***OFA Proposals For***

**Desirable Changes to the Design of Ontario’s Power Delivery Rates**

**Introduction**

Rate design must serve several purposes. Accordingly rate design reflects compromises in the extent to which some purposes are served more or less than other purposes.

Present rate designs in Ontario are guided largely by concern for the principle of cost causality. It is an important principle, but Ontario Federation of Agriculture feels rate design should also help:

1. ensure customers get reliable and affordable electricity for their homes and places of work, to promote the economic and hence the social well-being of Ontario,
2. encourage utilities to cooperate to reduce costs, not simply to attempt to manage within the existing framework ,
3. encourage customers to think about their electricity use so assets are used and supplied efficiently and in a timely manner,
4. encourage customers to be more self-sufficient where 100% dependence on public supply or service is more costly than some measure of self-reliance, and
5. not assuredly keep utilities whole as it may be better for Ontario that some utilities be compelled to merge with other utilities or be bought out by firms that can manage the assets and provide service more efficiently.

Being guided by the principle of cost causality does not necessarily produce a more equitable or efficient result when compared with other principles. It is assumed in the present rate design that transmission charges should be shared more or less equally by consumers with a uniform per kwh charge regardless of location. A map of transmission lines makes it evident that most transmission lines go to Toronto and have been expanded to serve urban growth. Lines were adequate for rural and small town growth by 1975. The present approach has helped subsidize urban growth and retard rural and small town growth. And transmission though built for peak needs is only billed to large customers based on peak use. Transmission rates that reflected municipal peak load growth would help Ontario allocate transmission investments more soundly and get better utilization from the assets.

Similarly, line losses which are a function of line quality, adequacy, distance and peaks are charged on an average distance basis. Of these factors, customers can only control their peaks. Accordingly a change to line loss charges could improve rate design. These suggestions supplement cost causality and OFA feels rates could be improved if cost related principles were balanced anew.

OFA is pleased to provide its input to consideration of changes to rate design for Ontario and thanks the Ontario Energy Board for this opportunity.

**Transmission**

Certain assets, notably lines over 50 kv, are defined as transmission assets. Unless they are paid for by a single use customer, when built, all Ontario ratepayers share the costs. For example the John St. Tunnel in Toronto provided resilience and made better use of two transformer stations in Toronto. All Ontario paid. Only Torontonians benefited. Large cities are helped by small towns to pay for local assets. Places too small to ever need such large local assets pay for their own local assets and never get such help.

This small subsidizing large practice is recent. From 1905 to 1975 transmission expansion was reasonably in proportion to growth around Ontario. Most places grew and so could be reasonably expected to pay for grid expansion. Since 1975, grid expansion has been for load growth in cities. Small towns and rural areas did not need the expanded grid and should not have been expected to pay for it. But they too paid. They subsidized the growth of large cities and their own growth prospects were compromised as a result because their power delivery costs were increased while they fell in cities as a result.

**OFA suggests** that transmission costs be paid via time of use rates that would vary by Local Distribution Company (LDC); on the basis that customers in an LDC pay half of their transmission costs based on the fraction of provincial load or fraction of population that that LDC had in 1981 and that the other 50% of their transmission cost be paid based on their portion of load in the current year or a recent year.

This proposal would be cost neutral for places that have grown at the provincial average rate. It would increase costs for areas that have had total load growth above average. Rates would fall for places that have had load growth at less than provincial average rate. They would no longer be subsidizing the growing centers as much. And the time of use aspect would further reduce subsidies to peak users by off peak users.

This approach recognizes that the grid is a shared that it should be paid for in common. But it also recognizes that some areas have created the need for expansion and benefited more from expansion and that the people in those areas should accordingly pay for that expansion as they caused it and benefited from it. The change is 40 years overdue, but still much needed.

**Distribution**

Load has fallen in Ontario. There are several causes for this including;

1. conservation
2. a loss of power intensive business, and
3. a move to Combined Heat and Power (CHP) .

OFA approves of conservation and recognizes that there are costs associated with conservation, but that the benefits are positive.

OFA is concerned about the loss of business in Ontario. It has often meant the loss of food processors who have been farm customers for decades. When they leave, farmers lose income.

OFA approves of CHP as a more efficient use of energy. A 2013 OFA member survey found approximately 200 farms that have apparently moved to self-generation, likely with CHP. With natural gas or bio-diesel they can generate their own power for enough less than the 17 cents per kwh that power costs from the grid that the savings make it worthwhile.

**The looming challenge to high cost distribution of high cost power is loss of major customers as they switch to CHP.**  This is occurring. Eight firms now sell CHP equipment in Ontario. Ten years ago, CHP was a custom order and there were very few installations. Significantly, CHP is now available ‘off-the-shelf’ in Japan and the EU in units of 3 to 40 kw. These are home sized, quiet, reliable and safe. They cost between $8,000 and $50,000 installed. They run on natural gas and provide heat, power and air conditioning for about the cost of electricity alone. With built-in inverter-storage systems they do not have to turn on for small loads and they can provide 30 hours back up for maintenance outages. The grid must start to compete with these devices. The alternative is much higher distribution costs for the customers who remain, followed by insolvency of LDC’s that fail to retain a solid customer base.

A customer that pays $100,000 a year for grid power and $50,000 for building heat can likely have both heat and power for $90,000 a year with CHP. Even after extra gas use and amortization of CHP equipment and they save $60,000 a year. Homeowners, who use $2,500 in hydro and $1,500 a year in gas, can have heat and power for $3,000 a year. An after tax saving of $1,000 a year. For some this is already here. LDC’s are vulnerable to CHP and must adjust positively for customers.

Demand charges for low total volume customers can result in power bills of 35 cents to one dollar per kwh. OFA feels all bills should have their all-in per kwh rate calculated automatically, and that costs be capped at 40 cents a kwh. Allowing unlimited demand charges can heavily handicap small business and small volume farms and drive these customers off grid.

There are approaches that can be encouraged by rate design and policy that will reduce LDC costs. Cost reduction is possible by:

1. pooling maintenance, operating, design assets such as trucks, transformer inventories, billing services,
2. returning to self regulation by customer elected boards so customers chose their preferred mix of service and costs
3. reducing salaries and numbers of employees
4. **expecting customers to cope with short term outages using generators and/or inverter-storage units,** (Repairs would can take longer, but require fewer repair people so costs would be lower.) (Farm people do this now, if all customers did fewer repair staff would be needed)
5. ending the ‘right-to-be-served’ and buying customers on extreme cost lines off the grid, by providing them with solar or other generation and storage units
6. reducing the LDC’s allowed rate of return to about prime plus 3%.

Some of these measures, such as returning to elected LDC Boards that self-regulate or ending the ‘right to be served’ on extreme high cost lines, would require legislative changes.

Getting customers to use inverter-storage units will require making them available at reasonable cost, particularly in areas with reputations for frequent outages. But advertising and peak shifting incentives could help popularize the devices. In turn, if an outage that would ordinarily be fixed in 3 hours, could be managed over 9 hours with a third the workers, then payroll costs could be reduced.

The Energy Board should guide the LDC’s to move promptly in the above directions. Rate orders which require cost reductions will be useful in preserving the LDC’s and keeping them useful as large numbers of customers move to CHP and use the grid differently or not at all.

Rate orders that accept costs largely as proposed ensure that rates grow at levels in excess of inflation. This is the record. Hearings and reviews attempt to be reasoned and factually based, but have failed to curb costs. If the aim is to reduce costs, approving smaller increases, will not achieve that. The above methods will reduce costs. If costs are to be reduced Board Rate Orders must inject these or very similar notions into the operations of Hydro One and LDC’s.

**Customers and Their Responses to Rates**

Rate design and prices influence behaviour of price sensitive consumers. OFA wants rates designed to:

1. encourage conservation
2. allow power use in homes at prices that sustain families, and
3. allow power use so Ontario farms and businesses can compete.

Set out below are rate design changes that OFA believes would help achieve these aims.

1 OFA believes time-of-use pricing for line losses, transmission and distribution would promote reduced peak hour use and make better use of generation and transmission assets.

2 OFA believes surplus base power should be offered in Ontario first and that Ontario should not sell power below cost to the benefit of our competitors located outside Ontario.

3 OFA believes the special (10% of normal) transmission tariff for exports and wheeling (Wheeling is passage of power from one jurisdiction through Ontario to a third jurisdiction) is wrong. The transmission grid is being expanded at great cost to consumers, yet 18.3 TWH of surplus night time power (about 12% of total Ontario use) is exported but pays only one-tenth the rate applied to domestic users or effectively 1.2% of costs for 12% of transmission. If the 10% charge applied to Ontario users as well, that power would be half price in Ontario, and might be used here, for the benefit of our economy.

4 OFA believes Ontario needs a farm/industrial rate to allow power to be sold at rates competitive with the third of jurisdictions in North America with the lowest prices. This can be achieved by removing provincial taxes (Debt Recovery Charge and provincial part of HST) from power bills, using that opportunity for flexibility to increase residential and commercial rates so they remain as they were before the taxes were removed and reducing farm and industrial rates by about 3.2 cents per kwh.

5 OFA feels line losses should be recovered with a uniform charge on all customers for transmission and non-technical losses such as theft, coupled with a surcharge on time-of-use rates of about 3% on base 6% on shoulder rates and 9% on peak rates. This would recover losses without penalizing location, which not effectively in the customer’s control. And it would emphasize peak hour losses which are a major contributor to line losses and are largely in the customer’s control. It is also a simpler method of calculation.

6 OFA feels that in low-density customer classes, customers in the higher density part of those classes cross subsidize the higher cost customers in the less dense half. This is inevitable. However, the low-density half did not choose to be extreme low density and the higher density half did nothing to be solely responsible for the extra costs of their lower density neighbours.

These extra costs of extreme low density used to be fully paid by Rural Rate Assistance. (RRA) The numbers of people on rural rate assistance has risen from under 100,000 in 1983 to over 300,000 in 2013. RRA is no longer sufficient to cover all the extra costs of low density.

Several approaches are possible. Raising the charge RRA is one approach. However, RRA is a tax and this is would be budget measure. The Board could alert the government to this need, but cannot change the rate of tax on its own. Alternately, the Board could increase the fixed charges (monthly service charges) for all Hydro One distribution customers and instruct Hydro One to use these additional funds to reduce rates for low density class customers. This would limit the ‘social’ support to the low density customers to other HONI customers.

A second option the Board could increase the rate for transmission to all customers and instruct Hydro One Networks Inc. (HONI) to apply that added revenue to the relief of low density class customers. This would provide relief funded by all rate payers and not just HONI distribution customers. As a result it would be substantially lower cost per customer and it would extend the cost burden of low density to all HONI customers and be more equitable.

Still more equitably, the Board could impose an extra tariff on all transmission costs and order HONI to apply that revenue to the relief of low density customers. This would share the social cost of low density across all Ontario power users.

7 OFA believes conservation can be built into rate design in several ways, including

* 1. time-of-use delivery rates and time-of-use charges for technical line losses
	2. introduce an ‘honour system’ payment for conservation, that is a rebate for kwh reduction compared to the same billing period the year before
	3. a form of Ramsey Conservation pricing that increases peak and shoulder rates for customers

**The Global Adjustment**

The Global Adjustment (GA) has become the largest part of most power bills. Changes would be useful.

The costs of ‘green’ power, that is an amount roughly equal to the cost of natural gas, solar and wind power less an amount equivalent to what the power would have cost if generated by coal should be paid into the global adjustment from general revenue. This volume of power might be capped at approximately the total of peak and shoulder volumes of coal power prior to the ‘off-coal’ initiative. The funds might be derived from a supplement to provincial HST on road fuels. The present arrangement passes through what amounts to a green tax on all power consumers including business and handicaps the Ontario economy. This would reduce the cost of the GA to consumers and help stabilize bills.

The GA could be further stabilized if payments in and out were made on a rolling average basis.

**Summary**

OFA believes large customers are and will continue to leave the grid for CHP and as a result the grid will be less well sustained and rates for remaining customers will rise rapidly. CHP is useful and should not be made more difficult, but rate design can alter the pace of transition to protect lower volume and non-CHP users. In particular, rate design changes can help Ontario determine whether major new grid investments are needed or whether they may be stranded.

Applying of time-of-use rates to transmission and distribution and time-of-use or coincident peak charges to line losses and an ‘honour system’ conservation incentive involve modest changes to billing software, and can be integrated rapidly into rate design with benefits for load shifting, conservation, further reduction of subsidies by base users to peak users and additional deferral of new infrastructure requirements. Time-use-rates enhance efficiency and equity.

OFA feels there is no sound argument in causality or equity or efficiency for concentrating the extra costs of extreme low density customers on the high density half of the lowest density residential class. These extra costs should be borne by all Ontario grid users.

Surplus base power sold to the US comprises about 12% of total Ontario power production. OFA believes surplus base power should be offered in Ontario first. A special rate for surplus base power and a special rate for base hour transmission and distribution can encourage domestic use of this power.

OFA believes that the inclusion of local high voltage projects such as major transformer station upgrades in Toronto, or the John Street Tunnel, and the Bruce-Milton upgrade are projects which serve rapidly growing urban areas alone and do nothing for areas with largely stable consumption and peaks. These upgrades should be paid for by customers in areas with rapidly growing load growth. The present payment design provides a very substantial subsidy to development in those areas and imposes a penalty on all other areas. This in turn leaves some older transmission lines (e.g. Bruce to ESSA under used) while promoting still more costly urban congestion in the rapidly growing areas. It inefficient and inequitable.

OFA believes Ontario needs a farm/industrial rate to restore some part of its economic competitiveness. Such a rate can be achieved without additional cost to residential or commercial power users if the provincial taxes are removed from power bills and the room ‘freed up’ is used to raise residential and commercial/institutional bills back to the level when tax was included and at the same time farm/industrial rates are reduced. However, OFA acknowledges that these tax changes must be introduced by the legislature, before rates could be redesigned in this useful way.

It should be noted that the proposals in this note have been reviewed and accepted by the Executive Committee of the Ontario Federation of Agriculture.

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OFA has long felt that shortcomings in rate design permitted some inefficient and inequitable aspects to enter into rates. With the emergence of new affordable options for going off grid the risks to the grid from these rate design shortcomings grow. So this enquiry by the OEB is timely and useful. OFA thanks the OEB board members and staff for the opportunity to contribute and hopes that its contributions are of assistance.