

2010

Alberta Electric Industry Study



An Offer You Can't Refuse
Pricing Strategy Demystified



— “An Offer You Can’t Refuse” —

Foreword

This document presents a distribution of possible future values for each of demand, supply and the resultant pool price of electricity. These are developed from probabilistically combined scenarios, or collections of assumptions, over a fifteen-year forecast period, expressed in terms of energy and peak demand, for of all consumers in the province of Alberta as well as potential exporters. Each scenario for future demand is convoluted with a matching set of assumption for electricity supply, including both internal generation and import capacity, to derive probabilistic forecasts of the marginal supply cost of power over time. This is modified by the addition of strategic offer strategies to yield the wholesale electric pool price forecast. The range of scenarios represents a range of possible future outcomes that is approximately equal to ± 1.3 standard deviations about the mean—equivalent to a statistical confidence interval of 80 percent. The P10 and P90 levels represent reasonable upper and lower bounds for these values, but tighter or looser bands could be developed, depending on the certainty required.

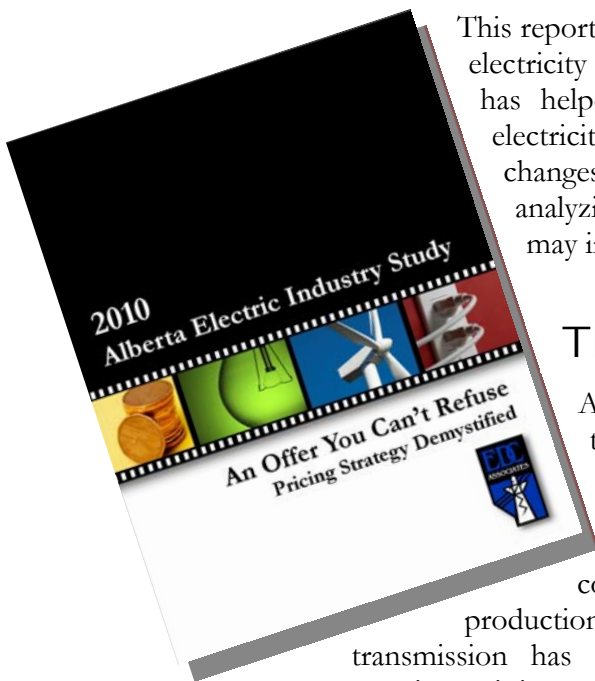
Each year, EDC also presents a special topic. This year’s feature chapter will explore the complexities of offer strategy. Until now, the only practical way of implying the offer strategy of each participant was to watch which units were dispatched on and off as the price changed. This involved a lot of guesswork and continual attention. As of December 1, 2010, the Alberta Electricity Market now has one full year of transparent offer data, showing every offer by every unit in the provincial fleet. For this year’s special chapter, EDC analyzed this huge mound of data, comprising several million data points (8,760 hours in a year, upwards of 200 individual generating units, each with up to seven offer blocks across the 24 hours of the day). This was also correlated with gas price, supply cushion, operating reserve requirements and major transmission derates in each hour, along with data on plant ownership and offer control, to gain further insight into the conditions that dynamically change the offer strategies of each participant. The analysis uncovers some surprises about which fuel types occupy different positions along the offer stack. The empirical analysis is backed up by a review of some of the theoretical underpinnings of offer strategy, exploring how game theory, market power mitigation, pending market rule changes and even the more transparent offer data itself, play into offer strategy.

An independent consultant, EDC Associates Ltd. (EDC) has prepared the forecasts presented herein as part of a multi-client study. The information is intended to be used by each participating client for the purpose of business planning activities involving long-term electricity related initiatives in Alberta that may currently be under evaluation. All assumptions, models, processes, historical electric energy data and other public or proprietary data gathered by EDC as an ongoing concern, relating to economic, demographic, technological and other factors which affect the utilization of electric energy that have been used to develop the results discussed in this study, are the proprietary property of EDC Associates Ltd., except where noted.

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Introduction



This report is the thirteenth annual in-depth study issued on the Alberta electricity market. Since the first issue in 1997, this series of reports has helped keep readers up to date with ever-changing Alberta electricity market fundamentals, regulatory events and policy changes. It also looks beyond the Alberta jurisdictional boundary, analyzing key geo-political and international economic events that may influence the Alberta electricity market.

The Year in Review

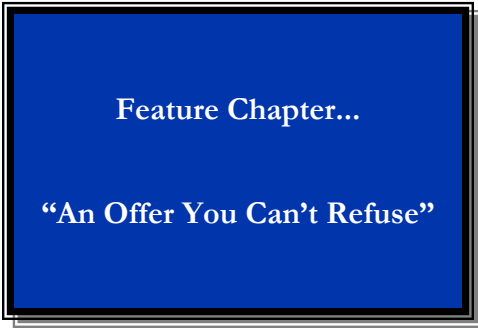
Alberta electricity demand is finally turning around, returning to the 2007 level and beginning to absorb the overhang of new generation that was aggravated by the international economic collapse of 2009. While the oil price is recovering and encouraging new investment, gas price continues to languish as a glut of non-conventional production outpaces US demand. Recently completed southern transmission has enabled future wind additions and the Keephills coal generation unit is on schedule for mid-2011 completion.

Chapter One presents a collection of other newsworthy 2010 happenings in categories corresponding to each section of the Annual Report, plus any changes in key market rules and regulations, major new facilities, GHG emissions policy pronouncements, and an overview of report methodology and structure.

Chapter Two presents an executive summary of the key findings of the analysis and the quantitative results from each chapter.

Chapter Three presents an overview of the underlying macroeconomics and demography in Alberta, including an outlook for the key industry segments and a review of crude oil and natural gas prices. The probabilistic inputs developed in this chapter drive the demand forecast in the next chapter.

Chapter Four examines the output of the quantitative electric load growth model with some discussion of the key forces driving the results. Domestic load growth across the key consumer groups—residential, commercial and industrial—is presented and discussed. A commentary on export opportunities and transmission and distribution losses rounds out the total Alberta electricity requirements for domestic generation and import supply.



Chapter Five, this year’s feature chapter, will explore the complexities of offer strategy. As of December 1, 2010, the Alberta Electricity Market now has one full year of transparent offer data, showing every offer by every unit in the provincial fleet. For this year’s special chapter, EDC analyzed this huge mound of data, showing how gas price, supply cushion, operating reserves and major transmission derates, along with plant ownership and offer control dynamically change the offer strategies of each participant. Finally, it explores how game theory, market power mitigation, pending market rule changes and even the more transparent offer data itself, play into offer strategy.

Chapter Six discusses electric energy supply fundamentals. The examination of the future electricity supply starts with an overview of existing generation capacity, cost structure and the expected timing of unit retirements. Future supply options and availability, generation technologies, supply demand balance and reserve margin are then discussed. The chapter also presents a discussion on the key elements that will define the range of future supply additions. The discussion also addresses the key drivers of future generation costs.

Chapter Seven brings together the discussion of supply and demand for the purpose of forecasting the wholesale price of electricity. All of the probabilistic parameters of supply and demand are used in this chapter’s analysis to define the distribution of future price forecasts. The quantitative results are presented and discussed—noting key assumptions and conclusions.

Finally, **Chapter Eight** contains the appendices of the report, including supplementary charts and tables. Subscribers can also obtain this information electronically by contacting EDC.

A rich **Appendix** and an associated **XL summary file** present the various macro-economic input data and results such as gas price, electricity peak demand and energy, production by fuel, real and nominal pool prices, heat rates, and generation retirements and additions—in convenient tabular and machine-readable form.

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