Toward a Demand-Side Future: DSM Proposals from Québec's 1996 Energy Policy Collaborative

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In recent years, Québec's policy of mega-hydro development has come under severe criticism. This has led the Québec government to turn a page in its energy history by announcing a Public Debate on Energy, designed to propose a new Energy Policy for the province.

The Public Debate was led by a 15-member collaborative panel, composed of key utility, refinery, labour, consumer, environmental, aboriginal and political stakeholders. After a series of over 20 thematic information workshops, the Panel held public hearings in cities and towns throughout Québec. The hearings, at which an unprecedented 300 briefs were presented, revealed an astonishing level of support for increasing energy efficiency in all levels of society.

The following text describes the two basic approaches reviewed by the Panel for furthering efforts at energy efficiency: an IRP-styled approach and the creation of an independent DSM agency responsible for all efficiency initiatives (referred to here as the ADEME approach). I then offer an analysis of the costs and benefits, obstacles and opportunities associated with each model. Finally, I summarize the approach recommended by the Québec Panel—a hybrid IRP/ADEME approach—and the distribution of mandates and financing mechanisms proposed in order to ensure both its short- and long-term effectiveness.

If accepted by the Government of Québec, the panel's report will constitute a major turning point in Québec's historic relationship with its energy sector. It will cast DSM in a light of its own, and focus Québec's energy sector **away from building the biggest, and toward building the least**.

THE 1996 QUÉBEC ENERGY POLICY COLLABORATIVE

Historical Background

Over the past 50 years, hydroelectricity has been integrally woven into the fabric of Québec society. It has been the symbol of franco-Québec's emancipation, the proof that french Québeckers could successfully tackle great tasks and build monuments that would withstand the test of time. More than anything else, hydroelectricity has become synonymous with the *la révolution tranquille*, or Quiet Revolution, that led Québeckers to become *maîtres chez nous*, or masters of our own house.

Even today, Quebeckers often refer to their society as a *société hydroélectrique*. The late René-Lévesque, who nationalized electricity production and distribution in 1962, would later serve two terms as Premier of the province. Robert Bourassa served nearly four terms on a promise of harnessing Québec's greatest and most poewrful rivers for hydroelectric development. In all, it is fair to suggest that no other event has marked Québec's social, economic and cultural progress more than Hydro-Québec itself.

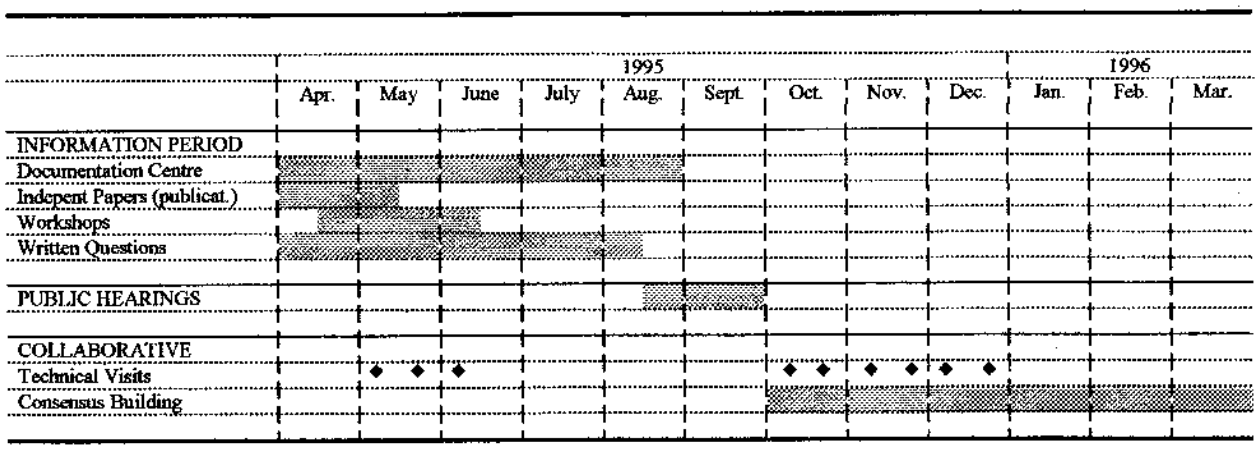
Yet in 1994, as Hydro-Québec celebrated its 50th anniversary, the hydroelectric dream began meeting with unprecedented skepticism. Led by the Cree natives, who vehemently opposed the building of a new, 3200-MW dam complex on their ancestral lands, and supported by critics on both economic and environmental grounds, opposition grew and a new vision of Québec's energy options began to arise. With the departure of Québec Premier Robert Bourassa, and the arrival of a new government, the questioning of an energy and economic policy based largely on exploiting Québec's rivers became official, and a Public Debate on Energy was launched.

Public Debate on Energy

In the Spring of 1995, the new Québec government launched a Public Debate on Energy. The debate, a hybrid consultation / collaborative process, consisted of a multi-layered approach with an end objective of rewriting Québec's Energy Policy (see Fig. 1).

Information Period. The Debate began with an information period designed to aid stakeholders[2] in formulating the positions they would later present at public hearings. To this end, four simultaneous processes were established. First, the government created a mobile documentation centre which

Figure 1. *Calender of Events*



would amass thousands of energy related titles and see to it that stakeholders would have access to the most pertinent and up-to-date information available. Second, a series of papers and reports were published, addressing specific questions related to energy issues in Québec. Third, an Information Committee organized a series of thematic workshops—23 in all—in which experts were invited from Québec, Canada, the U.S. and Europe, and at which key Québec stakeholders were equally invited to debate their views. Finally, the public was invited to submit written questions to energy decision-makers—primarily government and utilities—for more detailed information. The entire information period lasted from April to June of 1995.

Public Consultation. From August to September 1995, a 15-person government-appointed panel held public hearings throughout Québec. The Panel, composed of key utility and refinery, labour, consumer, aboriginal, environmental and political leaders, received written briefs and testimony from nearly 300 stakeholders in 10 cities and towns.

Collaborative Process. Once completed, the public consultation led to a collaborative process between the various members of the Panel. A series of technical visits brought Panel members to a major (11,000-MW) hydro power station, a gas technology center, an oil refinery, a PV research laboratory, a high-efficiency passive solar home, a wind farm, and a DSM R&D laboratory. High-level meetings were also held with regulatory, utility and NGO leaders of California's restructuring debate. Finally, a series of 30 full-day meetings were held in order to arrive at a consensus report.

Implications for DSM

The public hearings held in August and September left no doubt as to a paradigm shift in public perception related to energy issues. While small hydro facilities were still favoured, mega-hydro dams and complexes were largely seen to be out of step with modern-day planning, economic imperatives and growing environmental and social sensitivity and concern. The public instead favoured increased use of new renewables, most notably wind power, and insisted on a river zoning process that would protect important Québec rivers for non-energy use. Environmental and social impacts of energy developments, particularly of electricity production and fossil fuel use in the transportation sector, received important attention, as the vast majority of stakeholders urged that externalities be systematically incorporated in future energy planning and decision-making. The urgent need for an Energy Board to oversee Hydro-Québec's investment decisions and to reduce the role of government interference was repeated time and again.[3] Yet even more importantly, a clear consensus emerged among the roughly 300 public hearings intervenors that energy efficiency is the most desirable option—in terms of environmental sustainability and cost-effectiveness, and should as such become the key resource to meet future energy needs. This consensus, broadly speaking, was shared not only among environmental groups but among most industrial and economic development organizations as well.

In addition to the consensus on the importance of DSM, the hearings also brought to light an important division in the public's understanding of how efficiency programs should be carried out. While many favoured an implicitly IRP-

styled approach, yet others favoured stripping utilities of any DSM mandate, instead handing it over to a governmental, para- or non-governmental agency.[4] The following will describe in greater detail these two general approaches, their pros and cons and the choice made by the Panel.

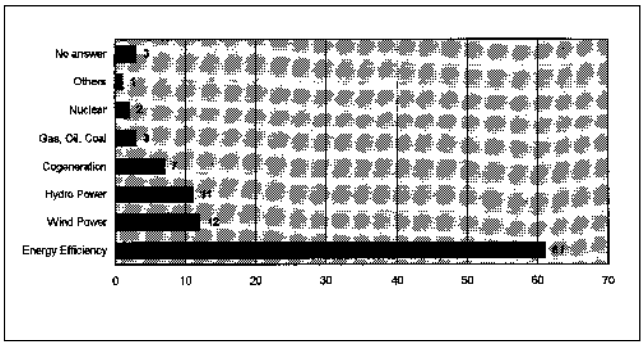
CHOOSING BETWEEN DSM MODELS: PROS AND CONS OF IRP VS. INDEPENDENT AGENCY

Summary of models

With support for DSM growing over the past decade (Fig. 2), many jursdictions have applied various approaches to ensuring financing and execution of energy efficiency measures and programs. In North America, generally speaking, the approach of choice can largely be termed the Integrated Resource Planning (IRP) model. With this model, utilities are obliged to finance DSM measures where the total cost of such measures (both participant and utility costs) is lower than the avoided cost, including externalities, of producing, transmitting and distributing an equivalent amount of energy or capacity[5]. Elsewhere, another general approach has been favoured. In France, for example, an independent, para-governmental agency, the *Agence française de l'environnement et de la maîtrise de l'énergie (ADEME)* is responsible for financing and coordinating all DSM initiatives in that country. The ADEME itself is financed through an annual government grant and dedicated taxes, to the tune of approximately $300 million (U.S.) per year.

Under the IRP model, in its most progressive interpretation, utilities are responsible for executing all socially cost-effective DSM (Hirst 1992, Krause & Eto 1988), while key non-commercial aspects of energy efficiency—labelling programs, efficiency standards, education and training, for example—tend to be coordinated and/or legislated directly through government. In other regions of the world, where a single, para-governmental organization is mandated to implement DSM measures and programs, they are often given full responsibility for these somewhat secondary mandates. In the case of the ADEME, it has the power to establish and regulate standards, conduct labelling programs and oversee training in addition to executing commercial DSM interventions (ADEME 1995a,b).

Figure 2. *Québecers' Preferences for Meeting Demand for Electric Services (%)*



In order to choose between these two models, the Panel considered a host of issues: (1) the possibility and eventual impact of electric industry restructuring, (2) inherent conflicts of interest, (3) perverse effects which could reduce or annul the expected efficiency gains, (4) assuring a level financial playing field between supply- and demand-side options, and (5) each option's political saleability.

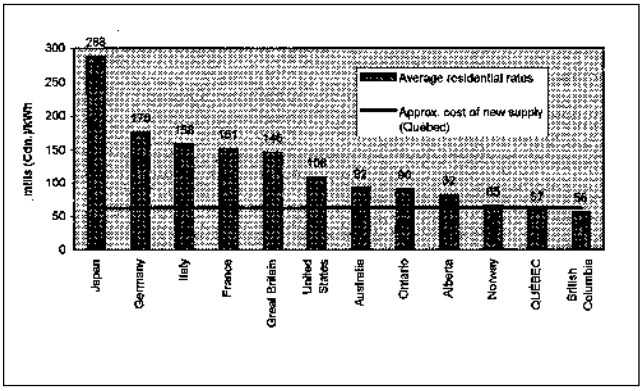
Electric Industry Restructuring

Throughout North America, and in many parts of the world, new technologies and economic imperatives are forcing utilities, regulatory commissions and governents to review and, often, restructure their energy industries. Restructuring has focused primarily on electric utilities, and is now geared on moving from regulated monopolies to a certain degree of intra-source competition, either directly at the retail level or more indirectly at the level of wholesale transactions. Because industry restructuring has evolved so quickly over the past year, it must be taken into account when choosing between DSM models.

Restructuring has come to the forefront of energy debates in North America for a very specific reason: New technologies—be they high efficiency, combined-cycle gas turbines or new renewables—, combined with low fuel prices, have led to an unprecedented *decrease* in marginal supply-side costs. This decrease occurs in areas that have, in the past, relied primarily on oil- and coal-fired plants, as well as on nuclear power stations. A distinguishing element of this new paradigm, however, is that it does not directly affect jurisdictions such as Québec, where low-cost hydroelectric facilities are widely used (96% of grid power (Hydro-Québec 1996, 57)) and where a wide array of additional, yet-unexploited resources are still largely accessible. In such cases, and contrary to the majority of U.S. states, the introduction of new, low-cost energy technologies cannot lead to significant stranded investments. In other words, with marginal costs above, not below, average system costs (and thus rates), no significant economic gain can be obtained, nor economic loss avoided, from high load customers devolving themselves of the current monopolistic structure in favour of new energy sources and technologies.

For this reason, the Québec energy panel concluded that restructuring toward wholesale or retail wheeling would not be in the current interests of Québec citizens. In the latter case, because retail wheeling would only redistribute costs

Figure 3. *Average Residential Electricity Rates in Key Industrial Regions (1993)*



in a largely inequitable fashion; in the former, because the transitional costs associated with restructuring even for wholesale competition would outweigh the benefits of greater economic efficiency, and because other options, notably stricter regulation, management-by-business-units and competitive resource bidding, could do the job just as well.

Given this decision, the choice of DSM models could not be made entirely on an eventual restructuring. Nonetheless, Québec's participation in the bi-national northeastern energy market could impact its ability to retain a vertically-integrated, monopolistic approach to electric production, transmission and distribution. For this reason, it was considered important at least to *consider* the implications of an eventual restructuring on each model for DSM; not so much for which model to choose, but for how to assure that the transition from one model to another could be done with relative ease and fewest lost opportunities.

In this regard, it was concluded that while an ADEME-style approach would easily survive an eventual restructuring decision (California's proposal for a non-bypassable surcharge for DSM is similar), the IRP model would require a secondary structure to which full powers over DSM could eventually be transferred in order to withstand the hypothetical change.

Conflicts of Interest

Whether an IRP or ADEME model, neither can entirely avoid the inherent conflicts-of-interest associated with important levels of investment in energy efficiency.

In the case of IRP, a conflict occurs where DSM investments are greater than the difference between rates and avoided energy and capacity costs. In such cases, investments either reduce profits or increase rates, even when overall bills are lowered. Though decoupling mechanisms can minimize the profit risk, rates are still left to increase. While this may not pose a problem within a closed-loop system (ie. in the absence of competition), competition, especially with natural gas for space heating, means that an electric utility investing in residential DSM may end up losing commercial customers to its fossil-fuel competitors. This is especially important in Québec, where the cold climate and an important electric baseboard conversion campaign in the 1980s have led electric heating's residential market share to rise, between 1973 and 1993, from 10% to 70% (Gouvernement du Québec 1996, 86).

The IRP model, even with decoupling mechanisms, can thus lead to important disincentives for the participating utility to reduce sales through DSM investments. Even if that were not the case, most utility managers are still fixated on increasing revenues, which, whether or not in the utility's best interests, can seriously undermine efforts at reducing energy demand.

In the case of the ADEME approach, far fewer conflicts-of-interest exist. Indeed, since an independent agency is responsible for DSM initiatives, and would, under normal circumstances, be judged on its performance in relation to this mandate, none of the forenoted disincentives apply.

Still, funding for an independent DSM agency would have to rely on the whims of government. In the case of Québec, where the government is the sole proprietor of Hydro-Québec, the provincial electric utility, decreasing revenues could translate—or be *perceived* to translate—into lost sales for the utility and thus, lost dividends for the government treasury[6]. The potential effectiveness of an independent DSM agency could thus be viewed as an obstacle to balancing budgets (on the revenue side), and governments may feel the need to reduce the agency's budget and, consequently, its ability to reduce demand growth.

All things considered, the Panel concluded that while conflicts-of-interest are inherently greater in the IRP model, neither can escape entirely from a willingness to curb DSM success.

Perverse Effects

Implementing efficiency measures and programs can, if not properly analysed, create any number of undesirable perverse effects. The choice of a model for DSM investments must take into account these potential problems.

It quickly became clear to the Panel that the IRP approach can lead to significant perverse effects from a social and environmental standpoint. To begin with, as I mentioned earlier, obliging regulated utilities to invest in DSM up to the full avoided cost—social or private—, and allowing such costs to be recovered through rates, necessarily leads

to rate increases. From a socio-economic perspective, this in itself is not negative, since overall bills will be reduced. Still, regulated utilities do not operate in a totally uncompetitive world, a fact that could lead to undesirable—from both a private *and social* perspective—fuel swithcing. Were fuel switching to result from regulated utilities' investments in DSM, it would undoubtedly result in the replacement of hydroelectric or natural gas heating by oil, causing unwanted environmental impacts.

Under IRP, another potential problem is worth noting: Since utilities care only about stationary energy use, DSM programs would tend to ignore the energy implications on non-stationary needs. This dilemma is particularly important when considering financial incentives for lowering the costs of new passive solar homes. Since a majority of the cost-effective passive-solar potential can be found in bungalow-style suburban homes, financing of these measures *may* result in unwanted financial incentives to purchase a home in suburbia rather than remaining in the city core, where fewer passive solar financing incentives would apply. Where such is the case, marginal gains in heating or lighting efficiency may be largely offset by substantial increases in the burning of fuel for transport to and from the city.

While it is likely that such an effect would have only a marginal impact on increased transportation related energy requirements, its potential neglect under a utility-financed DSM structure remains noteworthy.

In the case of an ADEME approach to DSM financing, such perverse effects are avoided. Since the agency's mandate would cover all spheres of energy consumption, including the transportation sector, perverse effects would have to be taken into account in multi-sectoral program analyses. Nor would fuel-switching from electricity or gas toward oil be a likely outcome of DSM investments; an independent agency would intervene in homes, businesses, farms and industries where energy savings could be achieved most cost-effectively, without regard for the regulated or non-regulated status of the energy supplier. Furthermore, rates would not be affected, as revenues would likely stem from a non-bypassable surcharge applied to all energy distributors, including gasoline.

Level Financial Playing Field

An effective DSM structure must be able to level the playing field between supply- and demand-side options. A number of anomalies now exist in this regard, most notably: (1) that DSM options are not amortized over a period of time consistent with their useful lifetimes, as are supply-side options, (2) that demand-side options require up-front capital investments by participating customers, while the costs of supply-side options are capitalized in full by utilities and repaid in increments over time, and (3) that demand-side investments, by their very distributive nature, cannot be considered assets in the utility's books, while supply-side options, unless contracted through an IPP, count in most financial evaluations. The following will expand on these three issues.

Amortization Period. Currently, Hydro-Québec's DSM investments are amortized over a five-year period, significantly shorter than their expected average useful life of 7 years or more (Anonymous 1996). Under an Integrated Resource Planning approach, a regulatory agency could order utilities to amortize over the measures' real expected useful lives. With regard to an eventual independent agency, amortization periods do not cause prejudice, whether done correctly or incorrectly, since the agency works within an allotted budget, not a rule of measure-by-measure cost-effectiveness.

Capital Requirements from Consumers. DSM programs almost invariably require a degree of financial contributions by participants in the form of up-front capital costs (though some exceptions exist). Conversely, supply-side utility investments are paid back on a pay-as-you-take cost recovery schedule. Furthermore, customers' discount rates tend to be significantly higher than utilities' rates, thus rendering even less attractive certain DSM options when compared with paying a per-kWh rate over 50 years.

Under Integrated Resource Planning, a regulatory body could use innovative mechanisms to reduce the capital requirements of participants in DSM programs, though cleaning the slate entirely would remain unlikely. Meanwhile, transfering the DSM mandate to an independent agency could also eliminate the problem to a large extent, since revenues would be generated on a per-kilowatt-hours basis (though the agency may still *choose* to require financial participation from customers, where this requirement is not seen to significantly reduce participation rates).

Accounting for Assets. Due to the distributive nature of efficiency investments, utilities cannot count them in the assets lines of accounting books. A utility owns a hydroelectric dam, which reflects in both its market value and its borrowing rates, but the customer owns the insulation, super-efficient refrigerator or industrial motor, *even if* the utility paid or helped to pay for it. This creates a financial disincentive for utility investments in DSM, since such investments cannot be recaptured in the utility's market value or reflected in its borrowing rates.

No method that I can imagine would reconcile this difference under an Integrated Resource Planning approach. Comparatively, an independent agency would not be harmed by this problem, since its revenue stream would be authorized by

government (thus avoiding the need for borrowing) and its mandate not-for-profit (market value is not an issue).

Political Saleability

In Québec, neither an IRP nor an independent agency approach currently exist. Indeed, Hydro-Québec is regulated only by a committee of the National Assembly, the equivalent of American State Legislatures, which sits for only two or three days a year, clearly unable to enforce an IRP approach. Since both approaches thus require the creation of new organizations, each would have to receive the explicit consent of the Québec government.

In order to assess the political saleability of the creation of an independent agency, the Panel felt a need to forecast the budget that would be necessary for such an agency to achieve all socially-cost-effective DSM potentials. A back-of-the-envelope calculation arrived at a necessary 3% to 4% rate applied to all energy sales, which is not inconsistent with the California Stakeholders Working Group estimate of ''not more than 3,3%'' for an effective non-bypassable Public Goods Charge[7].

After some debate, the Panel concluded that an explicit 'tax' of 3% to 4% would likely be turned down by a government already under severe financial pressure[8]. Instead, it was estimated that such a surcharge would likely be limited to a significantly lower level, on the order of one-quarter to one-half of a percent. This, it was agreed, would not be sufficient to achieve the significant cost savings offered by Québec's energy efficiency potential[9].

The Panel then turned to the IRP option. This, too, would require significant decisions by the Québec government, namely the creation of an independent regulatory commission, or Energy Board. This option has been talked of favourably by both the current and previous energy ministers. Furthermore, the public hearings held in the Fall of 1995 demonstrated a clear public consensus regarding the need for the creation of such a Board.

Moving from a regulatory commission to one practicing IRP, at least in the field of demand-side options, though not a small feat, is nonetheless an easier political manoeuvre than the creation of a surcharge-funded agency. In the first case, the costs associated with DSM are relatively hidden; in the second, they are more explicit and well-known. In addition, Hydro-Québec was clearly opposed to the second option, while the first was deemed acceptable. Given the relative weight of the players, and the inevitable public reading, it was deemed that an IRP approach to DSM would be an ''easier sell'' than what would come to be considered a new tax.

THE PANEL'S CHOICE

Confronted by two seemingly imperfect options, Panel members opted for a hybrid model which would ensure (or ease) political saleability and minimize the transitional costs should an eventual restructuring of Québec's electricity market occur. The proposal, if adopted by the provincial legislature, would equally reduce the level of conflicts of interest identified with DSM and level the financial playing field to the extent possible. The proposal is unable, however, to properly address perverse environmental effects of certain DSM spending.

An IRP Approach for Primary Commercial Programmes

Responsibility for primary commercial programmes. The Panel proposed that regulated utilities would be responsible for DSM investments which met the *social cost test*. In other words, utilities would be obliged to invest in DSM when total measure or program costs were lower than the full avoided cost, including environmental and social externalities.[10]

Socially cost-effective DSM will be incorporated systematically in utilities' resource portfolio proposals, which will be reviewed by an independent, quasi-judicial Energy Board.

Financing of primary DSM commercial programs. Under the Panel's proposal, DSM cost-recovery will vary according to the levels of investment. While the portion of investments that would otherwise not place upward pressure on rates (thus meeting the rate impact measures [RIM] test) would be recoverable through the ratebase, investment levels surpassing the RIM test would be recoverable through a variable surcharge applied on Hydro-Québec's basic service charges. Given that Hydro-Québec serves all Québec customers (roughly 4 million clients and 7 million people), this will in effect constitute a non-bypassable surcharge and, as such, is designed to avoid fuel-switching to more polluting (unregulated) sources of energy.

An Independent Agency for Secondary Commercial and Key Non-Commercial Programmes

The Panel equally recommended the creation of a new, paragovernmental DSM agency. The Agency would be responsible primarily for non-commercial programmes like labelling or education, as well as for financing regional- and community-based DSM initiatives.

Responsibility for ''secondary'' commercial DSM initiatives. Establishing a fund for community-based DSM

Table 1. *Pros and Cons of Two Basic DSM Models: Regulatory IRP and Independent Agency*

	Sensitivity to Restructuring	Conflicts of Interest	Perverse Effects		Level Financial Playing Field			Political Saleability
			Fuel Switching	Trans-sectoral Effects	Amortization periods	Client Capital Requirements	Accounting for Assets	
Regulatory IRP for DSM	**Very sensitive.** Transition would likely prove costly to DSM, as uncertainty would create investment slow-down (ex.: current U.S. slow-down) and new industry structure would require entirely different funding mechanisms.	**Important.** Resulting rate increases, even with decoupling mechanisms to safeguard profits, would negatively affect competitiveness with non-regulated distributors (for space heating and automotion), and constitute as such a disincentive.	**Important.** Rate increases from cost recovery could lead to fuel switching toward unregulated sources, namely oil.	**Relative problem.** Neglecting transportation sector could lead to DSM programs that *increase* total energy consumption (ie. financial incentives for efficient suburban homes).	**Not problem.** Regulatory commission can order utilities to amortize DSM costs over measures' full useful lives.	**Partly solv*able.*** Regulatory commission can introduce mechanisms to *reduce* the need for up-front investments by clients participating in DSM programs.	**Serious problem.** Lack of DSM assets could undercut utilities' book value and harm borrowing rates.	**Feasible.** Though some in government are opposed to losing control over rate regulation (through regulatory board), public is clearly in favour. From there, costs of DSM are hidden under IRP.
Independent DSM agency	**Insensitive.** Transition could be achieved without harm to DSM.	**Fewer.** Only conflict arises from government ownership of main utility and impact DSM could have on treasury dividends; could lead government to reduce agency's budget.	**None.** Non-bypassable surcharge means everyone pays. Also, programs would reduce demand for all sources.	**None.** Agency would be responsible for full spectrum of energy sectors (incl. transport) and as such would analyze for *total* —not sectoral— effects.	**Not problem.**	**Partly solv*able.*** Agency could choose same alternate funding mechanisms as those a regulatory commission might order utilities to use.	**Not problem.** Agency's not-for-profit status means book value is not an issue, while government-authorized revenue stream avoids borrowing requirements.	**Unlikely.** Necessary non-bypassable surcharge of 3% to 4% would likely meet with stiff resistance. Recent similar proposal has met with public disapproval.

initiatives (a distinction was made between ''initiatives'' and full-fledged ''programs'') was considered essential for a number of reasons: (1) pushing the cost-effectiveness limit; (2) regional development imperatives; (3) creating a *culture de conservation*; and (4) kick-starting an energy efficiency industrty.

Pushing the cost-effectiveness limit. While initially attracted to the potential for community-based programs to increase penetration rates and deliver savings at lower cost, Panel members later distinguished between those programs that would be cheaper through a community approach and those with which significant economies of scale could be procured by a centralized approach. This differenciation was important; it led Panel members to conclude that economies of scale could probably deliver lower-cost efficiency for a majority of the DSM potential. Still, some programs, mostly residential (draughtproofing, for example) were still seen to be better carried out through a community-based approach, since penetration rates could be maximized while lost economies of scale were seen to be minimal. In ensuring that these ''niche'' markets are explored in the most cost-effective way, the enveloppe of cost-effective measures can be broadened. Thus, a programme that may not be cost-effective for delivery by utilities, even given the use of the social cost test, may be cost-effective when penetration rates are increased due to a community-based approach.

Regional development imperatives. The public hearings held throughout the Fall of 1995, and particularly those held in Québec's outlying regions, demonstrated an urgent need for economic development and job creation in those areas (roughly half of Québec's population lives in what is commonly termed *les régions*). In this regard, providing a financing mechanism for community-based DSM programs was viewed as a positive way of responding to the regions' demands, while calming an excess excitement about the possibility of building new yet unneeded generating facilities in those areas.

Creating a ''culture de conservation.'' Given the support for DSM throughout the public hearings, the Panel considered that any proposal should help build upon a slow-but-emerging conservation culture. Again, while the majority of efficiency gains will be procured from utility investments, a fund enabling small, regionally-specific DSM investments which could generate high participation rates was seen as a partial approach toward that objective.

Kick-starting an energy efficiency industry. Finally, the Panel agreed that although electric industry restructuring is not now viewed as beneficial or necessary for Québec, it is *possible* that restructuring is in some way imposed on Québec given its participation in the bilateral northeastern energy markets. Given this potential, it was deemed imperative that Québec begin building an expertise in energy efficiency that could, eventually, be prepared to expand into a full-fledged industry. Concerned that a concentration of expertise in the hands of one or two utilities would not adequately prepare Québec for such a future, the Panel considered that regional, non-utility DSM initiatives could help kick-start an energy savings industry.

Responsibility for non-commercial DSM mandates. The Panel equally identified a number of non-commercial mandates that should be filled by a para-governmental DSM agency. These include: (1) DSM benefit-sharing arrangements for leasers and property owners, (2) labelling programs, (3) consumption standards, (4) training, and (5) public education.

DSM benefit-sharing arrangements. In Québec, an unusually large proportion of the population leases appartments from property owners. As such, it was deemed important that the Agency be mandated to negotiate with the body responsible for leasing contracts,arrangements by which DSM benefits would be shared between the two parties. Otherwise, it was feared, owners could simply increase rent, claiming improved property values, thus annuling or even reversing any benefits tenants may otherwise have procured.

Labelling programs. The Panel concluded that a labelling program, similar to one in place for refrigerators, should be introduced for home purchases, appartment rentals and new vehicles. The Agency would be responsible for this labelling program.

Consumption standards. The Québec government has twice —in 1975 and later in 1981—established standards for home energy consumption.The Panel recommended that a review of the existing consumption standards be performed by the Agency, and that it propose a new set of more progressive efficiency standards where Québec jurisdiction permits.

Training. While efforts at improving energy efficiency practices among Québec's key professionals—architects, engineers, construction companies, city planners—have already begun, it was agreed that the Agency should intensify these efforts in order to ensure that design and construction decisions systematically take into account energy efficiency potentials.

Public education. Finally, the Panel agreed that the Agency would be the appropriate structure to promote the more efficient use of energy among all Québec citizens. It was recommended that education focus on two groups: Children and adolescents, for whom energy efficiency must become a *way of thinking* and who can then ''teach'' acquired habits to the older generations, and adults, who should come to see efficiency as an effective means of meeting multiple objectives, namely economic, social and environmental.

Agency Financing. The Panel proposed that the DSM Agency be funded through a two-tiered approach: First, a portion of the Energy Board's revenues would be passed on to the Agency for its primary, non-commercial functioning, and second, the Agency would collect revenues, authorized on an annual basis by the Energy Board, through a small non-bypassable surcharge on all energy sources. This second portion of the Agency's funding would be variable, dependent on a Business Plan submitted to the Energy Board, and would be small enough and diffused enough not to represent a significant addition to energy bills.

Assuring a Smooth Transition

By proposing an IRP model for primary DSM interventions, the Panel sought to ensure successful passage of an acceptable model for vastly improving energy efficiency in Québec. By proposing a secondary structure responsible for developing a coherent vision of energy efficiency in Québec, at low if not unperceivable cost, it is this author's hope that we will have put all necessary systems in place to assure a smooth transition toward a single, revenue-protected agency responsible for all efficiency measures and programs in Québec. In the long run, I am convinced that such an option remains the most cost-effective, coherent model for ensuring the emergence of an energy efficient economy.

FOLLOW-UP

In submitting its consensus report to the Government of Québec, the panel hopes to carry enough weight to ensure that its recommendations are adopted and that the appropriate steps—notably the creation of an independent regulatory commission and a para-governmental DSM agency—be taken. Indeed, it is on this consensus, reached among fifteen unlikely allies, that the force of the report's recommendations rest, and early favourable reactions, notably from key editorials, are very promising in this regard[11] (Dubuc 1996, Sansfaçon 1996).

Further to the report's publication, the Government of Québec has promised to bring forth a new Energy Policy. This policy is scheduled to be released by November of 1996. Given that the Panel's recommendations are not binding, it is unclear at this stage to what extent the policy will reflect or sway away from the more than two-hundred recommendations contained in the final report.

ENDNOTES

1. Philippe Dunsky was a member of the panel of the Public Debate on Energy in Québec, whose report is discussed in this text.

2. The definition of stakeholder was accepted in its broadest possible sense; any individual, corporation, non-profit organization, government body or other entity wishing to participate in the Public Debate process was accepted, although participant funding was reserved for non-profit organizations.

3. As a state-owned corporation, Hydro-Québec has never been subject to an independent regulatory board for rate regulation. Instead, the provincially-owned monopoly has been regulated by a committee of the National Assembly, the equivalent of American State Legislatures, which sits for only one to three days at a time, once a year.

4. Interestingly, neither agency nor IRP proponents could easily be distinguished by traditional groupings. Rather, the split in opinion was prevalent *within* nearly all groups, including environmental and labour groups, industry and individuals.

5. While IRP can be interpreted in a variety of ways, its most progressive interpretation uses what is commonly termed the ''social cost test'' to determine which levels of DSM financing are required of regulated utilities. For more discussion of this and other tests, see Hirst (1992) and Krause & Eto (1988).

6. Given that savings would likely be redistributed through other sectors of the economy, generating similar tax revenue for the treasury, I do not believe that such an analysis would be accurate. Still, it would be consistent with many (erronious) government decisions.

7. Though it should be noted that this surcharge estimate was to be applied to renewables R&D in addition to DSM.

8. A litmus test of the political saleability of this type of surcharge recently occured with the publication of an independent committee's report on the future of the Canadian Broadcasting Corporation. The report's proposal, which centered around a similar non-bypassable surcharge on cable users in order to fund the CBC, met with wide public disapproval and seems likely to be turned down by the federal government.

9. An internal Hydro-Québec assessment (Hydro-Québec 1994) of various degrees of DSM investments identifies a socially cost-effective potential, over 15 years, in excess of 20 TWh, at only 50.5% of the overall avoided cost (excluding externalities), procuring savings of more than $3.7 billion.

10. No effort was made by the Panel to choose among options for internalizing externalities (full-cost accounting, weighting, multi-attribute trade-off analysis, etc.). Instead, the Panel felt it more appropriate to express the principle, leaving the choice of models to an eventual Energy Board.

11. Editorials in each of the main French-language dailies were unbendingly favourable to the report's recommendations. Le Devoir wrote ''*Let's say it loud and clear, this [report] is one of the most remarkable achievements in Québec in recent years,*'' ''*the era of megaprojects is behind us; the time has come to see 'big' differently*'' and ''*we are now invited to think in terms of sustainable development by giving absolute priority to energy efficiency.*'' Meanwhile, La Presse wrote ''*Québec may be at the brink of a major shift in energy policy, unlike any it has known in over a quarter of a century,*'' ''*in concrete terms, this shift toward sustainable development signifies the passage from a culture of quantity to a culture of quality, meaning first of all the end of megaprojects*'' and ended by stating ''*this shift [toward energy efficiency], if we dare to take it, will allow Québec to lower its energy bill, to really create jobs, to contribute in a more convincing fashion to [economic] development and to export our know-how rather than our megawatts.*''

REFERENCES

Agence de l'Environnement et de la Maîtrise de l'Énergie (ADEME). 1995a. *Rapport d'activité 1994—Synthèse*. Paris, France: ADEME.

Agence de l'Environnement et de la Maîtrise de l'Énergie (ADEME). 1995b. *Contrat d'objectifs 95–98 État-Ademe*. Paris, France: ADEME.

Anonynous (Hydro-Québec executive). 1996. Personal communication to author. January 19.

Dubuc, A. 1996. ''Énergie: le virage.'' *La Presse*. April 4.

Gouvernement du Québec. 1996. *Pour un Québec efficace: Rapport de la Table de consultation du débat public sur l'énergie*. Charlesbourg, Québec: Ministère des Ressources naturelles.

Hirst, E. 1992. *A Good Integrated Resource Plan: Guidelines for Electric Utilities and Regulators*. ORNL/CON-354. Oak Ridge, Tenn.: Oak Ridge National Laboratory.

Hydro-Québec, Service Planification stratégique commerciale. 1994. *Prévisions des économies et des coûts des interventions—Options proposées—1994 à 2013 (Unpublished)*.

Hydro-Québec. 1996. *L'équilibre énergétique, l'efficacité énergétique et l'hydraulicité—rapport particulier au 31 décembre 1995*. Montréal, Québec: Hydro-Québec.

Krause, F., and J. Eto. 1988. *Least-Cost Utility Planning Handbook for Public Utility Commissioners—Volume 2—The Demand Side: Conceptual and Methodological Issues*. Washington, D.C.: National Association of Regulatory Utility Commissioners.

Ministère des Ressources naturelles du Québec. 1994. ''Résultats d'un sondage effectué auprès du grand public.'' *Le Sourcier—Journal du Ministère des Ressources naturelles du Québec*. December.

Sansfaçon, J.-R. 1996. ''Un très grand projet.'' *Le Devoir*. April 4.