BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

AND

AN APPLICATION FOR APPROVAL OF BYPASS GUIDELINES FOR INDEPENDENT POWER PRODUCERS SEEKING ACCESS TO BRITISH COLUMBIA HYDRO AND POWER AUTHORITY'S TRANSMISSION SERVICE THROUGH BRITISH COLUMBIA HYDRO AND POWER AUTHORITY'S DISTRIBUTION SYSTEM

DECISION

June 1, 2001

Before:

Peter Ostergaard, Chair
Paul G. Bradley, Commissioner

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background

In a letter dated January 12, 2001 (Exhibit 6), the BC Hot House Growers' Association ("HHGA") wrote the Commission and described the problems created for hot house growers by very high natural gas prices at the time and the potential solution they saw in using cogeneration to mitigate those high prices. In its letter the HHGA asked the Commission to convene a meeting of various parties to expedite what they termed "the cogeneration solution". Independent Power Producers ("IPPs") would finance, purchase and install the cogeneration systems and would be responsible for gas purchases and electricity sales. The greenhouse operations would be customers of the IPP for heat and CO_2. The HHGA noted that the cogeneration systems would be 90 percent efficient, with 40 percent of the energy value of the natural gas converted to electricity and 50 percent to heat. Much of the CO_2 created by combustion would be consumed by the greenhouse plants.

The HHGA letter identified several issues that needed to be resolved quickly in order to enable the cogeneration option to proceed. These issues included connection requirements and regulations for use of the lower voltage distribution system of British Columbia Hydro and Power Authority ("B.C. Hydro"), potential facilities reinforcement on the BC Gas Utility Ltd. ("BC Gas") distribution system and finding markets for the power produced.

Commission staff convened a meeting on January 23, 2001. At the meeting the hot house growers agreed to identify some potential IPP candidates to BC Gas and B.C. Hydro so that the utilities could review their gas system reinforcement and electrical system interconnection issues. BC Gas agreed to identify any anticipated problems with serving the estimated load of potential greenhouse cogeneration candidates and to clarify any tariff or estimated system extension charges to potential IPPs. B.C. Hydro agreed to identify any potential interconnection problems and provide rough estimates of interconnection charges for the greenhouse/IPP candidates. The potential IPPs agreed to contact B.C. Hydro and Powerex regarding potential markets and marketing of the power.

B.C. Hydro responded in a letter dated February 16, 2001 (Exhibit 8). In its letter B.C. Hydro included an attachment that provided "Order of Magnitude" cost estimates for five greenhouse IPPs connecting to the distribution system. An updated attachment dated February 19, 2001 added a cost estimate for a sixth greenhouse (Exhibit 8). The February 16, 2001 letter indicated that there had been ongoing discussions among B.C. Hydro, Powerex and representatives of the greenhouse growers and IPPs to resolve the value of a power purchase agreement, and that Powerex remained committed to purchasing the output of the proposals.

BC Gas also responded in a letter dated February 16, 2001 (Exhibit 9) with information regarding the challenges involved in reinforcing parts of the gas distribution system and related financial charges. In its letter BC Gas emphasized that in order to optimize system additions it needed to move forward immediately on the high probability co-generation candidates, and that any delays would seriously imperil its ability to meet 2001 in-service dates.

On February 27, 2001 the HHGA wrote to the Commission noting that it had originally been looking for clarification of the regulatory issues relating to export sales from greenhouse based co-generation (Exhibit 10). While this request for clarification had been held in abeyance while the possibility of sales directly to B.C. Hydro or Powerex were explored, the HHGA now wished to reopen the question of direct market sales. Accordingly, it requested that the Commission undertake a process to confirm the basis of export market access through the distribution, transmission and export "inter-tie" systems. The HHGA again emphasized that time was an important factor given the urgency of the need for a solution to the energy pricing crisis the greenhouse growers were facing.

On March 2, 2001 the Commission issued Order No. G-26-01 which established an oral public hearing to commence on April 24, 2001. The Order directed B.C. Hydro to file an Application for access by distributed generation to the B.C. Hydro transmission system, either directly or through the B.C. Hydro distribution system. The Order also directed B.C. Hydro to establish charges, if any, for transportation through the B.C. Hydro distribution system. Order No. G-35-01 amended the hearing timetable and postponed the start of the hearing until May 1, 2001.

The evidentiary portion of the hearing was held on May 1 and 3, 2001. Final Argument and Reply took place on May 7, 2001.

1.2 The B.C. Hydro Application

B.C. Hydro filed its Application for Approval of Bypass Guidelines for Independent Power Producers Seeking Access to B.C. Hydro's Transmission Service through B.C. Hydro's Distribution System (the "Application") on March 23, 2001. B.C. Hydro's proposed bypass guidelines for IPPs were modeled on the Commission's September 3, 1999 Bypass Rate Guidelines Decision. The Bypass Rate Guidelines apply to existing Rate Schedule 1211 (large distribution voltage) customers who seek to take service under Rate Schedule 1821 (transmission voltage service) by constructing facilities to allow them to be served directly at transmission voltage.

In its Application (Exhibit 1) B.C. Hydro proposed to allow IPPs to access B.C. Hydro's transmission system through B.C. Hydro's distribution system by paying an up-front charge, equal to the distribution

connection and upgrade costs, plus a bypass rate. The present value of the bypass rate would be equal to the IPP's cost of constructing facilities that could directly connect it to B.C. Hydro's transmission system, less the up-front costs of the distribution connection and upgrade. The bypass rate would be collected over a 20-year term (Exhibit 1, pp. 5 and 6).

The cost to the IPP for connecting directly to the transmission system would include the cost of constructing the lines, substation and control equipment from the generator site to the point of connection on B.C. Hydro's transmission system. The IPP would also be responsible for the cost of any changes required to B.C. Hydro's transmission system to complete the connection and any other dedicated connection facilities (Exhibit 1. p. 3).

B.C. Hydro also suggested that, as it did not view retail access as imminent in British Columbia, it did not believe that the current proceeding was an appropriate forum for initiating work on a general distribution wheeling tariff.

1.3 Environmental, Municipal Land Use and Utility Corridor Concerns

In a pre-filed submission (Exhibit 12) and in a submission during the hearing (T1: 17-29), the Corporation of Delta ("Delta") raised concerns about the potential impacts on the community if the Commission approved the Application. In Delta's view the approval of the application would lead to numerous power plants being constructed on its prime Agricultural Land Reserve farmland and would create some unavoidable negative impacts. Specific concerns included alienation of agricultural land from its intended agricultural use for the purpose of producing electricity for export, impacts on air quality and requirements for new natural gas rights of way creating disruptions, inconvenience and additional risks (Exhibit 12, pp. 2 and 3; T1: 22).

During testimony, Mayor Jackson of Delta indicated that Delta does not have any permitting or zoning authority with respect to the hot houses and the establishment of generators at the hot houses (T1: 26). In response to a question about the jurisdiction of the Agricultural Land Commission, the Mayor indicated that in her view, if the hot house growers were asking for permission to construct such projects, the permission would be granted (T1: 28). Mayor Jackson also agreed that both the Province and the Greater Vancouver Regional District have emission and air quality standards with which distributed generators would need to comply.

Commission Determination

The Commission recognizes Delta's concerns as outlined in its submission. The Commission is aware that other agencies have jurisdiction over the land use and air quality issues raised by the municipality, and the Commission itself does not have the jurisdiction to rule directly on Delta's concerns. The Commission will render a decision on matters within its jurisdiction, namely tolls to be paid by IPPs and conditions of access to B.C. Hydro's distribution system, based on criteria contained in the Utilities Commission Act.

2.0 THE WHEELING RATE

2.1 The B.C. Hydro Proposal

As noted in Section 1.2 above, B.C. Hydro modeled its proposed bypass guidelines for IPPs on the Commission's September 1999 Bypass Rate Guidelines.

In its Application B.C. Hydro proposed that an IPP seeking access to B.C. Hydro's transmission system through the distribution system should be required to provide the Commission and B.C. Hydro with a study describing the direct facilities that would be required by the IPP to connect directly to B.C. Hydro's transmission system. The study would also include a plan demonstrating that the IPP could get any necessary rights-of-way and other approvals necessary to build and operate the facilities and an analysis of the after-tax cost of constructing, operating and maintaining the required facilities. Following the IPP study, B.C. Hydro would provide the Commission and the IPP with an estimate of the distribution connection cost and the costs of any necessary distribution system upgrades. Once the Commission had determined that the direct connection was viable and credible, and that the cost of connection through the distribution system was less than the cost of a direct connection to the transmission system, B.C. Hydro would determine a bypass rate.

The bypass rate would be based on the Net Present Value ("NPV") of the difference between the actual cost of connecting to the distribution system plus any required distribution system upgrades and the cost to the IPP of a direct connection to the transmission system. The rate would be structured as a monthly charge resulting from the 20-year amortization of the above amount. In Attachment 3 to Exhibit 2, B.C. Hydro provided estimates of the monthly bypass charges for the six potential greenhouse IPPs for which it had previously provided connection cost estimates.

Subsequent to the filing of its Application, B.C. Hydro suggested that a cap be used as an upper limit on the notional costs of direct connection facilities. The cap amount would be $1 million for IPPs with a capacity of 5 MW and below and $2 million for IPPs over 5 MW (Exhibit 2, response to BCUC IR8.1).

In Exhibit 2H B.C. Hydro stated that applying the $1 million cap to a proposed 4 MW plant at the Gipaanda greenhouse would result in "...an effective distribution rate of roughly 2 mills per kWh (depending on distribution connection costs)..." [Exhibit 2H, response to the JIESC IR1(c)]. B.C. Hydro subsequently provided an effective rate for the six potential greenhouses for which it had previously provided data. The effective rate ranged from a low of 0.677 mills/kWh to a high of 2.544 mills/kWh (Exhibit 2J, revised Attachment 3).

2.2 The CBT/ZE PowerGroup Proposal

CBT Energy Inc. ("CBT") and ZE PowerGroup Inc. ("ZE") filed a joint submission (Exhibit 13) containing an alternative proposal to B.C. Hydro's proposed Bypass Guidelines for IPPs. CBT/ZE proposed a Proxy Distribution Wheeling Rate ("PDWR") of 0.5 mills/kWh as a reasonable charge compared to the minimum rates for non-firm and firm short-term point-to-point transmission service of 1 mill/kWh and 2 mills/kWh, respectively, in the Commission's April 23, 1998 B.C. Hydro Wholesale Transmission Service Decision.

2.3 Discussion

<u>The Bypass Analogy</u>

During the hearing several parties questioned the appropriateness of B.C. Hydro's proposal to apply the rate bypass analogy to the situation of IPPs who wished to connect to the B.C. Hydro transmission system through the distribution system. B.C. Hydro agreed that, traditionally, bypass proposals involved a situation where a customer sought to pay a rate lower than the tariff rate because it had a better alternative. Such a circumstance involved a tariff rate and the opportunity to take action to avoid that rate. In the current circumstance, there is no distribution wheeling rate that the IPP would be attempting to bypass. B.C. Hydro further acknowledged that it was not aware of any precedent in past Commission practice for a bypass rate without a tariff rate (T1: 47-49).

In argument, B.C. Hydro stated that while the bypass approach was not the preferred solution in many instances, it did provide easily determined costs on a case by case basis. B.C. Hydro also noted that the approach was appealing because it provided an upper limit on an appropriate rate that these customers should pay, since none would pay more than their cost of potential bypass (T3: 367 and 368).

The Consumers' Association of Canada (B.C. Branch) et al. ["CAC (B.C.) et al."] supported the B.C. Hydro application. In doing so, it accepted the assurances of B.C. Hydro that other ratepayers would not suffer any impacts from approval of its application. Also, it saw no need for anyone to be viewed as

putting impediments in the way of industry and employment (T3: 477 and 478). Support for the Application by CAC (B.C.) et al. was subject to two provisions. The first provision was that a wheeling rate would be preferable to the bypass option and that B.C. Hydro should be directed to produce a wheeling rate. The second provision was that, if a wheeling rate was developed, the bypass guidelines proposed would cease to exist after either a fixed period of time or until a wheeling rate was approved.

The HHGA, while acknowledging that they are not experts on rate-making, thought that B.C. Hydro's bypass rate and cap approach were acceptable, except that the cap amount in their view should be reduced and applied as a sliding scale. The HHGA considered B.C. Hydro's proposed cap amounts to be far in excess of any costs that a distributed generation project would impose on B.C. Hydro's system (T3: 415). In summary, the HHGA recommended that the charge should be either a fixed 0.5 mills/kWh or a sliding cap of $150,000 per MW.

CBT/ZE disagreed with the B.C. Hydro bypass approach. They argued that no reasonable analogy exists since, first, there is no rate being bypassed and, second, there are insufficient similarities between the two scenarios to justify the extension of that principle in the current situation (T3: 436).

The Joint Industry Electricity Steering Committee ("JIESC") also argued that B.C. Hydro's Application, while stated to be based on bypass principles, differed substantially from every other bypass application ever made to the Commission. In other bypass applications, in the JIESC's submission, the customer has had a tariff rate and a bypass opportunity. The JIESC noted that the addition of caps to the bypass rate created an individual rate for each customer and that the amended proposal was seriously flawed because the rates would vary due to the level of the connection charge and the number of megawatts to be generated. The JIESC argued that the B.C. Hydro proposal made no sense, because under B.C. Hydro's bypass proposal the connection charge would be deducted from the cap, so that the higher the connection charge, the lower the ongoing rate in mills/kWh (T3: 462). B.C. Hydro acknowledged that, if an IPP's cost of connecting to the distribution system and any required system upgrades exceeded the cap, the customer would pay no ongoing charge. However, B.C. Hydro did not view such circumstances as likely to occur (T1: 138 and 139).

B.C. Hydro acknowledged during the hearing that its adoption of 5 MW as the level at which the cap would change from $1 million to $2 million was somewhat arbitrary (T1: 90 and 91). In support of the level of its proposed caps, B.C. Hydro submitted that it had compared the rate produced for a greenhouse operation to the rate of 7.1 mills based on the difference between Rate Schedules 1211 and 1821. B.C. Hydro stated that it had established its proposed caps to ensure that there would be no artificial barrier to the development of IPPs (Exhibit 2H, p. 2). B.C. Hydro agreed that there was no relationship between the rate produced by the cap and the 1211/1821 relationship except that the rate derived from the cap was

less (T1: 52). Nevertheless, it considered the result to be fair to other ratepayers since in all cases B.C. Hydro would receive a contribution toward the fixed costs of the distribution system beyond the direct distribution connection costs (Exhibit 2H, p. 2).

The Appropriateness of a Fully Allocated Cost of Service ("FACOS") Based Rate

B.C. Hydro maintained that its decision to propose bypass guidelines to produce an effective rate was due to time constraints and an inability to develop a FACOS based rate in the time available. B.C. Hydro also stated that the available FACOS studies were unsuitable for developing a rate because they were outdated and were not appropriate for the unbundling that would have been involved in developing such a rate (T1: 16; T3: 367).

Nevertheless, as noted above, B.C. Hydro used the difference between the rates under Rate Schedules 1211 and 1821 to approximate a FACOS based rate. That calculation, which was based on the Utility's 1996/97 FACOS study, resulted in a distribution wheeling rate of 7.1 mills/kWh. B.C. Hydro acknowledged that a current FACOS study could yield a different result. However, it asserted that the difference between the rates in Rate Schedule 1211 and Rate Schedule 1821 provided "…the best possible proxy for what a cost-based distribution wheeling rate might look like" (Exhibit 2H, p. 2).

In response to an undertaking during the hearing, B.C. Hydro also provided a "FACOS based distribution wheeling rate" calculated by adding the primary demand cost and primary customer cost and dividing by the total number of kilowatt hours that moved through the primary system (T1: 76). That calculation resulted in rates of 7.8 mills/kWh, based on data from its 1995/1996 FACOS study, and 8.3 mills/kWh based on data from its 1996/1997 FACOS study (Exhibit 2J, revised Attachment 3; T2: 296). B.C. Hydro stated that its intention was not to develop a rate equal to a FACOS based rate, but to ensure that the cap was derived in a manner that provided the proponent with an option which would be in all cases less expensive than they would face under a distribution wheeling rate situation.

ZE submitted that because, on balance, the electricity from distributed generation is going against the flow, the impact on distribution investment is to postpone future upgrade costs. In the view of ZE, a FACOS based distribution rate was irrelevant for the purposes of setting a rate for the IPPs (T2: 283).

The Nature of Service to IPPs

The HHGA in argument stressed the potential of distributed generation, pointing out that smaller IPPs could be located close to load, thereby reducing line losses and forestalling the need to reinforce distribution and transmission facilities (T3: 412 and 413, 420). The JIESC noted the need for generation

on the west coast of North America and the impending pressure on supply in the B.C. Hydro system. It argued that it is important that parties encourage generation and provide access to the transmission system at the lowest reasonable cost consistent with the principle of no harm to existing customers (T3: 455-457). B.C. Hydro in argument indicated that a rate structure that encouraged distributed generation has value in and of itself (T3: 366).

B.C. Hydro argued that developing a rigorously defined distribution access rate would require two types of data. One required piece of information would be the embedded cost of the distribution system that the generators would use. The second type of information would be the value of the benefits that distributed generation would contribute to the system and that would distinguish them from load of comparable size or features (T3: 499).

No one seriously disputed that B.C. Hydro's data was inadequate to determine with any precision the embedded cost of the system that the generators would use. There was more disagreement about whether distributed generation offered net benefits to the distribution system and the comparability between distributed generation and B.C. Hydro sales load.

B.C. Hydro submitted that while distributed generation could provide benefits, it could also create costs (Exhibit 2, pp. 11-13). While B.C. Hydro stated that its review of the six greenhouses in Attachment 3 (Exhibit 2; Exhibit 2J) had not identified any benefits, there could be benefits to the system arising from distributed generation (T1: 33). B.C. Hydro also agreed that, in general, over time there would be benefits from having generation located in the Lower Mainland, given the nature of B.C. Hydro's system and assuming continued growth in the region (T1: 79).

ZE submitted that distributed generation was a new class of customer that had a completely different impact on the system because the electricity from the distributed generator tended, on average, to move in the opposite direction as electricity moving to serve load (T2: 247-251; T2: 276). Dr. El-Ramly of ZE believed that distributed generation would improve system efficiency in the same way that interruptible load does (T2: 281). The JIESC argued that a different rate for load and distributed generation would not be discriminatory because the two take different services (T3: 462).

The Commission notes the comments of all parties that a "rough and ready solution" is required if the greenhouse growers are to have any chance to install co-generation by the coming winter. The Commission appreciates the efforts that B.C. Hydro and others have put into trying to find such a solution. The Commission further acknowledges the longer term potential represented by distributed generation and

the role to be played by IPPs. However, in the current state of knowledge it is unclear how to appropriately structure rates.

If an IPP paid in advance for all costs of dedicated facilities required to connect the IPP to the distribution system, B.C. Hydro indicated that there was little risk that distributed generation would impose significant ongoing costs to the system. Thus any rate per kWh would be to the benefit of other ratepayers. However, B.C. Hydro stressed its loss of revenue could be quite large, compared to an embedded cost rate-making standard (T1: 199).

2.4 Commission Determination

The Commission agrees with B.C. Hydro that the results derived from its previous FACOS studies are not appropriate. B.C. Hydro has been forthcoming about the inadequacies of those FACOS studies for the purpose of designing a rate for distributed generation. The Commission is not convinced that the costs and benefits to B.C. Hydro's system from serving distributed generation are the same as the costs and benefits that result from load.

All parties in the hearing, including B.C. Hydro, accepted that the rough FACOS based rates were too high. B.C. Hydro acknowledged that when it calculated the FACOS based rates it was to ensure that the rates produced by its proposed guidelines were less. In all of the six analyses the effective rates produced by the guidelines were lower. The Commission agrees that because distributed generation has the potential to bring net benefits to the B.C. Hydro system the FACOS based rates are unreasonable.

The Commission finds that the bypass guidelines proposed by B.C. Hydro do not form the basis for fair, just and reasonable rates. The Commission accepts the arguments of CBT/ZE and the JIESC that the situation under consideration in this hearing is not analogous to that contemplated by the Commission's September 3, 1999 Bypass Rate Guidelines. Moreover, the Commission also accepts the concerns that the effective rates produced under B.C. Hydro's proposed guidelines could be considered discriminatory in that similar IPPs could receive significantly different rates. Finally, by using both the size of the IPP and the direct connection cost to develop the charge, the guidelines created a situation where an IPP that caused (and paid) for high direct connection costs would pay a low ongoing rate. An IPP that was similar in all ways except that it had low direct connection costs would pay a higher ongoing rate.

The PDWR proposed by CBT/ZE has the advantage of being a flat per kilowatt-hour rate that avoids the disadvantages of being discriminatory within the class of IPP customers. In spite of those advantages there was little evidence to assist the Commission in setting the appropriate level of rates.

The Commission notes that as long as an IPP pays all of its costs of connecting to the distribution system, no evidence has been presented to indicate a risk of adding significant costs to other ratepayers. Nevertheless, all parties in the hearing appeared to acknowledge that some contribution to the embedded costs of the system would be appropriate, at least until the magnitude of any benefits or costs to the system can be established.

Although the evidence before it has established wide bounds, the Commission accepts that the choice of a rate remains arbitrary, a conclusion also reached by B.C. Hydro (T3: 495). However it is mindful of the urgency of the greenhouse growers' situation. Furthermore, it recognizes the need to establish the magnitude of the costs, or more likely, the benefits that IPPs would bring to the system – information that can be acquired with operating experience.

The simple average of the rate derived for the six greenhouses under B.C. Hydro's proposed guidelines was 1.5 mills/kWh (T3:109). The PDWR rate proposed by CBT/ZE, and supported by the JIESC, was 0.5 mills/kWh. The difference between these two rates is relatively insignificant. **Based on the evidence before it, the Commission believes it is in the interest of ratepayers to establish access conditions to the distribution system. A reasonable rate for distributed generators connecting to B.C. Hydro's distribution system to transmit power to the transmission system is 1.0 mill/kWh.**

During the hearing an issue was raised about certainty of the rate, and the concern that IPPs could invest in distributed generation based on the then current tariff, only to have a higher rate subsequently approved by the Commission. **The Commission believes that fixing the distribution access rate in a contract that extends over a defined term can alleviate this concern.**

The Commission anticipates that experience with distributed generation will provide valuable information to B.C. Hydro on the benefits and costs of this generation to its distribution and transmission system. **B.C. Hydro is directed to file a report, by December 31, 2002, reviewing the use of the distribution system by Independent Power Producers, and the costs and benefits of such distributed generation to the B.C. Hydro distribution and transmission systems. If the evidence then warrants a change in the rate, the Commission may adjust the rate for new contracts commencing after the effective date of any rate change.**

Opportunity for "True" Bypass

The Commission notes that in circumstances where an IPP can connect directly to B.C. Hydro's transmission system at less cost than a connection to the distribution system plus the IPP's anticipated cost

of wheeling through the distribution system, the opportunity remains for a true bypass rate to be negotiated. In such cases the Commission would support such negotiations as a way of avoiding the construction of socially inefficient facilities.

3.0 CONNECTION AND SYSTEM UPGRADE AND REINFORCEMENT COSTS

3.1 B.C. Hydro's Application

In its Application, B.C. Hydro proposed that all facilities dedicated to connecting a customer to B.C. Hydro's system are the cost responsibility of the customer and the cost responsibility of system reinforcements or upgrades is shared between B.C. Hydro and the customer in a manner which results in no negative financial impacts on existing customers (Exhibit 1, p. 2). Therefore, B.C. Hydro proposed to charge IPPs up front for all distribution connection and upgrade costs (Exhibit 1, p. 6). Its proposal with respect to system upgrades and reinforcements was further explained in Exhibit 2 (response to BCUC IR1.1). B.C. Hydro specifically proposed that any costs B.C. Hydro would pay would be consistent with the Utility System Extension Test Guidelines.

The dedicated connection facilities would be determined by the technical requirements contained in B.C. Hydro's "Connection Requirements for Utility or Non-Utility Generation, 35 kV and Below".

3.2 Other Commission Decisions

Wholesale Transmission Service ("WTS") Tariffs

Section 16 of the WTS tariffs requires that an IPP be responsible for any facilities needed to effect delivery from the generating source to the transmission facilities (connection facilities) and to pay for any facilities needed for system upgrades if a customer wants firm service (Section 13.5).

Distribution System Extension Tariffs (pp. B-10 to B-14)

B.C. Hydro's distribution system tariffs state that, for extensions on public property (rate zone 1), B.C. Hydro will do a system extension test ("SET"). The SET is a discounted cash flow model which determines the difference (net margin) between the revenue margin and the net construction cost. The revenue margin is the electricity revenue determined by the present rate, less the cost of electricity, costs of transmission, operating and maintenance costs, school taxes, grants in lieu of taxes, capital taxes, and retail costs. The net margin is negative when the net construction costs exceed the revenue margin. Customers are required to pay for all dedicated facility costs plus the value of the negative net margin (extension fee).

For shared facilities, B.C. Hydro will contribute the revenue margin up to the value of the net construction cost.

Transmission System (Tariff Supplement No. 6, Appendix 1)

Tariff Supplement No. 6 states that the transmission connection, which consists of a transmission line and a transmission extension (additions and alterations to B.C. Hydro facilities), is the cost responsibility of the customer. Where system reinforcement is required B.C. Hydro will provide an offset determined in part by the incremental revenues from the first year of operation.

3.3 Discussion

B.C. Hydro argued that it would charge nothing and require nothing with respect to system upgrade facilities (T3: 392) because IPP's connected to the distribution system are different than load and not likely to impose any system costs. Direct connection charges or charges for dedicated facilities would be the responsibility of the customer and this would be the same as is presently required for load connections under the distribution extension tariffs (T3: 389).

In Exhibit 13 (page 11) ZE proposed that the IPP should pay for the total cost of connection less the contributions made to the system by the IPP. The total cost of connection would be calculated as direct costs less the NPV of deferred system upgrades for the next ten years. The contributions would be calculated as the NPV of the Proxy Distribution Wheeling Rate. If the contributions from the IPP were greater than the costs of connection and upgrade then B.C. Hydro would connect without any contribution from the IPP.

With regard to the issue of connection costs and system upgrade costs, CBT/ZE argued that, on average, distributed generators would bring system deferment benefits and that they would not cause system upgrade costs. In order to credit the IPP for those deferment benefits, CBT/ZE proposed to reduce the connection charges by the NPV of whatever the wheeling rate would produce in revenue (T3: 444). They also argued that if this approach was of concern to the Commission then they would agree with Mr. Willis that the IPP should pay a connection charge plus the 0.5 mill wheeling charge (T3: 445).

Mr. Willis on behalf of the hot house growers, argued that some of the items listed in Attachment 3 (Exhibit 2J) may provide a benefit to the system and therefore should be handled according to the ZE interpretation of the B.C. Hydro extension policy (T3: 424).

The JIESC argued that the IPP should pay for its full cost of connection and a wheeling rate of 0.5 mills (T3: 454, 462). The CAC (B.C.) et al. did not offer any argument with regard to dedicated facility charges or system upgrades.

3.4 Commission Determination

The Commission determines that IPPs should pay the full cost of any dedicated facilities required to connect to the B.C. Hydro system. The Commission also finds that the B.C. Hydro "Connection Requirements for Utility or Non-Utility Generation, 35 kV and Below" are appropriate for allocating connection costs to distributed generators. At this time, the Commission accepts B.C. Hydro's proposal to charge nothing and require nothing with respect to system upgrade facilities.

4.0 SYSTEM LOSSES

B.C. Hydro proposed that losses for energy delivered to the transmission system would be based on the estimated losses the IPP could expect to incur if it had constructed a separate connection to B.C. Hydro's transmission line (Exhibit 2E, p. 9). B.C. Hydro's position was that losses would be one of the costs that an IPP would incur if it had constructed and owned a separate connection. If the IPP had a separate connection, the metering would be at the point of connection to B.C. Hydro's transmission system. The losses for a separate connection would include line losses from the IPP to B.C. Hydro's transmission system, as well as step-up substation costs (Exhibit 2E, p. 9). These losses would be in addition to the 6 percent losses charged to projects using B.C. Hydro's WTS tariff (T1: 41).

B.C. Hydro argued that system losses and system benefits within a distribution system are entirely dependent on the location of the IPPs, and that no generalization can be made about IPPs (T3: 397). During the hearing B.C. Hydro acknowledged that to the extent that energy was moving against the predominant electricity flow it would reduce losses and that depending on the circumstances line losses could be positive or negative (T1: 174). B.C. Hydro further agreed that under its proposal IPPs could be charged for losses that they had never incurred, "…in the same sense that they are being charged for the construction of a facility that was never constructed. So it's analogous in the same sense that we are basing the price on a conceptual facility and the conceptual losses on that conceptual facility" (T1: 178).

In its submission, CBT/ZE proposed that there should be no charge for system losses until enough data and studies are available to determine an appropriate loss factor (positive or negative) to be applied to the distributed generation class. CBT/ZE stated that, because IPPs connected to the distribution system would be sending power in the opposite direction to power supplying native load, on average and at the

distribution level, distributed generation would reduce system losses. Consequently, it considered the fairest approach to distribution system losses to be a credit for the IPPs based on the energy generated (Exhibit 13, pp. 9 and 10).

In argument, CBT/ZE reiterated its view that distributed generators should be charged negative losses, or credited for losses that they actually prevent. However, until the issue could be properly studied and the appropriate technical evidence placed before B.C. Hydro and the Commission, it proposed that the Commission approve a no charge policy for losses. The issue revolved around which party should bear the onus for demonstrating the absence or presence of losses. In CBT/ZE's view, B.C. Hydro was the party that had the knowledge and data to review the issue of losses, and that until positive losses were demonstrated the assumption should be that distributed generation does not cause losses (T3: 442 and 443).

The JIESC also disagreed with the B.C. Hydro proposal to deal with line losses on a bypass basis. The JIESC further argued that there was sufficient evidence to show that distributed generation on average improves efficiency and will reduce line loss for all customers. It proposed that distributed generators attaching to the distribution system not be charged for line losses (T3: 464 and 465).

Commission Determination

Having already rejected the bypass analogy as an appropriate methodology for determining the rate, the Commission cannot support the B.C. Hydro proposal to charge distributed generators for losses on a hypothetical direct connection to the transmission system. The Commission is further persuaded by the arguments of the intervenors and acknowledgement by B.C. Hydro that losses may be positive or negative. **The Commission determines that until there is sufficient evidence to support a charge or credit for losses a zero charge for losses is appropriate.**

5.0 TRANSMISSION ACCESS

In its submission, CBT/ZE addressed the issue of available export capacity on the transmission interties.

> "One of the main issues that will prevent any IPP from developing resources will be the lack of available export capacity on the transmission interties. If the Commission truly wants to encourage distributed generation it could order BC Hydro to make available 25 MW of BC Hydro transmission capacity for accessing the export markets south in the USA and east to Alberta. In reality, once this is assured the IPPs will be in a position to negotiate with BC Hydro and may well end up serving domestic load in the Lower Mainland at a price based on an agreeable index (e.g. Mid Columbia) thus freeing up transmission capacity for BC Hydro on these interties." (Exhibit 13, p. 13)

CBT/ZE argued that it is important that distributed generators gain functional access to the system, not merely physical access. The resources and sophistication needed to reserve capacity should not be required of small IPPs. Consequently, CBT/ZE urged the Commission to order B.C. Hydro to make capacity south to the U.S. and east to Alberta available for IPPs (T3: 446).

When this issue was raised during the hearing, B.C. Hydro submitted that the issue was beyond the scope of the hearing. The Commission agreed that matters related to the B.C. Hydro's Wholesale Transmission Tariffs were not an area it wished to consider in detail at this hearing (T1: 44).

Commission Determination

The Commission continues to be of the view that the issue of reserved capacity on the transmission system is an issue related to B.C. Hydro's WTS tariffs, and therefore outside of the scope of the hearing and of this Decision. However, the Commission does recognize that the attempts to raise the issue in this hearing may represent legitimate concerns with respect to both the actual availability of transmission capacity and the required knowledge and tools required to access any available transmission capacity.

Consequently, the Commission anticipates that B.C. Hydro will work cooperatively with distributed generators, within its WTS tariffs, to facilitate their efforts to gain access to the export markets. **If such cooperative efforts fail, and the Commission receives complaints that distributed generators are being effectively precluded from making export sales, the Commission may require a review of the WTS tariffs to ensure that they function equitably for all who desire transmission service.**

Dated at the City of Vancouver, in the Province of British Columbia, this *First* day of June 2001.

Original signed by:

Peter Ostergaard
Chair

Original signed by:

Paul G. Bradley
Commissioner

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BRITISH COLUMBIA UTILITIES COMMISSION

BRITISH COLUMBIA
UTILITIES COMMISSION

ORDER
NUMBER G-52-01

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IN THE MATTER OF
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

British Columbia Hydro and Power Authority

and

an Application for Approval of Bypass Guidelines for Independent Power Producers Seeking Access to British Columbia Hydro and Power Authority's Transmission Service Through British Columbia Hydro and Power Authority's Distribution System

BEFORE: P. Ostergaard, Chair)
P.G. Bradley, Commissioner) June 1, 2001

O R D E R

WHEREAS:

A. The BC Hot House Growers' Association ("BCHHGA"), in a letter dated February 27, 2001, requested that the Commission undertake a process to clarify and establish the basis for export market access through the British Columbia Hydro and Power Authority ("B.C. Hydro") system for cogeneration proposals that would involve greenhouse operations and Independent Power Producers; and

B. On March 2, 2001, the Commission issued Order No. G-26-01 establishing a timetable for a process to examine the issue, beginning with a direction to B.C. Hydro to file an application for access to the distribution system and charges for distributed generation by March 23, 2001, and culminating in an oral public hearing commencing April 24, 2001; and

C. On March 23, 2001, B.C. Hydro filed its Application for Approval of Bypass Guidelines for Independent Power Producers Seeking Access to B.C. Hydro's Transmission Service Through B.C. Hydro's Distribution System; and

D. The Commission issued Order No. G-35-01 amending the public hearing timetable; and

E. An oral public hearing into the B.C. Hydro Application was held in Vancouver, B.C. on May 1 and 3, 2001 with oral argument on May 7, 2001; and

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F. The Commission has considered the Application, evidence and argument and has determined that a rate and conditions for access to B.C. Hydro's distribution system are required for Independent Power Producers who wish to obtain access through the distribution system to the transmission system.

NOW THEREFORE the Commission orders as follows:

1. The Commission approves the rate and conditions for access to B.C. Hydro's distribution system by Independent Power Producers as set out in its Decision issued concurrently with this Order.

2. B.C. Hydro is to file copies of tariffs with the Commission consistent with the directions established by this Order and Decision.

3. B.C. Hydro is directed to file a report, by December 31, 2002, reviewing the use of the distribution system by Independent Power Producers, and the costs and benefits of such distributed generation to the B.C. Hydro distribution and transmission systems.

DATED at the City of Vancouver, in the Province of British Columbia, this *First* day of June 2001.

BY ORDER

Original signed by:

Peter Ostergaard
Chair

APPEARANCES

G.A. FULTON	British Columbia Utilities Commission, Counsel
C. SANDERSON	British Columbia Hydro and Power Authority
P. WILLIS	B.C. Hot House Growers' Association
J. LANDRY	CBT Energy Inc.
R.J. GATHERCOLE M. DOHERTY	Consumers' Association of Canada (B.C. Branch) et al. [British Columbia Old Age Pensioners' Organization, Council of Senior Citizens' Organizations of B.C., federated anti-poverty groups of B.C., Senior Citizens' Association of B.C., End Legislated Poverty]
A. ISEMONGER	ZE Power Group Inc.
R.B. WALLACE	Joint Industry Electricity Steering Committee
J. WELLS	Maxim Energy Group Ltd.
S. RUTHERFORD	Boundary Bay Conservation Committee
MAYOR LOIS JACKSON	Corporation of Delta
J.D.V. NEWLANDS	Fording Coal Ltd.
J.S. BARNES	Central Heat Distribution Limited

J.W. FRASER	Commission Staff
R.W. RERIE	
G.J. CHARCHUN	

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INDEX OF WITNESSES

British Columbia Hydro and Power Authority – Panel	C. FUSSELL C. LUSZTIG G. KEHL
Corporation of Delta – Panel	MAYOR LOIS JACKSON
CBT/ZE Power Group Inc. – Panel	DR. ZAK EL-RAMLY
B.C. Hot House Growers' Association – Panel	M. KURSCHNER S. FANE D. RYALL B. MILES K. ARNOLD

LIST OF EXHIBITS

	Exhibit No.
British Columbia Hydro and Power Authority Application for Approval of Bypass Guidelines for Independent Power Producers Seeking Access to British Columbia Hydro and Power Authority's Transmission Service Through British Columbia Hydro and Power Authority's Distribution System, dated March 23, 2001	1
British Columbia Hydro and Power Authority response to B.C. Utilities Commission Staff Information Request No. 1, dated April 3, 2001 (with Attachments 1-4 and 6)	2
British Columbia Hydro and Power Authority response to Altek Power Corporation Information Request, dated March 29, 2001	2A
British Columbia Hydro and Power Authority response to British Columbia Public Interest Advocacy Centre Information Request on behalf of Consumers' Association of Canada (B.C. Branch) et al., dated April 6, 2001	2B
British Columbia Hydro and Power Authority response to Davis & Company Information Request on behalf of CBT Energy Inc., dated April 6, 2001	2C
British Columbia Hydro and Power Authority response to Duke Energy Marketing Limited Partnership Information Request received April 5, 2001	2D
British Columbia Hydro and Power Authority response to Ledcor Power Inc. Information Request, dated April 6, 2001	2E
British Columbia Hydro and Power Authority response to Willis Energy Services Ltd. Information Request, dated April 8, 2001	2F
British Columbia Hydro and Power Authority response to ZE Power Group Inc. Information Request, dated April 6, 2001	2G
British Columbia Hydro and Power Authority response to Joint Industry Electricity Steering Committee Information Request, dated April 9, 2001	2H
Written Direct Testimony of Colin Fussell, Gerhard Kehl and Cameron Lusztig	2I
British Columbia Hydro and Power Authority responses to Undertakings	2J
B.C. Utilities Commission Orders No. G-26-01 dated February 28, 2001, and No. G-35-01, dated March 29, 2001	3
Affidavit of Publication of Notice of Public Hearing, dated April 30, 2001	4
Letters of Intervention	5
BC Hot House Growers' Association letter to B.C. Utilities Commission, dated January 12, 2001	6
Meeting Notes prepared by B.C. Utilities Commission Staff, dated January 23, 2001	7

LIST OF EXHIBITS
(Cont'd.)

	Exhibit No.
British Columbia Hydro and Power Authority letter to B.C. Utilities Commission, dated February 16, 2001 (updated cost sheet, dated February 19, 2001)	8
BC Gas Utility Ltd. letter to B.C. Utilities Commission, dated February 16, 2001	9
BC Hot House Growers' Association letter to B.C. Utilities Commission, dated February 27, 2001	10
BC Hot House Growers' Association letter to British Columbia Hydro and Power Authority, The Honourable Paul Ramsay, Minister of Finance and Corporate Relations, and The Honourable Ed Conroy, Ministry of Agriculture, dated April 12, 2001	11
The Corporation of Delta submission, dated April 20, 2001	12
Written Evidence of Dr. Zak El-Ramly on behalf of ZE PowerGroup and CBT Energy Inc., dated April 24, 2001	13
Dr. Zak El-Ramly's Power Point Presentation (hard copies)	13A
Willis Energy Services Ltd. submission on behalf of BC Hot House Growers' Association, dated April 24, 2001	14
Written Evidence of Mr. Kurschner	14A
List of Pre-filed Exhibits	15
Extracts from British Columbia Hydro and Power Authority Pro-forma Fully Allocated Cost of Service Study 1995-96	16
Schedule 5 (page 1 of 4) of the British Columbia Hydro and Power Authority 1995/96 Pro-forma Fully Allocated Cost of Service Study	16A
Excerpts from the Distributed Generation Interconnection Manual, Public Utility Commission of Texas, dated March 15, 2001	17
Maxim Power Corp letter to B.C. Utilities Commission, dated April 26, 2001	18
British Columbia Hydro and Power Authority Aid to Examination No. 1 Comparison of Charges	19
UtiliCorp Networks Canada 2001 Interim Distribution Tariff, page 41 and Atco Electric Interim 2001 Distribution –Connected Generator Credit sheet	20