter the new millennium, corporations will increasingly be rewarded by consumers for brand positioning that fosters social and environmental good in a meaningful way. A Co-op America survey reports that almost 25% of the adult population integrates social and environmental concerns into their purchasing and investment decisions.<sup>52</sup> Consumers are increasingly discriminating in favor of corporations that give something back to society. Companies like Working Assets Long Distance and Ben and Jerry’s Ice Cream both hold loyal followings not just because they produce quality products but also because they meet the psychological needs of their audience. Others like Patagonia, the outdoor clothing company, and Toyota Motor Sales have both made strong commitments to use renewable resources even though it will cost as much as \$1 million more annually. They justify this for numerous reasons, among which is that it is a strong marketing tool.<sup>53</sup> To consumers, the brand represents “possibility” and helps them become something they long to be—concerned citizens.<sup>54</sup>

Some analysts expect that insurance companies will increasingly have to brand themselves as consumers become more savvy, as media outreach and direct marketing become more sophisticated, and as bundled consumer products—such as electrofinance—become more common.<sup>55</sup> Some insurers have already begun to reinvent themselves. Sun Life, for example, is reportedly undertaking undergoing a major post-merger rebranding exercise focusing on the parent company’s name (AXA).<sup>56</sup> Similarly, Guardian Life Insurance Co. of America is expected to launch its first-

ever corporate branding campaign next year, spending as much as four times its annual advertising budget of \$2.5 million. Other firms looking to branding include Liberty Mutual Group, AXA/Equitable, and Aetna Life and Casualty.<sup>57</sup> Meanwhile, the electric sector is if anything far more concerned with branding. The specter of competition in a field in which customers think of the product as a commodity has retailers scrambling to establish an appealing brand identity.

All too often, however, the resulting brand is shallow, based on nothing more meaningful than a catchy name.<sup>58</sup> Electrofinance, especially a package incorporating renewable energy and energy efficiency, offers an alternative: a product with real benefits to the seller, the buyer, and the world at large. While the energy efficiency portion of the electrofinance plan is immediately profitable and practical, the PV component provides a vivid image with enormous public appeal—appeal that energy conservation has unfortunately never achieved. That image could be cast as the embodiment of an environmental imperative that recognizes the need to generate electricity without producing emissions that cause global warming or reduce air quality. In this respect, the consumer’s PV purchase makes them part of a “club”—an emerging culture—that sees value and good in a pooled, international, solar-based approach to individual and collective financial, energy, and environmental security. To this end, a small margin or finders’ fee to the PV companies could be assessed for a fund to provide PV systems in developing countries,<sup>59</sup> or a checkoff on the monthly bill could use \$1 of the electric savings in the same way.

Most important, the brand identity thus established would stand not only on a catchy name or a warm-and-fuzzy ad campaign, but also on a unique product that provided value to buyer and seller alike.

### THE PRIZE: INSURER INVESTMENT IN PV TECHNOLOGY

Insurers’ involvement in the use and promotion of PV technology could lead to deeper involvement in the development of the

<sup>51</sup> Nicole Shin, Business Relationship Analyst at FAI General Insurances, e-mail, 5 August 1998.

<sup>52</sup> Curtis Runyan, “Green Consumers Make Inroads,” *World Watch*, November/December 1998, p. 9.

<sup>53</sup> “Sources Attracting New Customers,” *CNN Custom News*, 27 September 1998.

<sup>54</sup> Thomas H. Rawls, “What is a Brand? Creating a Green Brand,” presentation at *Clean Power '97*, 28 May 1997.

<sup>55</sup> Barry O’Keefe, “Report Calls for Major Changes in Insurance,” *The Irish Times*, 30 May 1997.

<sup>56</sup> “Sun Life and Provincial to Rebrand,” *Reuters*, 18 September 1998.

<sup>57</sup> Laura Petrecca, “Guardian Life Sets Review As It Mulls Corporate Ads,” *Crain Communications*, 15 October 1998.

<sup>58</sup> Alan Brew, “The Naming Game,” *The Electricity Journal*, November 1998, pp. 30–33.

<sup>59</sup> A majority of PV manufacturers approached by Solar Century have agreed to this in principle.

technology through investment. This might make sense for insurers for several reasons:

- An environmental fund investment option could supply capital.
- Investment in PVs would reinforce insurers' brands.
- Insurers' investments would help reduce the cost of PVs, increasing the appeal of electrofinance, and raising the contributions of planholders to the annuity portion of the plan.
- Insurer input into product design could enhance the focus on using materials that satisfy safe roof requirements and reduce property losses due to hail or fire.
- As evidenced by experiences during Hurricane Andrew, PVs provide natural disaster resilience (for example, through powering communication systems that do not depend on the transmission grid), thus reducing insurer losses even further.<sup>60</sup>
- Insurers are able to diversify their investment portfolios, many of which currently appear slanted toward fossil fuels, and hence vulnerable to increasingly strict climate policies.<sup>61</sup>
- Larger investments may lower the cost of the green power product offering.
- As the industry most prone to the potential negative effects of climate change, investments into renewable sources of energy provide insurers with their own best long-term insurance.

Indeed, some insurers have already begun to explore not just insurance-related aspects of PV technology but also investments to aid in the deployment of the technology as well. GAIA Kapital, which is funded by the Gerling Insurance Group and Swiss Re, has invested in the projects of SunLight Power International, which provides PV systems to people in developing nations by making long-term, low-interest loans available.<sup>62</sup>

In the United Kingdom, Guardian Royal Exchange's chief executive John Robbins has affirmed the importance of investing in renewable energy, and announced his firm's intention to install PV technology at its headquarters.<sup>63</sup> Tim Mills, Director of

Guardian Properties, said, "It's expensive at the moment but as an act of faith we are going to install photovoltaics on at least one of our properties. As a company we have decided to lead by example."<sup>64</sup> Likewise, banking giant National Westminster has pledged to install PVs on one of its buildings.<sup>65</sup>

As of yet there has been no corresponding action by any U.S.-based insurers to investigate and install the technology. Representatives of some companies have begun to attend forums that highlight PVs as a disaster mitigation and recovery tool. From this meager beginning, perhaps it will be possible to elicit their interest to the point of offering an electrofinance program with a PV component and eventual investment in the technology.

## PART IV... WHY ELECTROFINANCE COULD SUCCEED

The success of electrofinance will be driven by the immense potential benefits to the insurance industry and by the fact that baby boomers increasingly fear that they will not have the funds needed to continue enjoying the same standard of living.

To recapitulate the benefits:

- Insurers lower their own cost of electricity by aggregating their load with others.
- Insurers create a long-term customer retention strategy, particularly for those early market entrants who effectively "brand" themselves in the mind of the consumer.
- Through increasingly large bulk purchases of electricity and financing, the insurers and electricity suppliers help clients conserve energy and add to the insurer's annuity business. (See Figures 5 and 6 on annual and 20-year fund income for various participation rates and amounts by baby boomers.) Aggregated figures of this type constitute the single most important factor influencing corporate planners. Without confidence in these figures, the plan might be considered "makable" but not marketable. As a makable plan, it may be possible to conceive such a joint product offering, but unless it can provide a large enough profit margin per transaction and

<sup>60</sup> Ingrid Melody, "Sunlight After the Storm," *Solar Today*, November/December 1992, pp. 11–12.

<sup>61</sup> Mark Mansley, "Long Term Financial Risks to the Carbon Fuel Industry from Climate Change," *The Delphi Group*, November 1994, p. 6; Stephen Schmidheiny and Federico J. L. Zorraquin, *Financing Change* (Cambridge, MA: The MIT Press, 1996), p. 82.

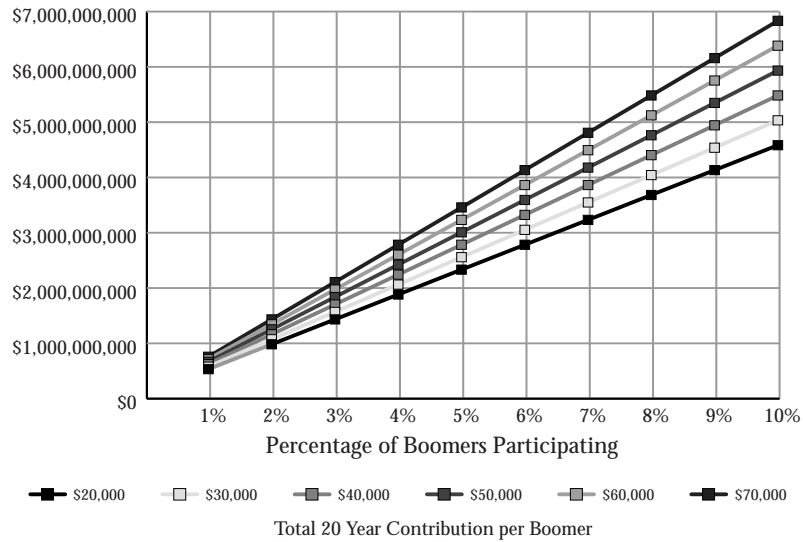
<sup>62</sup> "SunLight Power International Expands Operations with \$2 Million Investment," *SunLight Power Press Release*, 22 April 1997; "Swiss Reinsurance Company Pledges \$2.75 M to Sunlight Power International," *SunLight Power Press Release*, 11 July 1997.

<sup>63</sup> Leyla Boulton, "Insurers Take a Shine to Solar Panels," *Financial Times*, 25 February 1997.

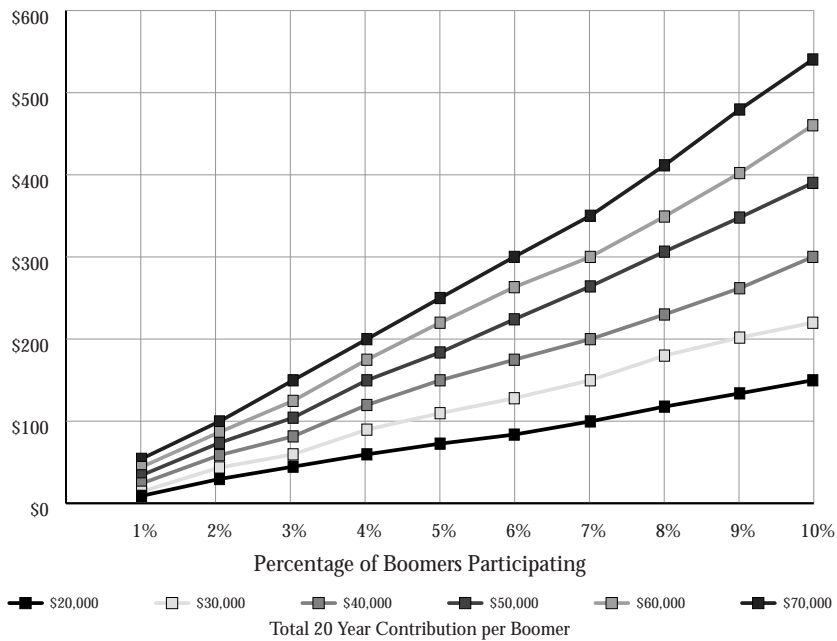
<sup>64</sup> Paul Brown, "Global Warming Fears Add Impetus to Solar Power," *Finance Guardian*, 25 February 1997.

<sup>65</sup> Leyla Boulton, "NatWest Set to Support Solar Energy Scheme," *Financial Times*, 1 May 1997.

**FIGURE 5: FUND ANNUAL INCOME  
IN DOLLARS**



**FIGURE 6: TOTAL FUND VALUE AT 20 YEARS  
FROM \$20K TO \$70K EACH BOOMER**



enough total profit to justify the company's expenditures for program development and start-up, it would be deemed unmarketable.<sup>66</sup>

- Insurers make a greater profit from funds in the long-term annuity than through the marginal profit associated with selling/reselling electricity. This provides an automatic incentive for them to maximize energy efficiency measures among their clients without the conflict of interest often found when electric suppliers have supplied EE&LM measures that result in lost sales.
- Insurers have a large opportunity to reduce property losses through use of the energy efficiency-loss reduction work of Lawrence Berkeley Labs. The value of this risk reduction is factored into the program and monetarily rewarded in each month's composite billing as an incentive to continue such behavior.
- Insurers derive additional value from pollution reductions, which may result in emission reduction credits, tradable allowances, or offsets that are potentially salable items.
- Where EE&LM or distributed generation can supplant transmission and distribution upgrades, additional value flows to the insurer.
- As an incidental benefit, the plan passively reduces carbon dioxide, a greenhouse gas, which has the potential to harm insurance industry profits in the long term.

In terms of baby boomers as a driving force, consider that:

- 58% of baby boomers have no idea how much money they need for retirement;
- 46% currently tap savings and investments to meet current expenditures;
- 70% say they worry about their financial future;

- 75% regret not having begun to plan for retirement earlier;<sup>67</sup>
- 30% of those approaching retirement have saved less than \$10,000, and baby boomers appear to be in even worse shape;<sup>68</sup>
- baby boomers are the first generation in history to be larger than the generation following it, with only two workers for each boomer at age 65 compared with the current five;<sup>69</sup>
- although boomers are concerned about outliving their income, only 45% said they were interested in an annuity; and<sup>70</sup>
- 40% expect that they will have to work in retirement.<sup>71</sup>

With 76 million baby boomers born from 1946 to 1964 and approaching retirement,<sup>72</sup> the lack of preparation for the "golden years" represents a potential national crisis in the not-too-distant future. Failure to address this in the short term will only provide fewer options in the future when the bills come due.

Some investment firms, such as Merrill Lynch, are positioning themselves for the "mature" market by hiring gerontologists as well as establishing a board of depositors aged 52–78 to advise them on the needs of older investors. In doing so, it has been noted that "companies with relationships with AARP have a potential gold mine. The Hartford, which has an exclusive license to market insurance to AARP members, got 67% of its premiums paid by individuals paid by AARP members in 1996, totaling \$1.3 billion."<sup>73</sup>

While such firms might be more easily able to offer an electrofinance plan, by itself electrofinance will not entirely solve the retirement crisis. What it can do is make a meaningful contribution for millions of people who can use it to supplement other resources they may have, including social security. In some instances, due to its one-stop shopping simplicity, it may provide the impetus for many who have never previously invested for their retirement to take their first steps in that direction, since the funds will not compete with other current expenditures.<sup>74</sup> With additional enhancements to include other savings

<sup>66</sup> Steven Silbiger, *The Ten Day MBA* (New York: William Morrow, 1993), p. 31.

<sup>67</sup> Kenneth R. Gosselin, "Boomers Pay Too Little Attention to Retirement, Survey Says," *The Hartford Courant*, 8 April 1997. The source cited refers to all bulleted statements up to and including the location of the footnote.

<sup>68</sup> op. cit. note 56. "Survey: 30% of Pre-retirees Have Saved Less Than \$10,000," *CNN News, Pointcast Network*, 20 May 1997.

<sup>69</sup> David B. Kendall, "Baby Boomers Are Population Time Bomb," *Hartford Courant*, 5 October 1997.

<sup>70</sup> "Survey Finds Baby Boomers Unprepared for Financial Impact of Long Retirements," *Business Wire, Pointcast Network*, 30 September 1997.

<sup>71</sup> "Aging and Finance Dilemma: Majority of Americans in Their 50's Say They Will Not Have Enough Money to Live in Retirement at Their Desired Standard," *Excite, Business Wire*, 2 March 1998.

<sup>72</sup> Liz Doup, "Baby Boomers Redefine the Circumstances of Retirement," *Hartford Courant*, 8 September 1997.

<sup>73</sup> "Boomers Set Off Rush to Mine the Golden Years," *American Banker, PointCast Network*, 7 May 1997.

<sup>74</sup> PR Newswire, "Inability to Save Money is Americans' Biggest Financial Concern, CIGNA Group Insurance Survey Finds," *Infoseek*, 9 October 1997.

from sectors such as heating, hot water, and transportation, it has the potential to build a nest egg far in excess of what just savings from electricity could provide.

As enthusiastic as we are for the potential of electrofinance to reduce the risks of climate change through a market-driven mechanism that drives renewable energy, we realize the weaknesses that might prevent this from ever evolving beyond the concept stage. These weaknesses take numerous forms and include many institutional and technical barriers as well as business considerations.

First, lack of deregulation in the electric industry on a nationwide basis could limit the “critical mass” required by insurers to proceed with electrofinance plan development. The limited number of states that have deregulated may not hold a large enough population or concentration to make electrofinance profitable. This does not mean that a national deregulation plan is preferable to state-by-state action, since certain plans offered at the federal level do not offer system benefits charges that could be used to leverage consumer action to promote electrofinance savings.

Second, market research may not reveal that a market exists for such an integrated product as electrofinance, since most people do not think about buying such dissimilar products as electricity and financial products from the same source. Any research with focus groups must be carefully crafted in order to explain fully what is proposed without unduly influencing responses. Indeed, this research may find that there is a total lack of interest by what might be characterized as a “spend for today” instant gratification generation that has little interest in the consequences of not saving for tomorrow.

Third, resistance from regulators, of both insurance and electricity, may place insurmountable walls between the sale of these products. This opposition might be on the grounds that the products are too dissimilar and open to abuse, since it would be difficult to monitor the distribution of funds from the energy sector to the annuity/PV system without sophisticated oversight. Delay in either federal or state financial services reforms that allow insurers to offer more than their traditional services could prevent implementation.

Fourth, even if market research determines that the product is marketable, estimates of start-up costs may indicate that this market might not evolve rapidly enough to provide rates of return as high as other products competing for internal funds. This is particularly true if profit margins are low and transaction costs are higher than anticipated.

Fifth, the penetration of this concept at a mid-level manager position would probably doom it to failure, since few if any mid-level managers in the risk-adverse insurance industry would gamble advancement of their careers on selling such an unconventional product up the line. To have any chance for success, the electrofinance concept must be introduced at high management levels. But even there the risk is that managers may believe that electrofinance is too far from their core business.

And last, even if all the other regulatory and internal company support pieces are in place, the inability of a company’s information technology system to handle the multiple billing requirements of electrofinance might become the economic weak point in actually implementing the plan.

Nevertheless, in spite of these weaknesses and barriers we believe that electrofinance—successfully targeted to the highest level of decisionmakers—can succeed in some form. That, however, will take time and money for further research and development of a program that appeals to consumers as well as offers profits to plan providers.

## PART V... CONCLUSION

Although electrofinance may have a good deal of appeal to varying constituencies, without the proactive efforts of many players it will remain just a concept with some potential to change investment patterns in renewable energy. For any in-depth impact, a number of actions must be taken to lay an infrastructure in which electrofinance can operate. Each player has a role in this.

The insurance industry needs to do a better job of what they already do well—earn money for themselves and their clients. They need to become more pragmatic by ensuring a client’s total financial security as an integrated set of functions rather than a piecemeal activity. This requires that they develop new products, new approaches, and new ways of thinking rather than continuing with a “business as usual” approach. They must alert regulators to the impending retirement crisis and use this as a justification for being allowed to bundle their traditional services with new ones. They should venture into the nontraditional role of advocating electric restructuring reforms in states that have not enacted them, and form alliances with environmentalists and renewable energy advocates to ensure strong environmental provisions.

The renewable energy community must advocate electric deregulation in their states, with strong environmental provisions that include a systems benefits charge for energy efficiency and re-

renewable energy programs. They must also continue to reach out to insurers to find areas of common ground and mutual support. A recent example of this is the Green Power Finance Initiative between the U.S. Department of Energy, the Renewable Energy Alliance, the private insurance industry, and the states.<sup>75</sup> This would provide insurance for green power premium rates for renewable energy developers so they might be eligible for favorable loan rates.

Environmental NGOs must continue to advocate carbon emission reductions while keeping an open mind on market-driven, “no regrets” strategies that build alliances with the financial community. Although the stick of command-and-control regulations is always available in the wings, the institution of a reward system for pollution prevention may gain more adherents as new products such as electrofinance evolve.

Foundations that support nongovernmental groups working on energy efficiency and renewables must begin to fund new ways of thinking about the multiple problems our society faces and how groups can better leverage their own resources. Too often, foundations have supported mostly intervention-oriented command-and-control activities rather than cutting edge and innovative models that could truly bring market transformation by allying with large industry sectors that may see other benefits to the same ends, even if they do not share exactly the same goals.

Electric industry regulators at the state level should be encouraged to move toward a restructured electric market that not only encourages lower rates but also includes provisions for energy efficiency and renewable energy as well as other innovative product offerings.

Insurance industry regulators at the state level should be encouraged to allow convergence of insurance with not only other financial products such as banking but with utility and other energy-related products that have been shown to mitigate property casualty losses. In addition, state legislators who oversee these regulators should ensure that adequate positive incentives are in place to move insurers in this direction. For instance, it might be possible to encourage insurers by providing a tax credit for their investments into mitigation loss activities. Investigative work showing that moneys invested in such activities provides a positive benefit-cost ratio would be useful in making this point, since all too often federal and state dollars must be used to reimburse certain losses.

While one major appeal of electrofinance has been its market-driven aspects, conceivably there are compelling reasons and places for the federal government to leverage it even further.

Federal legislation could be passed that allows the convergence of financial institutions such as banks and insurers through repeal of the Banking Holding Company Act of 1933. Such a law should include strong consumer protection language that safeguards privacy rights as well as obligations the institutions must undertake, such as community reinvestment.

In return, they would be allowed to extend the activities they are involved in. Electrofinance might be one such activity, although power marketers might be opposed to this extension of insurers into what they see as their realm. Should insurers actively support such an extension, it might provide an interesting alliance with environmental and renewable energy advocates that could lead to further joint action.

This country has constantly displayed poor judgment when it comes to planning for critical events, as shown by our lack of action on potential Y2K problems until the eleventh hour. In a similar vein, the potential effects of climate change are unclear, but the retirement of 76 million baby boomers is certain, and it carries the makings of another national crisis if action is not initiated in the short term. Since this generation will be in the unenviable position of having more people than the subsequent one that must pay their benefits, intergenerational equity issues will rock the foundation of American civil society. Recognition of the problem must be followed by a number of proactive measures, including incentives that encourage people to save for retirement on their own. This provides a compelling reason to support electrofinance; similar programs, perhaps in the transportation realm, would also be appropriate.

In addition, the government could use a portion of any budget surpluses to match only the energy savings portions of an electrofinance plan, as a cost-sharing incentive for individuals. This would maximize not only retirement savings but also energy and carbon emissions savings. A model for this that has widespread congressional support already exists for low-income people who receive up to \$300 a year as matching funds if they deposit money in a bank and learn about basic economics. Money for this is made available through special tax credits that are given to banks and is driven by encouraging people to set up

<sup>75</sup> Fact sheets by Gregory Kats, George Burmeister et al. See <http://www.realliance.org/insurance/index.html>

savings accounts.<sup>76</sup> This recommendation is in accordance with the parting words of Robert Rubin, Secretary of the Treasury and economic architect of the Clinton administration, who recommended that budget surpluses be used to promote savings rates.<sup>77</sup>

Beyond the basic plan described in the body of this paper, entrepreneurial insurers could maximize profits for their clients and themselves through these, among other, approaches:

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<sup>76</sup> David Lightman, "Accounts Would Target Lower Incomes," *Hartford Courant*, 28 April 1998.

<sup>77</sup> CBS Evening News With Dan Rather, 12 May 1999.

## APPENDIX A

### WAYS TO MAXIMIZE PROFITS OF INSURERS AND CLIENTS

- Because the insurer/client team has reduced not only the cost but also the use of energy, they have passively reduced the production of harmful emissions such as sulfur dioxide, nitrogen oxides, and carbon dioxide (CO<sub>2</sub>). The first two of these are currently tradable commodities that can translate into dollars. The insurer and the electric supplier would need to negotiate to provide for the buyer receiving all or a portion of the emission reduction allowance and to determine the basis of value by margin or average. While there is currently little market for CO<sub>2</sub>, there may be in the future, although the value of an allowance is uncertain.<sup>78</sup>

Although each client's portion of the value of emissions reductions would be quite small and depend on a number of factors, including the fuel mix of the local utility, in aggregate it could be significant to the insurer. For this reason, it might be appropriate for an insurer to market electrofinance in certain areas on the basis of emission profiles or noncompliance with federal air regulations.

- Another area where value could be added would be to concentrate on EE&LM activities (and on PV systems) in geographic areas requiring expensive transmission and distribution upgrades due to load growth. Various studies have shown that the use of EE&LM and/or distributed generating options such as PVs to displace upgrades may be the least-cost route in numerous instances, such as when older underground trunk lines can no longer accommodate increased loads.<sup>79</sup>

In one instance, a state's restructuring legislation mandates that if an expansion of capacity of the distribution system requires a rate amendment, the regulators must determine if it would be more cost-effective to use demand-side management as the mechanism to alleviate the constraint.<sup>80</sup> Under such conditions, it might be possible for the aggregator to negotiate a fee for increased activity in that locale, thus deferring the need for costlier measures. The proceeds of that

fee could also be allocated to the annuity portion of the plan for participants whose actions reduce the loads.

- A natural program extension would supply not only aggregated electricity but also either aggregated oil or gas sales for heating, domestic hot water, and cooking. While this would require further organizational resources, it is notable that Shell Oil announced its intention to sell both electricity and natural gas directly to homes and businesses sometime in 1998.<sup>81</sup> Another company, DTE Edison, is attempting to become the discount chain of energy by charging a membership fee that allows participants to purchase energy at DTE's own cost if they buy both gas and electric service along with other allied services.<sup>82</sup> This could open up another avenue for a potentially large energy savings stream to augment the annuity portion of the bill. Because heating and hot water costs are often a larger portion of the total home energy bill, they also represent a more palpable motive for insurers to invest in more significant home energy upgrades, including ceiling and wall insulation and furnace/boiler upgrades.
- The electrofinance program will hold particular appeal to green consumers, since it facilitates their environmental commitment. One reservation expressed is that it would be unfortunate if any profit from an environmental activity such as saving energy were invested into an annuity that might fund anti-environmental activities rather than sustainable practices.<sup>83</sup> For this reason, as well as others, an insurer or other aggregator would be wise to provide for investment into one or more socially screened mutual funds for the annuity to attract the environmentally active participant.

Attracting and keeping this audience also provides incentives for insurers to provide an energy supply option that features a high degree of green power in its portfolio.<sup>84</sup>

- Not all consumers need an additional retirement fund if this is already provided for through work-related pension plans or

<sup>78</sup> Carlton W. Bartels, Managing Director of Cantor Fitzgerald, personal communication with Joel Gordes, 22 October 1998.

<sup>79</sup> Edan Prabhu, "SCE's Innovative Solar Neighborhood Program," *Solar Today*, July/August 1995, pp. 22-26.

<sup>80</sup> Connecticut Public Act 98-28, An Act Concerning Electric Restructuring, Section 52 (e).

<sup>81</sup> "Shell Targets Retail Customers for Sale of Electricity and Natural Gas," *Excite*, 18 March 1998.

<sup>82</sup> "A Warehouse Club for Gas and Power," *Pittsburgh Post-Gazette*, 2 September 1998.

<sup>83</sup> Donella Meadows, e-mail, 26 June 1997.

<sup>84</sup> Zalcman, op. cit. note 18.

other savings. They may, however, wish to save for some other activities such as a college fund for their children. "Studies regularly find that about half the parents who expect their children to go to college do not save for the expense; and many who do save do a poor job."<sup>85</sup> Other options might include saving for long-term care or even membership in assisted care retirement communities. Electrofinance should be flexible enough that participants have a broad investment menu that meets their particular needs. For instance, several states have tax-exempt funds that allow people to save for their children's college tuition.<sup>86</sup> Funds of this nature should be among the choices provided for electrofinance plan members.

- In Australia, the Adelaide Bank is already deeply involved in the direct management of 52 retirement communities because it has identified this as a growth industry. In 1997, this provided 5% of the bank's total annual profit, and officials project that will grow to 10%. It is conceivable that as the baby boomer generation grays, one of the options that might hold ever greater appeal would be for their savings to pay for membership in such planned assisted retirement communities or other long-term care options.

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<sup>85</sup> Pamela Kruger, "Guess Who Didn't Save for College," *New York Times*, 8 March 1998.

<sup>86</sup> Shannon McCaffrey, "New State Programs Offers Tax-exempt Way to Save for College," *Associated Press*, 5 August 1998. Rhode Island Higher Education Assistance Authority Request for Proposal announcement. November 1997.

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