October 24, 1997

Tom Austin
The Regulatory Assistance Project
177 Water Street
Gardiner, Maine 04345

Dear Tom:

Thank you for the opportunity to comment on RAP's recent report "Uniform Disclosure Standards for New England". While we do not support certain aspects of RAP's report and its conclusions, the workshop meetings that led up to the report has allowed a broad spectrum of participants to develop a more thorough understanding of the issues, challenges and benefits of disclosure.

We have chosen at this time not to provide detailed comments to the RAP report in light of expected and outstanding state regulatory and legislative efforts on this issue. Disclosure is also possibly an element of a package of restructuring related initiatives and thus may be best considered in a broader context.

Attached please find a paper entitled "Information Disclosure Through Tradeable Tags" to inlcude with the package of comments on your final report that we understand will be distributed to regulators. This is the same document that we transmitted to you on August 5, 1997 as input to your draft disclosure report. The paper presents the recommendations of a part of the tagging "subgroup" from the workshops and other interested parties. As the tagging approach was described in a half page in your final report, this more detailed description may be helpful for those interested in learning more about this method to implement disclosure.

Alternative Power Source, Inc.
Citizens Power LLC
Eastern Utilities
Enron Corp.
New Energy Ventures
New England Power Company
Unitil Resources, Inc.
U.S. Generating Company
Wheeled Electric Power Company

INFORMATION DISCLOSURE THROUGH TRADEABLE TAGS

Executive Summary

As states continue to examine retail competition, regulators are now considering a variety of ancillary issues. Of special interest is the best way to ease the transition to a competitive marketplace and assist inexperienced consumers during this time period. One mechanism for accomplishing this is information disclosure. This is being studied by a New England group of utility commission staff, generators, load serving entities, consumers and environmental groups. Advocates predicate information disclosure on two important assumptionsCthat consumers are entitled to an accurate, objective basis for comparing electricity suppliers and, second, that the marketplace and existing institutions (i.e., the Federal Trade Commission) cannot meet this need during the transition period. The main attributes for information disclosure, as it is being discussed today, are electricity price, key contract terms, fuel type and emissions.

The stated goals of developing information disclosure are as followsC(1) to allow consumers to direct electricity dollars to preferred attributes, (2) to provide consumers with information that enhances the efficiency of the electricity marketplace and (3) to ease the transition from a regulated competitive market by allowing providers to differentiate themselves to consumers in

an honest and straightforward manner. There is a fourth goal that remains important to some of the playersCthe use of information disclosure to promote or demote certain attributes of generation, such as renewable energy or nuclear power.

The focus of this paper is Atagging@ as a means of information disclosure. The tagging system, as it was first proposed by Enron Corporation, and subsequently refined in the facilitated New England Group meetings, involves four basic elements. These are as followsC(1) creation of tags describing the attributes of power generated, (2) trading of tags, (3) tag retirement at the end of the designated trading period, and (4) disclosure of information to consumers.

This paper reviews the issues surrounding this tagging system and its advantages over two competing mechanisms of information disclosureCindependent system operators(ISO) based tracking and claims-based tracking systems. The tag-based system offers the best means of informing consumers about resource attributes and the clearest price signals regarding these characteristics. To the extent that consumers value electricity produced from certain types of power sources, their willingness to pay for power with certain attributes ultimately funds investment in such generating resources.

The proposed tag-based system creates a secondary market for the characteristics or attributes of electricity generated, particularly fuel type and emissions. Power and source characteristics are essentially unbundled and are traded independently. This is in contrast to ISO-based tracking that requires market participants to trade fuel and emissions characteristics bundled with traded energy. This kind of bundling of components reduces the liquidity of the market and creates significant additional administrative burdens for all market participants.

The conceptual simplicity implies that the costs of the tag-based system will be lower than for an ISO-based system. The latter requires complex tracking and settlement functions. The tag-based system circumvents this because the identification process only occurs twiceCat the time of tag creation and again at retirement six months later. Supplier costs are lower under the tag-based system since it is not necessary to manage data on a real-time basis. Since costs are expected to be lower to market participants, this would be reflected in lower consumer costs.

An important advantage of the proposed tagging system over other options is its timeliness. To be most useful, any information disclosure mechanism must be operational by the time that deregulation occursCits purpose is to ease the transition to a competitive marketplace. The proposed tag-based system can be implemented much sooner than an ISO-based tracking system. This is because tags are based on data that generators routinely produce, except that it is separated from price. Data on fuel type and emissions are readily identified and are verifiable. ISO-based systems must wait for ISO systems to be operational before procedures for tracking energy and attributes can be constructed. Emissions data are not integral attributes of the ISO system and would need to be matched, on an hour-by-hour basis, with energy and then tracked transaction-by-transaction.

None of the proposed systems are without their difficulties. This paper explores a number of important issues that need to be understood before any system should be implemented. One issue is how to prevent the misuse of tags as different states deregulate at different rates. Another is consumer acceptanceCall three disclosure methods have potential credibility issues. The tag-based system, however, is simple and relatively easy to explain.

All in all, the tag-based system was judged a superior mechanism for consumer disclosure. It offers the following advantages over other options:

Informs customers about the attributes of power produced

C. Clear price information for power characteristics

Segregation of the settlement process for electricity (as a commodity) over the attributes of that

energy

Faster, easier and less expensive implementation

C. Ability to best support portfolio verification

Flexibility to add attributes that consumers are determined to value in competitive markets

The proposed tag-based system accomplishes the goals of information disclosure in the most efficient and effective manner. Its adoption would go a long way toward achieving the stated goals of information disclosure. It effectively allows consumers to direct their electricity dollars to preferred attributes, it provides consumers with information to enhance the efficiency of the marketplace and it should ease the transition from a regulated to a competitive marketplace.

Introduction

A number of participants in electricity markets have expressed interest in developing a system for disclosing information that they believe will be important to consumers in purchasing electricity in retail markets. In New England, utility commission staff, electricity suppliers, consumer groups and environmentalists have been working on disclosure issues. The motivation for much of this effort has been key directives by several New England commissions to develop a system that provides consumers with uniform information on price, fuel mix, and emissions. The need for disclosure is based on the view that the marketplace and existing institutions, such as The Federal Trade Commission, cannot meet this need during the transition period.

This process has resulted in three broad methods for disclosing information to consumers: (1) a "tagging" system that creates a secondary market for source characteristics such as fuel type and emissions, (2) an independent system operator system (ISO) that tracks source characteristics, along with the bid and settlement process for hour-by-hour trading and scheduling of electricity production and (3) a claims-based system, that is a variation of the first two. In addition, several hybrid approaches have been explored, though none seem to have significant advantages.

Each system has a different approach to disclosure in a competitive environment and somewhat different market implications. Table I below generalizes, for comparative purposes, how different steps in the overall process are handled under each approach.

Table I

Methods for Disclosure in a Competitive Environment

Activity	**Tagging System**	**ISO-Tracking System**	**Claim-Based System**
Create Source Characteristics	Generator applies for tag independent of energy sales. Based on historical data.	Track all hourly transactions Energy and attributes bundled together. Based on historical data.	Claim tied to generator. Can be historical or prospective.

Retire	Tag retired by tagging authority at the end of the trading period.	End of period tracking follows ISO settlement process with emissions and other attributes reconciled.	If challenged, claim verification by owner- ship.
Disclose	Label based on tag with caveats.	Label based on tracking with caveats.	Label based on claims.
Administration	Independent agency or ISO.	Based on ISO system.	Only if claim made by claimant.
Tradeable	Yes.	No.	Does not matter.

The subject of this paper is the proposed tag-based system, as it has been refined through the New England group process. This system offers important advantages over an ISO-based system, not the least of which is a more efficient market outcome that ultimately benefits consumers.

Goals of Disclosure

The tagging system is constructed on the fundamental premise that consumer information disclosure is meant to serve one primary goal:

To allow customers to direct their buying dollars to the resources that they prefer over other resources.

Although consumer research on the subject has been limited, it appears as though the primary features on which consumers base preferences for electricity are price and generating source. Disclosure of information on price, key contract terms (i.e., fixed price), fuel type, and emissions for a tag-based system addresses the information needs of most electricity consumers.

Proponents of disclosure generally agree that it is either impractical or undesirable for a disclosure system to favor any type of generation over another. Although readily available information to consumers may influence the resource mix in the long term, the disclosure system should neither presume what that impact will be nor influence it in any way. Any disclosure system should, first and foremost, be a tool to increase the efficiency of economic transactions in retail electricity markets. Although some consumers may wish to use these economic transactions to express individual political or social beliefs, the system should not promulgate a political or social agenda.

Basic Structure of a Tagging System

The tagging system creates a credible reporting system for source characteristics, while giving suppliers flexibility in acquiring, through market mechanisms, the data that would be disclosed to consumers. The tag is a commodity which allows the seller to create a product label, which differs from the system mix.

A key feature of a tag-based system is the creation of a secondary market for source characteristics such as fuel type and emissions. This would be entirely separate from the

commodity power characteristics of generation. The secondary market would be created by identifying fuel type and emissions associated with each MWH of electricity produced, and allowing load serving entities (LSEs) to acquire specific characteristics to cover the total amount of their sales to end use customers. This enables claims related to specific products in a competitive market to be made and verified. If an LSE makes no claims it would label its product based on a Aresidual mix@ derived from the generation profile of the entire power pool, adjusted to avoid double counting of resources whose source characteristics are tagged and sold.

The result is a system in which fuel type and emissions are traded separately from the power characteristics, which would continue to be traded through separate markets in the ISO bid and settlement process. Consumers would, thus, be able to direct their electricity dollars to the suppliers whose tag mix they find desirable. Because tags represent an actual monetary investment in particular characteristics, the generation mix would, over time, evolve to reflect the sum total of consumer preferences expressed through the various tag-based transactions.

A major advantage of a tag-based system over an ISO-tracking system is that the former allows generators to receive any premium above the spot market clearing price for every MWH of electricity they produce. This is preferable to depending exclusively on bilateral contracts that keep the power and source characteristics bundled together. In an ISO-based tracking system, generators selling into the NEPOOL spot market (regardless of how many consumer desired characteristics are appended to their bids) will still receive the market clearing price, and no more.

The tagging system would be governed by the following basic rules.

All generators would report to the Tagging Authority fuel type and emissions that correspond to the MWHs of electricity generated during the reporting period.

2. All generators would have the ability to create and sell Tagging Authority approved tags for fuel type and emissions.

3. All LSEs would be able to acquire a quantity of fuel type and emissions tags that correspond to any number of MWHs of electricity sold during the reporting period. An LSE choosing not to acquire tags for each MWH would have the characteristics of the residual mix assigned to all MWH for which no tags are owned.

4. LSEs would have to disclose to their existing and prospective customers the fuel mix and emissions profile of their various electricity products, as reflected in the label by the tags they acquired, as of the end of the reporting period (historical) or the residual mix is assigned.

5. Information based on the tags, in the form of a label, would be disclosed to consumers by the LSEs every reporting period based on a rolling 12-month average of the data derived from the LSEs collection of tags for that historical time period.

Mechanics of a Tagging System

The mechanics of the tagging system are best described using an example. Consider the New England Power Pool (NEPOOL) control area, which became the domain of "ISO New England" on July 1, 1997. A tagging system for NEPOOL would involve four parts which are described on the following pages s (1) tag creation or identification, (2) tag trading, (3) retirement by LSEs, and (4) disclosure to retail customers.

Disclosure would be on an historical rather than a prospective basis. Although historical reporting introduces certain complexities (i.e., what should new suppliers report) it is generally easy to verify such data through meter reading and existing emissions reporting requirements. It also circumvents any need for the balancing and policing that might be required in a system based on prospective reporting.

Tag Creation

Tags for fuel type and emissions characteristics would be created by generators for each MWH of electricity their plants produce. The tag for each MWH would describe the fuel type, emissions and the unit associated with its production. The system would use designations, such as:

Fuel Type

- Gas
- Coal
- Nuclear
- Oil
- Hydro
- Solar
- Wind
- Biomass
- Waste to energy
- Imports

*Emissions (*Selected only to match the emissions discussed by the Working Group, with the possiblity of reporting other emissions as required)

- NO_2
- SO_2
- Carbon dioxide

Tags would be issued by a tagging authorit*y* (TA), which could be a third party staffed and funded to administer the system. The TA would issue tags upon the generation of a certain number of MWHs of electricity from a plant. While described for illustrative purposes in one MWH increments above, the specific amount of electricity that one would have to generate in order to apply for a tag has not been determined, but it should remain as flexible as possible without undermining the accuracy and reliability of the system. Obviously the larger the tag, the fewer and easier they will be to track. For example, large baseload plants may apply for tags on a daily basis, in order to trade more actively in the tag market. Smaller or intermittent *r*esources might only apply for tags on a weekly or monthly basis.

Upon verification, the TA would issue a certificate with a unique serial number containing the source characteristic data for that quantity of electricity produced. For example, if a wind farm generated 10 MWHs of electricity, and assuming tags were denominated in 10 MWH increments, it would apply for a tag that would contain the following information:

UNIT NAME: WINDY RIDGE
PERIOD OF GENERATION: FROM: 00:00 D/M/YR TO: 08:20 D/M/YR
ISSUE DATE: D/M/YR
AMOUNT: 10 MWH
FUEL TYPE: WIND
EMISSIONS: NO_2 0 SO_2 0 Carbon dioxide 0

Emissions could be expressed in pounds per MWH in the tag and then compared on a product label, as a percentage of the regional average for emissions of that compound from all

generation. Emissions data would come from continuous emissions monitoring equipment, stack testing, and emissions factors. Emissions could also be expressed in some other measure such as tons/year.

If a generator did not apply for tags, the TA would obtain for that generator the minimum information needed for a tag. This data is needed to calculate the residual mix, an LSE=s overall mix and any regional averages (like the regional average emissions). However, no tag would be issued or be eligible for trading. The only tags eligible for trading would be those registered by the generator.

Importing electricity from outside the agreed-upon tag areas (initially in New England) would create some important complexities and opportunities for gaming that need to be addressed. This is discussed in subsequent sections of this paper in which tags for regulated and deregulated entities are discussed.

Information on tags would not necessarily be limited to fuel type and emissions data. While this information would be mandatory for all generators to create and all LSEs to disclose, generators could voluntarily provide information related to other characteristics in a second, "full detail" section of a particular tag. This aspect of the tag system is designed to ensure maximum flexibility in responding to actual customer information needs as determined by supplier research and revealed consumer preferences. For example, while price, fuel mix, and emissions are believed to be the main points of differentiation today, suppliers may learn after the market opens that customers are interested in other source characteristics, such as (but not limited to) the following:

- Ownership of unitsssome consumers may wish to know the owner of the plant that produced the characteristics they are purchasing;
- Location of unitssthis data may be as important, if not more so, than raw emissions data for purposes of informing consumers about possible impacts of generation;
- Age of units;
- Other specific unit characteristics such as the size of a hydro facility or its use of fish ladders at dams; and
- Percentage of union labor at plants.

The information disclosed in the "full detail" section of the tags could also be modified over time to address new or additional regulatory requirements. Tags are a very efficient and flexible mechanism for accommodating evolving state-specific requirements.

In contrast, adding a new requirement (i.e. a new category of hydro power or another emission) in an ISO tracking system would require the ISO, all suppliers and traders, and all LSEs in the market to add that new requirement to their tracking systems. If they do not, any power they trade in the spot and bilateral markets will not have the new requirement and anyone they trade with or who buys from the spot market will not be able to determine their adherence to the new requirement. Thus if one state mandates a new requirement, all participants in the market must change their systems to accommodate itseven if they serve no LSEs or customers in that state. The result is a longer lead time, reduced flexibility and increased cost to add new requirements. In a tag-based system, changes are needed only by generators desiring to meet the new requirement and LSEs who intend to supply customers in areas where the new requirement applies.

Trading

Because disclosure of information will be on a periodic historical basis (every six months and based on a running 12 month suggested average) tags could be traded for the entire six month

reporting period. One of the advantages of the tagging system is that it would require only a few trading rules to prevent double counting and fraud; the tagging authority would not need to have any direct involvement in the trading process.Trading would take place within the following constraints:

1.Retail suppliers (LSEs) would be able to obtain through trading sufficient tags of a particular nature in order to support their individual product characteristics and marketing objectives for those products. In other words, if a supplier planned to create a product that was "NO_2-free" for sale to urban customers, this marketing claim could be substantiated by purchasing hydroelectric and nuclear tags for all of the product's planned MWH sales for the reporting period. It would be the LSE's responsibility to obtain tags for generation that is "NO_2-free" in order to avoid charges of false or misleading advertising.

2.Suppliers who did not wish to make claims regarding fuel type or emissions would not have to actively purchase tags. Those suppliers would label their products based on a modified pool profile or "residual mix". Such a supplier would have no control over the label and could not further segment it. As a result, it is unlikely that it would be in a position to take advantage of this mix of tags in any marketing campaign. For suppliers competing only on price, this offers an advantage over an ISO-based system in that the supplier would not be required to purchase sophisticated systems to track fuel mix and emissions through all of its bilateral unit and system transactions, as well as spot market purchases and sales. (All market participants would be expected to be responsible for Tagging Authority costs).

3.Tags would expire at the end of the six month trading period. Tags could not be carried over into the next trading period by either generators or suppliers. This would prevent attempts by any party to manipulate tag prices through selective hoarding or dumping.

4.Other than these limitations, tags could be traded at any time, in any manner, within the trading period. It would not matter how or when tags were obtained within the trading period. What would matter is who holds the tag at the close of the trading period.

The advantage of this system is that it allows for the most efficient trading of tags and, thus, would lead to the most accurate and transparent determination of the value of specific source characteristics. The tagging concept is also fully consistent with the unbundling of generating unit capabilities in the new NEPOOL market into seven separate products. These products (energy, installed capacity, operable capacity, automatic generation control, and three categories of reserves) will be purchased, sold and settled independent of the other capabilities of the generating unit. A source tag simply represents another attribute of a generating unit that is sold unbundled in the wholesale market. Tagging would also leave the commodity and futures market for financial trading of undifferentiated energy intact, allowing it to operate at maximum efficiency.

In comparison, the ISO-based tracking system forces market participants to trade fuel type and emissions characteristics together with the energy component of generation. This bundling of source and energy characteristics would reduce the liquidity of the energy commodity market and create administrative and logistical impediments. A tagging system allows each market to operate more efficiently by separating the two components. Energy traders will only need to trade energy and average transmission, while tag traders will need to assure that marketing and consumer commitments are honored.

It has also been suggested that tags that are not already purchased on a bilateral basis could be traded in a periodic auction conducted by the Tag Authority in which all LSEs and generators could participate.

"Retiring" Tags Through the Settlement Process

At the end of the six month trading period, LSEs that have purchased tags in order to support

different product claims or marketing strategies would "retire" those tags by returning them to the TA. The TA would institute security protocols to verify the authenticity of the tags returned by the LSEs. (The serial number would be one means of verification, although at least one additional level of security, either incorporated into the certificates themselves or into an Internet-based computer trading system, would be desirable.)

The TA would create a "residual mix" label by backing out the returned tags from the New England generation profile. The residual mix label would have minimum fuel mix and emissions characteristics.

The TA would reconcile the load obligations of the LSE with its= owned tags, retire the tags submitted and provide labels based on retired tags and the residual New England mix.

LSE's who do not purchase tags to support specific claims, and who thus receive residual mix labels, will not be permitted to subdivide such labels to make claims based on the characteristics of the residual pool. For example, if the residual pool consisted of fifty percent coal and fifty percent nuclear resources, then the product label would have to disclose these percentages. It would not be permissible to characterize their allotment by marketing half of their load as "no nuclear" (the coal percentage of the label) and the other half "no emissions" (the nuclear percentage of the label). Only by purchasing tags can an LSE unbundle source characteristics and create a product with a different label.

Settlement Process

The settlement process in a tagging system would have some important advantages over the settlement process in an ISO-based system. First and foremost, tagging would involve far less information handling (reduced administrative cost) than an ISO-based system because the TA would not be involved in all of the interim trades that may have taken place during the tag trading period. A particular tag might be bought and sold many times during the six month trading period, but the TA need only know the following: (1) who owns the tag at the end of the trading period and (2) that the tag is genuine. The ISO system, on the other hand, would have to track all transactions, since the commodity energy characteristic of the electricity would remain bundled with the source characteristic.

Further, the tagging settlement process would give suppliers the opportunity to adjust for any differences between their projected needs for certain characteristics and the tags they hold when estimated hourly retail loads are reconciled each month by the ISO. If the tag trading system is allowed to remain open for a short period of time after the ISO reconciles loads (and possibly makes other adjustments), those who have made claims that they are unable to fully meet with the existing tags would have another opportunity to purchase any necessary tags on the market before the end of the trading period. Likewise, an LSE with more tags than it needs could sell them. Suppliers would be unable to do so in an ISO-based system, since there would be no market for specific source IDs remaining after load reconciliation and other adjustments.

Disclosure of Information Based on Tags

After the settlement process, each supplier would disclose information on a label based on the tag characteristics approved and verified by the tagging authority. The actual composition and presentation of the label could be the same for a tag-based system as for an ISO-based system.

A significant advantage of tags is that they enable LSEs to make meaningful and easily verifiable claims about the energy and source characteristics produced to meet their customers energy needs over the reporting period. Obviously consumer education will be needed to help convey the fact that electrons can not be routed from a particular unit to a certain customer (without dedicated transmission lines). Tags offer a simple and easily understood method for proving that generation with particular fuel and emissions characteristics actually ran in support of a customer=s electric use. An LSE either holds a tag or it does not. ISO tracking systems that must

rely on complex streaming of source characteristics through multiple transactions, simplifying assumptions, arbitrary computational shortcuts, and no provisions for true-ups and reconciliations will likely result in less precise and thus less meaningful claims on the part of LSEs to their customers.

Product versus Supplier-Based System

The proposed tagging system is set up as a product-based system. The disclosure would be based on the product an LSE is selling to a consumer rather than a supplier's actual supply mix. Regardless of which system for tracking is employed, product disclosure can have an important role in the creation of markets for specialty products. Subsequent research is needed to ascertain whether there are broader consumer issues related to a product-based system. Tag caveats can, however, state precisely that the tag represents a product and not the entire system mix.

Imports

Because disclosure would cover all power sold, the TA would balance generation and load. To accomplish this balancing, imports of electric energy from outside of New England would be labeled simply as "imports" and made part of the residual mix until neighboring states or ISOs adopt measures that would allow verification and prevent gaming, double-counting, and/or "greenwashing" of renewable generation from other states or regions. Some suggested that such areas should also have retail choice. If "clean" resources existing in adjoining regions (paid for by captive utility customers) are sold into a higher value market with retail choice and disclosure requirements will those captive customers be informed that the "clean" resources they support have been sold to others? Who gets any incremental value from those attributes? Double counting of attributes becomes a possibility as well without consistent standards across regions.

"Greenwashing" is potentially a significant risk to the meaningfulness of any disclosure process. Greenwashing can occur when less valuable source characteristics are sold and equivalent, more valuable characteristics are purchased to improve a disclosure label. For example, assume a New England LSE has 1,000 MW of retail load in a hour and 1,000 MW of coal and nuclear generation (owned or purchased) to serve that load. Further assume that it buys no tags for that hour and would rely on the residual mix which is roughly 50% coal and 50% nuclear. If it wanted to greenwash, the LSE would sell unit contracts for the coal and nuclear generation (energy and tags) to an out-of-region entity. It would then simultaneously purchase and import 1,000 MW of energy and tags with more valuable source characteristics, perhaps hydro. Since 1,000 MW was exported and 1,000 MW was imported, the net flow over the transmission ties is 0 and any preexisting contract flows are unaffected. The LSE then serves its 1,000 MW load in that hour with a 100% hydro product. If the LSE just exported and imported tags, the same concept would apply.

Thus the source characteristics of the coal and nuclear were allocated to customers in another region (without disclosure) and these New England customers purchased all "hydro" while no hydro was actually generated in the region. Attempts to police these transactions through the ISO settlement system, if possible, could be further complicated by involving two or three third parties in the transactions. If import are designated as simply "imports" there is no value to be gained in greenwashing to improve mix characteristics. For emissions disclosure purposes, if imports were allocated the New England average emissions any gaming of emissions reporting would likely be minimized.

Also, in order to facilitate the balancing process, power from pumped storage would not be entitled to tags, although tags would need to be assigned to the losses incurred by pumped storage operations. (This would not prevent a pumped storage generator from making claims related specifically to the characteristics of pumped storage that would exist outside of the characteristics covered by the tagging system.) Exports would have tags associated with any transactions. Some have suggested they be assigned the residual mix.

Transition Issues

There are at least two transition issues that need to be addresseds(1) how quickly can a disclosure system be set up, and (2) how to assure that tags are not misused between traditional regulated and restructured service areas with retail choice. The first issue is critical. A system that is not operational until two years after the onset of retail competition is of little value. It is imperative that a system be up and running with the start of retail competition, or at least shortly thereafter. Both the proposed tagging system and a claims-based system (supported by contracts or tags) can be implemented much sooner than an ISO-based tracking system. Tags are based on data that generators routinely produce, except that it is separated from price. Data on fuel type and emissions are generally readily identified and verifiable.

Alternatively, ISO-tracking systems must wait for ISO systems to be operational before usable, verifiable and accessible procedures for tracking energy and the desired attributes can be constructed. While energy is an integral attribute in the ISO system, fuel mix and emissions are not and would need to be matched, on an hour-by-hour basis, with energy and then tracked transaction-by-transaction from generator to load. The main problem is that ISO-based disclosure needs to be integrated into the ISO design; the disclosure mechanism cannot be introduced ahead of the overall system. It is evident that the tag-based system, with its earlier implementation schedule for disclosure is preferable.

The second key issue is how to prevent the misuse of tags as different states restructure and implement retail choice at different rates. Many of the same issues that are of concern with imports apply here as well. And as with imports, this issue is equally relevant to the disclosure schemes under discussion.

One way to address this is to apportion tags to generators with remaining regulated retail load obligations in proportion to the amount of their traditional load that has retail choice. Other generators, those whose customers have retail choice, that have divested, or who are merchant facilities would be eligible to produce tags for all their generation. For example, if 60 percent of a regulated utility=s traditional customer load had retail choice, then 60 percent of the output of any unit that the utility owns (or has a long-term contract for) would be eligible to produce tags. Adjustments may be necessary to keep tag production and consumption in balance, to the extent that any unit produced more than tags were needed for its retail load with choice. Such adjustment mechanisms need further study and would be eliminated once all of New England had retail choice.

Consumer Acceptance

All three disclosure methods raise possible consumer acceptance challenges that should be addressed.

ISO-based tracking is by far the most complex. As such, it is not easily explained to consumers and it requires simplifying assumptions to be usable. These assumptions reduce accuracy and, to some extent, undermine credibility. There are several areas of "disconnect" that can confuse consumers. These include disparities between supply inputs (which are averaged) and end-use receipt, imbalances between emissions and fuel mix and the overall accuracy of emission tracking.

The proposed tag-based disclosure system allows the most meaningful claims and easiest verification. Some may argue, however, that it may strain credibility with its separation of commodity power from the attribute tag. The tag system, however, is simple and easily explained. At the heart of the issue is a disconnect that is very similar to that of the legal contract path in ISO tracking versus the physical path of the electron. It is not difficult to explain the attributes that a consumer pays for under the tag-based system. It may be helpful to have a clear explanation of the unbundling in a manner that is comprehensible to any interested consumers,

not just the most interested and analytically-minded ones.

None of the proposed methods can legitimately claim to trace the electron from the producer's generating facility to the consumer's meter. While the ISO-tracking system can claim to trace the contract path of the electron, it can no better trace the physical path of the electron than the tag. To be fair, the contract path concept is consistent with what has been used in the past for transmission billing purposes. Current NEPOOL reform efforts, however, have moved to network type transmission services. Under the network approach, a MWH is injected into the network at some point A (with associated fuel and emissions) and withdrawn for consumption at point B. The physical electrons consumed at B could be from A or any other unit generating in that hour. Under the tagging system, it is accurate to state the following s (1) that the quantity of electricity with the characteristics chosen by the consumer was indeed produced, and (2) that the company selling the energy holds title (at a premium) to these characteristics that the tag represents.

The claims-based system suffers from consumer acceptance problems of its own. There is the standard consumer skepticism that energy suppliers are getting away with something until (if) they are caught by a competitor, regulator or a consumer. Consumers hold this view in many markets, especially for tangible goods and services. They may not like this system but are able to accept it because it is inexpensive.

Any consumer acceptance issues can be logically addressed through the process. Objections may be quelled, at least to some extent, by the merits of the particular system. Customers are keenly interested in cost, and it can be argued that a claims-based system is the least expensive, followed by a tag-based system, then the ISO-based system. Simplicity also has market appeal. In this case, a tags-based system is more straightforward than a claims-based system, which is superior to an ISO-based system. There are other factors such as the ease of implementation that can also defuse consumer objections.

Overall Advantages of a Tag-Based System

The proposed tagging system offers the following advantages for consumer disclosure:

- Direct allocation of resource attributes to consumers. The tag informs customers about the attribute of the power produced and subsequently owned by the customer's LSE and provided to the customer.
- Clear, transparent price signals for different characteristics. The price associated with energy delivered by a supplier with one set or mix of tags will differ from another.
- Separates the settlement process for the commodity from the settlement process for the attributes, while assuring attributes are produced and valued. This makes the energy trading separate and more efficient which results in the lowest customer cost. The tag then represents the premium for the valued attributes.
- Easier, cheaper and faster implementation and administration.
- Ability to support portfolio verification. Specific portfolio requirements can be easily added to a tag by interested generators.
- Flexibility to add valued attributes. Best able to create trade and verify new attributes that customers may value in a competitive market.

Conclusions

A tag-based system for disclosing information on generating fuel type and emissions offer a number of important advantages over either an ISO-based or hybrid claims-based system. A common feature of the proposed systems is that they allow consumers to direct their buying dollars toward the generating resources that they prefer. To the extent that consumers value

electricity produced from certain sources, their willingness to pay more for that power ultimately funds investments in new resources in a manner that approximates a free market.

The beauty of a tag-based system is that it accomplishes this in the most efficient manner. Power and source characteristics are unbundled and tags are traded independently in secondary markets. ISO-based tracking forces market participants to trade fuel type and emissions characteristics at the same time they trade the energy component of generation. These bundled components reduce the liquidity of the market for different fuel types and create additional administrative burdens for all market participants. The tag-based system offers a stronger market signal for new power sources than an ISO-based system in which generators selling into spot markets receive only the market clearing price, regardless of how many consumer desired characteristics are appended to their bids.

The costs of a tag-based system are lower than that of an ISO-based system for a couple of reasons. First, the identification process occurs only twice-at the time of tag creation and again at retirement. This makes the ISO's complex tracking and settlement functions unnecessary. LSE and supplier costs are lower since it is not necessary to manage data on a real-time basis. Tracking is limited to perhaps simple spreadsheets. Most costs of disclosure under the tag-based system are confined to those suppliers who make claims regarding fuel type or emissions.

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