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Ontario electricity: When prophecy failed but rent collection succeeded

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ABSTRACT

The restructuring of Ontario's electricity system is an excellent example of how forcing electricity to seem like a private good creates wasteful economic rents. This article estimates that the rents collected from Ontario consumers since Market Opening 2002 are at least $40 billion. The precondition to reduce consumers' costs is to abandon the pretense of an electricity market.

1. Introduction

A little over 10 years ago this journal published two articles that I authored. One was about the public good nature of electricity and how this explains all of the anomalous features of the electricity industry (Houldin, 2004). The other was the first public disclosure of the costs impacts on Ontario of its disastrous policy of creating an electricity "market" (Houldin, 2005). The unprecedented increase in costs to the Ontario consumer that were documented in the second article have now been confirmed by official sources (IESO-OPA, 2007). This article is an update of the Ontario situation.[1]

In 1956 Leon Festinger published *When Prophecy Fails* (Festinger et al., 1956), which described the reactions of an end-of-the-world cult's members when its prognostications failed. Festinger coined the phrase "cognitive dissonance" to explain how some cult members remained committed to their beliefs in the face of an obvious repudiation. The dissonance is between belief and fact and may either resolved by modifying beliefs or reinterpreting facts. Throughout the 1990s prophets of electricity markets predicted a new world of lower costs, less regulation, and price transparency. These prophecies have now been definitively refuted by experience. Ontario is the best example of both the policy of restructuring, as these polices have become known, and their complete failure. Ontario is also a sterling example of the cognitive dissonance that continues to plague the hapless Ontario consumer, along with the persistence of windfall profits (economic rents) created by the belief in an electricity "market."

This article first provides a brief recap of why electricity may be best conceptualized as a public, rather than private, good, which introduces the importance of rent creation in restructured systems. A brief overview of Ontario electricity policy covering the restructuring period follows. The next two sections present the cost increase that has been created by restructuring and an analysis of the economic rents that represent a large portion of the cost increase. A conclusions section discusses some fixes suggested by the foregoing, which emphasizing the importance of acknowledging fact and dispensing with the belief in a fake market for electricity.

2. Electricity as a public good

The ideas of William Baumol (Baumol et al., 1982) and Alfred Kahn (Kahn, 1970) were used to launch a revolution in infrastructure policy; the "unbundling" of underlying commodities from their natural monopoly hard assets combined with the reduction of entry barriers into each sector to create contestable markets for those commodities. Electricity systems have proved to be the most resistant to the application of these ideas. Economic theory allows the services delivered by electricity systems to be conceptualized in three ways: as a private good with multiple market failures[2]; as a public good (Houldin, 2004; Schulze et al., 2008); or, as a monopsony with multiple externalities ("fair" allocation, pollution,

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[1] Acronyms used in this article: IESO – independent electricity system operator; OPG – Ontario Power Generation; HONI – Hydro One Networks Inc.; NUGs – non-utility generators; OPA – Ontario Power Authority; OEB – Ontario Energy Board; OEFC – Ontario Electricity Financial Corporation; DRC – debt retirement charge; RSD – residual stranded debt; GA – global adjustment; PILs – payments in lieu of taxes and, LDC – local distribution company.

[2] Oligopoly, indivisible production, congestion, pollution, lexicographic preferences. More generally, electricity as a private good violates all of the axioms in Debreu's landmark proof of the welfare properties of competitive markets (technically "Walrasian Competitive Equilibria") (Debreu, 1959).

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congestion). Some have suggested that the different services may each be treated differently (Salies et al., 2007; Rochlin, 2004).

The real question is: what treatment yields the most sensible policy? My view is that the public good approach explains the anomalies of electricity better and is therefore a better basis for policy. For example, only the public goods perspective provides a coherent explanation for demand response and congestion. The former completely contradicts the founding principle of market economics, that "goods are good," whereas it could make sense to society to pay for lower usage of public goods, e.g. the use of roads at certain times of day. Similarly, congestion does not occur in normal markets but is a normal feature of public goods, because of price signals in the former and a lack of the same in the latter. Be that as it may, Ontario has emerged as a test case for the view that electricity markets, with modifications, are a sound basis for policy. The resulting disaster for consumers ought to be sufficient evidence that such a view should be abandoned, but Festinger's shadow looms large. The public good perspective affords an understanding of the Ontario catastrophe that remains elusive to those who persist in thinking of the Ontario system as a "market." One of the conclusions that flows directly from adopting the public goods approach is the expectation that large rents would be created. As the analysis below shows, Ontario's "electricity market" has, indeed, resulted in very large rents that make up the lion's share of the consumer cost increases since Market Opening in 2002.

Markets only work for private goods. Private goods are goods that are excludable and rivalrous. If I buy a new phone, no one else can buy that phone and I am willing to pay for it because I know that there are others who are also willing at the price demanded by the vendor. The vendor's asking price is limited by the availability of other vendors. Public goods lack these qualities in different degrees (Hillman, 2009). National defense is entirely non-excludable and non-rivalrous. Cable TV is exclusive to cable subscribers but there is no rivalry within subscribers. When public goods are made to "look like" private goods, invariably economic rents are created. Toll roads and bridges are examples of this. Rents are costs to consumers greater than the revenues to economic resources – the assets of and labor required by the electricity system, in this case – necessary to attract the resources in to production. The great economic flaw in the "restructuring" policies is that they fail to take account of the strong public good nature of electricity. Loads that "subscribe" to a particular circuit either all consume or none does and there are no alternative suppliers. The higher the voltage, the greater the number of loads that are subject to this ineradicable feature of electricity systems.

Metering allows loads to be charged, *ex post*, for their actual use of energy. We may compare this to a straightforward example of a pure public good: streetlighting. It is technically possible to meter the individual use of streetlighting, by advanced dosimetry. This would do nothing for the efficiency or quality of the lighting but would greatly increase costs in the form of rents to dosimetry specialists. In both cases, the creation of a "private" market in light (electricity) creates wasteful rents. This is the hallmark of attempts to make over electricity system into (imperfect) markets.

3. Dona naturae pro rentiers sunt

In 1999 the integrated monopoly, Ontario Hydro ("Hydro"), that had provided Ontario's electricity since 1907,[3] was broken up in order to create a competitive electricity market. Ontario is unique in that it opened both a "wholesale" and "retail" market on the same date (a "big bang") and in the extent of the market, covering almost all but a few percent of consumers. The market was opened on May 1, 2002, but the retail market closed in six months, after a consumer backlash during a relatively hot summer. In 2004 a new administration claimed that it had created a "hybrid" market. By this it meant that only part of the supply would be subject to the "market" spot price and consumers would be charged according to a regulated price that combined the spot price and the "global adjustment" (GA). The GA is the difference between the daily spot price and the average cost per MWh of the collection of fixed-price sources covered by the GA regulation, calculated one month after the fact. The GA has three main components: Ontario Power Generation's (OPG's) output subject to a revenue cap imposed by the Ontario Energy Board (OEB); the cost of non-utility generator (NUG) contracts signed in the early 1990s, and a miscellany of sources covered by over 40 ministerial directives. When the new regime took effect in 2005 the GA covered about a half of supply; it now covers almost all of supply.

Despite the obvious lack of a market, with almost all of the supply subject to various fixed-price long-term arrangements (captured in the GA), the government and all of the stakeholders persist in talking about a "market." This make-believe obscures the real nature of the system to the consumer and obstructs the development of policies that could extricate Ontario from the mess. Partly, this is a triumph of cognitive dissonance and partly the triumph of vested interests, in the form of the few that have made off with over $40 billion of windfall profits, or what economist call "rents," since 2002. The motto of Hydro was "*Dona naturae pro populi sunt*" – the gifts of nature are for the people. It seems that the new collective motto of its successor organizations is "The gifts of nature are for the rentiers."

4. Ontario consumer cost increases

Fig. 1 shows average Ontario costs per MWh to all consumers for the period 1971–2015, with the impacts of the additions of nuclear capacity and the last year of Hydro's operation noted.[4] Too often, electricity costs are compared by "cherry picking" end dates and/or specific customer classes. Electricity costs are very heavily determined by fixed assets, which change slowly. The most meaningful comparisons are real annual increases in costs to all consumers over a long period. Comparisons of customer classes are often misleading, since they depend on administrative cost allocation between classes.

As may be seen from Fig. 1, the real average annual rate of increase of the total costs to Ontario consumers since restructuring has been 2.5%, compared with 1.4% for the 17 year period up to the dissolution of Hydro. Thus, for the most appropriate comparison periods, **the rate of annual increase in the real total average cost has increased by 80% since restructuring (2.5/1.4)**. From 1971 to 1998, which includes the admission of all of Ontario's nuclear plants to the rate base, the average annual rate of increase was 1.58%. There can be little doubt that by 2025 (an equivalent 27-year period) the annual rate of increase over that period will be higher than 2.5%. This is because of contracts signed with wind and solar generators under the feed-in tariff (FIT) program, which have yet to be connected to the system.[5]

[3] Hydro was originally the Hydro Electric Power Commission of Ontario (HEPCO), a municipal cooperative. Hydro replaced it as a modern business corporation with equity held by the Ontario government and Ontario's municipalities. See Nelles (1974) and Freeman (1996).

[4] The data sources are: Ontario Hydro Annual Statistics, OEB Annual Yearbooks for Electricity Distributors, and the IESO.

[5] The FIT program provides 20-year contracts to eligible generators at generous prices. See Office of the Ontario Auditor General (2011). There is a backlog of generators waiting connection to distributors ("Micro FIT") due to an imposition by HONI of a limit of generator capacity on any feeder to 7% of capacity. See HONI 2017 – to match the reference.