

**Today at the AESO**



anything is possible.







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**EXECUTIVES** > STANDING L to R > **Gord Kyle**, Executive Vice-President, Market & Strategic Initiatives ■ **Ed de Palezieux**, Vice-President, Customer & Communication Services ■ **Ken Christensen**, Vice-President, Load Settlement ■ **Larry Kram**, Senior Legal Counsel ■ **John Tapics**, President & Chief Executive Officer ■ **Dan Stewart**, Vice-President, Organizational & Business Effectiveness ■ **Dale McMaster**, Executive Vice-President, Operations & Reliability ■ **David Erickson**, Chief Financial Officer > SEATED L to R > **Vipin Prasad**, Director, Advisory Services ■ **Dennis Kalma**, Chief Information Officer

THE AESO IS ENTRUSTED TO TAKE  
A **LEADERSHIP** ROLE IN PLANNING  
AND OPERATING ALBERTA'S  
ELECTRIC SYSTEM SAFELY, RELIABLY  
AND AT A REASONABLE COST.



( **EVERY HOUR, EVERY DAY** )



**BOARD MEMBERS** > STANDING L to R > **Bill Burch** ■ **Nancy Laird** ■ **Dr. John Feick** ■ **Dr. Ron George**  
> SEATED L to R > **Bob McKenzie** ■ **Maury Parsons**

**THE PAST YEAR MARKED A MAJOR SHIFT** in the structure of Alberta's wholesale electricity marketplace. This transformation came about with the Alberta government's proclamation of the new *Electric Utilities Act* during the spring 2003 session of the legislature. The Act established the Alberta Electric System Operator, or AESO. The AESO is mandated to carry out the functions of the former Power Pool of Alberta and the former Transmission Administrator of Alberta. It also has responsibility for provincial load settlement.

**AS ALBERTA'S NEW INDEPENDENT SYSTEM OPERATOR**, the AESO is entrusted by the government to take a leadership role in planning and operating Alberta's electric system safely, reliably and at a reasonable cost. This is a responsibility we carry out every hour of every day on behalf of all our stakeholders, including transmission customers, market participants, government agencies and Alberta's three million people.

**IT'S A CHALLENGE WE WELCOME.** Constantly improving, we are striving for and contributing to new and better ways to manage the reliability of the electricity system and the market. We are the leader in planning the transmission system, coordinating load settlement and operating the grid. We are focused on advancing a balanced agenda in facilitating sustainable operations and enhancements within our marketplace.

**THIS WORK IS OVERSEEN AND LED BY THE AESO BOARD.** We are fortunate to have a strong Board composed of members with significant business and leadership experience. Their knowledge and expertise have been invaluable in providing strategic oversight to the AESO, especially as it has merged two entities into one organization while maintaining uninterrupted operation of the electric system.

**IN PARTICULAR, I WOULD LIKE TO ACKNOWLEDGE TWO INDIVIDUALS.** The first is Linda Hohol. I want to thank Linda for her dedication and leadership as a member of the Power Pool Council from 2000 to June 2003 and particularly her work with the Balancing Pool. On June 1, 2003, she became a member of the first AESO Board. Linda resigned from the Board in late 2003. The second is Tom Cumming, who capably served as a member of the Power Pool Council from 1998 to 2003 and as Market Surveillance Administrator from 2000 to 2003. On June 1, 2003, he became Chair of the newly created Balancing Pool.

**LOOKING FORWARD TO 2004**, the AESO Board is committed to a governance model of continuous improvement and to being a benchmark of excellence both in Alberta and throughout North America.

**THROUGHOUT THE PAST YEAR, THE AESO HAS RECEIVED STRONG SUPPORT** from the provincial government. This support has enabled us to make great strides in building a highly efficient independent system operator. We look forward to continuing to build the AESO's relationships with all our stakeholders to further the benefits of a competitive market.

**FINALLY, I WISH TO THANK ALL OUR EMPLOYEES** who continually demonstrate their expertise and dedication to the operation of Alberta's electricity market and electricity system. A strong and efficient independent system operator can only exist with excellent people. Thanks in great part to their hard work, Alberta remains in the forefront of progressive energy markets in North America. The AESO will continue to build a reputation for knowledge and expertise with these skilled and talented employees. Whether it's planning transmission, serving market participants, settling the market, enabling suppliers for ancillary services or directing the operation of the province's electricity network, our employees consistently demonstrate why the AESO is recognized internationally among its peers as a standard for independent system operators.

(signed)

**Maury Parsons, AESO Board Chair**



**Maury Parsons**  
*AESO Board Chair*

# NEW TEAMS, NEW PROCESSES, AND A NEW CORPORATE CULTURE



John Tapics, President & CEO

## ( A CHANCE TO DEFINE A NEW ORGANIZATION )

**OFTEN, CHANGES PRESENT OPPORTUNITIES** to build the foundations of a new future. That is what 2003 meant for the Alberta Electric System Operator — a chance to define a new organization and establish our role as the province's new independent system operator responsible for transmission planning, electric system operation, load settlement and the market exchange for electric energy.

With our creation, we merged the Power Pool of Alberta and the Transmission Administrator of Alberta, bringing together a workforce to form the basis of an innovative and energetic organization. This was the biggest task of the year, taking up much of our time and effort. Together we focused on opportunities to build new teams, new processes and a new corporate culture that can provide a more integrated response to the changing demands in our complex electricity industry.

As we built our organization, we also took stock of outstanding industry issues and took corrective action. We settled past deferral accounts. We worked with the regulator to re-establish liability protection for suppliers in the ancillary services market. And we collaborated with our stakeholders on improvements to load settlement – rewriting the settlement code and establishing compliance and monitoring requirements.

Throughout the year, our planners assessed the adequacy of Alberta's transmission system. One of our achievements was to develop a long-term conceptual transmission plan for Alberta. The first of its kind in our province, the plan explored different scenarios for building new transmission lines over the next 20 years.

Based on this analysis and other studies, we identified options to strengthen transmission capacity, with proposed plans to reinforce transmission lines along the Edmonton-Calgary corridor and in southern Alberta near Pincher Creek. We also obtained regulatory approval for a new 240-kilovolt, 347-kilometre line from Fort McMurray south to the Edmonton area. This is the first significant transmission line project proposed in more than 15 years.

The year was important in other ways for the AESO, as we focused on proactive outreach, starting with an internal team to guide stakeholder relations activities across our organization. Through information sharing, face-to-face meetings and stakeholder sessions, the AESO made a point to communicate more effectively with market participants, customers and regulators. We applied this approach to a number of initiatives late in the year, including the development of the general transmission tariff for 2004.

In looking back over the year, we are proud of our achievements. But we also recognize that much work remains to be done. Our stakeholders have high expectations of our new organization. The AESO can, and must, do better in providing leadership in operating Alberta's electricity market and electric system.

As we look to the future, we are paying attention to some specific areas:

**Transmission planning** > Future reliability of the province's transmission system remains a concern, because of growing load and insufficient transmission investments and expansions in the past. Under the new Act, the AESO is responsible for long-term transmission planning. In some cases, our role to act in the public interest may call for some tough decisions. But in every case our objective will remain the same — to take a prudent, balanced approach.

**Process improvement** > The AESO is working hard to improve customer service. As part of this commitment, we are focused on creating an efficient, integrated customer interconnection process for Alberta. In 2003, we developed some interim solutions to streamline the interconnection process. We plan to fully redesign this process in 2004 in collaboration with stakeholders. The redesign of other key processes will follow.

**Load settlement** > Our electricity market settles on the sell side about \$3.3 billion in energy transactions each year. To adequately support a growing market, it is essential we have load settlement processes that match the best in the world. Today, however, we are still a long way from this goal. Despite some improvements in the last few years, these highly complex processes continue to be a concern to some market participants. In 2004, we will continue to consult with our stakeholders on different solutions aimed at improving load settlement results, increasing operational efficiencies and fulfilling our role and mandate as the administrator and regulator for provincial load settlement.

As we address these areas and gain experience, we will continue to learn through engagement with our stakeholders, and this will cause us to test new ideas and approaches to industry issues. It is with care, common sense and consultation that we will approach our ambition to refine and improve Alberta's marketplace. We will strive for balance in our plans, our decisions and our actions.

The AESO is up to this challenge.

Thanks to our work in 2003, we now have the organizational structure and the team we need to deliver on our priorities. We are a new company with the confidence to make a difference. This confidence is based on our belief that, through the efforts of our employees, the future looks bright. Anything is possible — as we work to make Alberta's electricity market and system better, every single day, for all of our stakeholders.

(signed)

**John Tapics, President & CEO**

WHAT DID THE AESO ACCOMPLISH IN 2003?



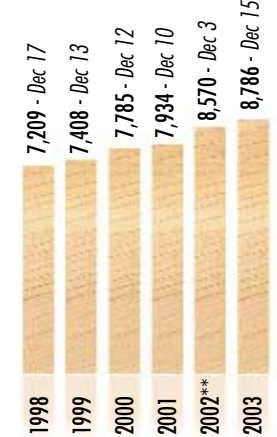
IN OUR FIRST YEAR OF  
OPERATION, WE BUILT ON  
ALBERTA'S FOUNDATION AS  
A COMPETITIVE ELECTRICITY  
MARKETPLACE.

At the AESO, we know firsthand that successful wholesale electricity markets deliver real value to transmission customers and market participants. Since 1996, Alberta has successfully operated Canada’s first competitive wholesale electricity market and facilitated open access to the provincial transmission system.

In our first official year as the province’s independent system operator, the AESO welcomed the opportunity to build on this solid foundation. In 2003:

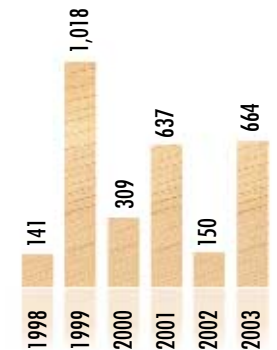
- We oversaw another period of steady growth as Alberta’s real-time wholesale electricity market continued to attract new investment. The number of wholesale market participants increased from 224 in 2002 to 233 at year-end. By comparison, in January 2000, there were 48 participants in Alberta’s wholesale market.
- We met the challenge of record peak demand. During a sustained cold snap in December, electricity demand increased and Alberta set a new consumption record on December 15 with an all-time peak of 8,786 megawatts. This compares to the previous peak of 8,570 megawatts set on December 3, 2002. We met this heightened demand through efficient use of all available capacity and our interconnections.
- We connected 664 commissioned megawatts of new generation to the Alberta Interconnected Electric System. At year-end, our system’s generation capacity totalled 11,324 megawatts, six per cent higher than 2002 levels and 35 per cent higher than 1997 levels.
- We cleared the 2000, 2001 and 2002 deferral accounts inherited from the former Transmission Administrator.
- We worked with the regulator to re-establish liability protection for suppliers in the ancillary services market and other providers of service to the AESO.
- We collaborated with stakeholders on improvements to load settlement, rewriting the settlement code and establishing compliance and monitoring requirements.
- We consolidated market rules and operating policies and procedures in line with Alberta’s new *Electric Utilities Act*, which took effect June 1.
- We developed a new strategic long-term transmission planning approach to improve system reliability in the province.
- We achieved regulatory approval for the first major transmission project in 15 years, a new 240-kilovolt, 347-kilometre transmission line from Fort McMurray south to the Edmonton area.
- We enabled new generators, totalling 330 megawatts of capacity, to enter the competitive market for ancillary services.
- Executive Vice-President Dale McMaster was invited to participate on the U.S.-Canada Power System Outage Task Force to determine the causes of the August 14 blackout in the Eastern United States and Canada.
- We created an internal stakeholder relations team and invited our stakeholders to provide input to our plans, projects and stakeholder relations practices.

**ALL-TIME PEAK LOADS (1998-2003)\***  
in megawatts



\* Peak loads per calendar year - Jan > Dec  
 \*\* Load calculation method changed in 2002 to reflect load served by on-site generation facilities

**GENERATION RESOURCES COMMISSIONED (MWs/year)**



HOW DOES THE AESO MEET THE NEEDS OF REGIONAL GROWTH?



BY PLANNING ADEQUATE  
TRANSMISSION CAPABILITY  
IN ALBERTA – NOW AND  
IN THE FUTURE

One of the greatest challenges the electricity industry faces is delivering its product to where it's needed. Although Alberta's transmission system has worked well for many years, insufficient investments in upgrades and expansions — in the face of increasing load and generation additions — are causing our system to reach its limits.

Capacity issues have emerged, for example, in the Fort McMurray area, which has seen significant growth in generation associated with oil sands developments. In the Calgary region, demand for power continues to grow, presenting potential future reliability difficulties on the transmission system between Edmonton and Calgary, Alberta's two major urban centres. Unprecedented growth in wind generation in the southwest part of the province necessitates a major reinforcement of the transmission system in that area.

Because of long lead times for construction of transmission projects, quick and decisive action is needed to set in motion improvements to our province's transmission infrastructure.

During 2003, our first priority was to develop a long-term strategic transmission outlook for Alberta and to initiate planning studies for reinforcement of the Edmonton - Calgary corridor and the southwest part of the province.

**DEVELOPING A LONG-TERM STRATEGIC APPROACH** > Planning transmission facilities over the long term requires a strategic approach to tackling electricity infrastructure questions: How should transmission be developed and enhanced? Who should make investments first — transmission or generation?

Under the new *Electric Utilities Act*, effective June 1, 2003, the AESO carries out planning to ensure Alberta's transmission needs are met. We are focused on finding and maintaining a balanced approach for the province.

In 2003, we embarked on a scenario approach for planning the transmission system by taking a long-term strategic view. This approach provided a mechanism for exploring different scenarios for guiding new transmission system development in Alberta over the next 20 years. Each scenario tested a range of load forecasts, generation and export developments.

**SECURING APPROVAL FOR A MAJOR TRANSMISSION PROJECT** > In managing the development of the transmission system to address customer expectations, the AESO develops and submits needs identification documents to the Alberta Energy and Utilities Board (EUB) for approval. Once approved, we assign the responsibility to construct the transmission facilities to transmission facility owners.

In 2003, we received approval from the EUB for the need of a new 240-kilovolt transmission line to increase capacity and enhance reliability of supply to the grid from the Fort McMurray area. The 347-kilometre line is the first significant transmission expansion project proposed in more than 15 years.

The project will increase capacity to transfer electricity from the Fort McMurray area to the Edmonton area from about 370 megawatts to 610 megawatts. This will provide the conduit to allow new competitive electricity supply to reach the marketplace. Another expected benefit is reduced transmission losses. We estimate the new line will reduce losses by about 65,000 megawatt-hours each year, which at the 2003 average market price of \$62.99 per megawatt-hour, translates into annual savings of about \$4 million.

The project is planned to be put into service in August 2004.



**PROPOSING OPTIONS FOR THE CALGARY-EDMONTON CORRIDOR** > The AESO also evaluated transmission reliability and efficiency concerns in other areas of the province. Much of our effort during 2003 focused on a detailed study of technical options to reinforce transmission infrastructure between Calgary and Edmonton.

Based on this analysis, we will file a needs identification document in early 2004 with the EUB for a new 500-kilovolt transmission line between Calgary and the Lake Wabamun area west of Edmonton. If approved, the 300-kilometre line will strengthen the existing transmission infrastructure between Edmonton and Calgary, remove barriers to generation development in the Edmonton-Lake Wabamun area and reduce line losses by 500,000 megawatt-hours annually, starting in 2009, its first year of operation.

**SUPPORTING WIND POWER** > The AESO supports the development of generation throughout the province, including environmentally friendly sources of energy such as wind power.

In 2003, we received numerous applications for system access from wind power companies, mostly from the southwest region of the province near Pincher Creek. When added to the existing wind capacity, these applications would bring the total amount of interconnected wind energy to 750 megawatts and would require expansion of the regional transmission infrastructure.

To support these applications, we reviewed the interconnection requirements with the wind developers and consulted with them and other stakeholders on a detailed wind development plan for the region. A needs application was filed with the EUB in early 2004 for a proposed system expansion to accommodate the expected increase in wind power capacity.

**FINDING COLLABORATIVE SOLUTIONS** > We are committed to balancing the needs and interests of the AESO's different stakeholders to strengthen our transmission system. Our work is facilitated by our active involvement on different industry and multi-stakeholder groups, all of whom effectively work through complex issues to develop collaborative solutions.

In 2003, for example, the AESO worked with representatives from the province's four major transmission facility owners — ATCO, EPCOR, ENMAX and AltaLink — to review all facets of coordinating the management of transmission outages. Together we introduced improvements, including a revised outage approval process to improve the coordination of outages by the AESO and the transmission facility owners. Based on our discussions, we are also working to introduce a Web-based outage coordination system in 2004.

**CONSULTING WITH CUSTOMERS ON THE GENERAL TRANSMISSION TARIFF** > Each year the AESO files a general tariff application with the EUB, which sets rates and terms and conditions used when providing service to customers. The costs of operating the transmission system are recovered through the tariff, approved by the EUB, and are structured to support a competitive market and achieve a fair allocation of costs among stakeholders.

In December, the EUB issued its decision about the 2003 general tariff application, putting new customer rates into effect that month. The rates included slight reductions due to changing AESO costs in all categories, including payments to transmission facility owners, transmission line losses, ancillary services and the AESO's own costs.



In preparing the tariff application for 2004, we met individually with our transmission customers to better understand their needs and concerns. One of the issues discussed was the customer contribution policy, which outlines what interconnection costs are paid by the customer and what costs are rolled into the AESO's tariff to be paid for by all Alberta ratepayers. Based on customer input, we are exploring alternatives to better meet their needs when we file our tariff application in mid-2004.

On these and other issues, our goal is to balance the different interests of the AESO's many stakeholders.

**ACHIEVING COST SAVINGS FOR ANCILLARY SERVICES** > Ancillary services support the reliable operation of the transmission system as it moves electricity from generating sources to retail customers. The AESO buys and provides these services as an essential element of operating the system.

In 2003, we focused on increasing the number of operating reserve providers. For example, we added 250 megawatts of regulating reserve capacity by enabling four generators to provide this service. This was achieved through upgrades to generator equipment and to software at the AESO's System Coordination Centre. In addition, 330 megawatts were added to the spinning and supplemental reserve markets by enabling five new generators to provide these services.

As new suppliers enter the operating reserve market, the liquidity and efficiency of this market continues to improve. Since Alberta's operating reserve market opened in July 2001, the number of providers has more than tripled to nearly 20.

In 2003, ancillary services costs were reduced to \$177 million, down 13 per cent from 2002 spending levels. This was achieved in a period where the pool price increased by almost 50 per cent.

**ANCILLARY SERVICES (2003 COSTS)**



**ALBERTA'S NEW TRANSMISSION POLICY**

THROUGHOUT 2003, THE AESO PROVIDED INPUT INTO THE DEVELOPMENT OF THE ALBERTA GOVERNMENT'S NEW TRANSMISSION POLICY. ISSUED AT YEAR-END, THIS POLICY EMPHASIZES THE IMPORTANCE OF:

- MAINTAINING AND ENHANCING TRANSMISSION FACILITIES TO ENSURE RELIABILITY AND FACILITATE A ROBUST, COMPETITIVE MARKET
- > PLANNING TRANSMISSION SO IT IS AVAILABLE AT THE SAME TIME AS NEW GENERATION
- > DEVELOPING THE TRANSMISSION SYSTEM TO BE RELATIVELY CONGESTION FREE
- > DEVELOPING TRANSMISSION INFRASTRUCTURE FOR DOMESTIC AND EXPORT REQUIREMENTS
- > CARRYING OUT AN EFFICIENT AND TIMELY REGULATORY APPROVAL PROCESS FOR TRANSMISSION.

THE POLICY ALSO CLARIFIES ROLES AND RESPONSIBILITIES FOR THE DIFFERENT PARTICIPANTS IN THE PROVINCE'S ELECTRICITY MARKET. FOR EXAMPLE, UNDER THE POLICY, AN IMPORTANT FOCUS OF THE AESO'S TRANSMISSION PLANNING APPROACH WILL BE TO ANTICIPATE FUTURE LOAD GROWTH AND GENERATION DEVELOPMENT. THE AESO IS ALSO EXPECTED TO PLAN FOR SUFFICIENT TRANSMISSION CAPACITY TO ENSURE THERE ARE NO BARRIERS TO GENERATION DEVELOPMENT AND TO ENSURE THE ORIGINAL CAPABILITY OF THE PROVINCE'S INTERCONNECTIONS TO OTHER JURISDICTIONS TO IMPORT AND EXPORT CONTINUES TO BE AVAILABLE TO MARKET PARTICIPANTS.

HOW IS THE AESO IMPROVING LOAD SETTLEMENT?



BY TAKING A PACED APPROACH  
TO INVESTIGATING AND  
IMPLEMENTING SOLUTIONS  
FOR LOAD SETTLEMENT

Simply put, load settlement is a set of complex processes used to allocate energy to individual sites. These processes allocate the energy use for all 1.4 million customer sites in Alberta at hourly intervals to accommodate our hourly priced market. In 2003, the industry settled more than 2.5 billion transactions totalling \$3.3 billion.

A number of steps are involved for load settlement. First, distribution companies (or wire service providers) collect metering data about provincial electricity consumption and metering data from individual consumer meters. Based on this data and load settlement rules, load settlement agents determine how much energy should be allocated to each site. This information is then provided to the AESO to settle the wholesale market and provide monthly statements to wholesale market participants.

Despite improvements in the last few years, load settlement continues to be an issue for some market participants. One of our main concerns is fulfilling the AESO's role and mandate as the administrator and regulator of the process.

**EXPLORING A CENTRALIZED SITE REGISTRY AND HUB >** In 2003, the AESO and its stakeholders took some important early steps to investigate and implement solutions.

We rewrote the settlement code and instituted a mechanism for easily adjusting prior years. We also focused on opportunities to create a more efficient and streamlined load settlement process.

Currently, all of the data and processes required to carry out load settlement are decentralized among the four large wire service providers. Each of these companies, together with smaller wire service providers, manage the sites in their geographic regions. All processes related to a site, such as enrolment and energization, are managed by each individual wire service provider.

In 2003, the AESO, in partnership with our stakeholders, began exploring the feasibility of a single centralized site registry to replace the individual registry sites, and offer more consistent data standards, information exchange and compliance monitoring. We also examined a centralized hub to help ensure proper data management and controls.

**CREATING NEW PERFORMANCE STANDARDS >** Producing data in which all participants have confidence is key to effective load settlement. That's why in 2003 we worked with our stakeholders to develop new standards:

- meter performance standards to improve the completeness and timeliness of meter data used for load settlement. The new requirements state that all metering sites be read once every two months; and,
- load settlement reporting standards to measure the accuracy of load calculations by load settlement agents.

In other work, we initiated a new compliance monitoring program for load settlement. This program will allow the AESO to monitor settlement results and processes against standards in the AESO's settlement system rules.



HOW DOES THE AESO HELP THE MARKET GROW?



BY SUPPORTING  
MARKET EFFECTIVENESS

Each year Alberta's real-time wholesale electricity market attracts new interest and investment. So far it has attracted 233 participants who have helped develop Canada's first competitive, customer-focused exchange for electricity.

At the AESO, we are building on this legacy of achievement, working with our stakeholders in an open and transparent manner to support the evolution of the market.

In 2003, we did this in different ways: By documenting market rules. By promoting discussion about market structures. By facilitating the competitive market. And by monitoring regional electricity trade issues.

**CREATING INTEGRATED RULES FOR PARTICIPANTS >** The cornerstone of competition in any market is the understanding and assurance among participants that the rules governing the market are fair and comprehensive and that any breaches of these rules will be identified and corrected. Under the new *Electric Utilities Act*, the AESO is responsible for maintaining and managing independent system operator (ISO) rules.

In 2003, to reflect the Act, we created one integrated set of rules that consolidated existing power pool, transmission administration and load settlement rules. By combining them, our aim is to provide a seamless process for participants and make it easier for them to do business with the AESO.

We believe these rules should be open to stakeholders' evaluation, deliberation and possible change. Therefore, with stakeholder consultation, we established a new approval process for rule-making.

**PURSUING OPPORTUNITIES TO IMPROVE >** We are always on the lookout for opportunities for improvement. For example, we created a compliance system for the ancillary services market and launched a multi-block trading product, which was implemented in early 2004.

The multi-block trading product removes constraints in the AESO's information technology infrastructure that restrict the number and types of operating reserves that can come from a single supplier at one time. Removing these restrictions allows sellers more flexibility in structuring their offers, resulting in improved liquidity and competition.

**PROMOTING DIALOGUE ABOUT MARKET STRUCTURES >** Our stakeholders frequently tell us they seek more information about electricity market trends in other jurisdictions. They say it is in the best interest of market participants to follow and discuss these developments, so that together we can better understand how new approaches and policies relate to Alberta's changing electricity landscape.

At the AESO we contribute to this dialogue and awareness by sharing research on other wholesale electricity markets.

In 2003, we published a background paper on capacity markets on our Web site. The paper explored the development of capacity markets in Ontario and the U.S. These differ from our province's market in that they depend on other mechanisms, besides real-time spot prices, to attract new generation investments.

**MONITORING THE PROGRESS OF RTO WEST >** The AESO supports the idea of developing competitive markets and promoting standard market practices that promote greater efficiencies in trade across different regions and markets.

Since 2000, we have followed the development of Regional Transmission Organization (RTO) West, a coalition of transmission providers, power producers, government officials and other stakeholders in the Pacific Northwest. In 2003, this group began a new phase of discussions on opportunities to manage the regional transmission system and increase operational efficiencies. As RTO West evolves, we will continue to monitor this group's development and analyze its potential impact on the changing competitive electricity market in Alberta.



HOW DOES THE AESO PROTECT SYSTEM RELIABILITY?



THROUGH ADVANCED  
TECHNOLOGY, EXPERTISE  
AND CONSTANT VIGILANCE

Without a reliable supply of electricity, our world would quickly grind to a halt. It would be difficult for businesses to operate productively, for hospitals and schools to provide essential services, and for our homes to deliver the comforts we are accustomed to. Clearly we need electricity to sustain our quality of life.

That's why, at the AESO, we take the responsibility very seriously. It's a responsibility that requires attention 24 hours a day, 365 days a year. It starts with operations planning and engineering staff who analyze system operation, and continues with the System Coordination Centre where our system controllers use advanced technology to monitor and direct the operation of the grid and meet the needs of our market.

**UPGRADING THE ENERGY MANAGEMENT SYSTEM >** The work of our system controllers is supported by a sophisticated arrangement of information technology, networks, applications and databases that gather, process, send and store thousands of pieces of information as often as every two seconds.

The Energy Management System (EMS), for example, enables controllers to perform real-time activities such as dispatching electricity to meet demand and monitoring the status of the provincial electric transmission system.

Systems like the EMS are designed with reliability in mind and are constantly being enhanced and strengthened to meet the highest operating standards. In 2003, we completed a \$600,000 project to upgrade the system's operating, application and database software, improving its flexibility, reliability and functionality.

**ENABLING MORE SERVICE PROVIDERS >** As the needs of the market and participants evolve, the AESO employees ensure that our systems and processes support this ongoing evolution. Changes are implemented so our procedures and systems work in step with each other and with those of participants.

In 2003, we tested and implemented new software at the System Coordination Centre that enabled more power producers to provide ancillary services. Working closely with participants to test the software, we confirmed the ability of the generating units to meet our standards and we implemented software changes in the EMS and at the generating sites. The result — the addition of about 250 megawatts of generation capacity able to provide regulating reserves in the ancillary services market.

**IMPROVING NEXT-DAY DEMAND FORECASTS >** Every 24 hours the AESO issues a demand forecast on the Web site. The forecast provides the market with daily planning signals on generation resources and ancillary services requirements and opportunities for participants to either provide generation or reduce demand.

In 2003, the AESO consolidated tools and processes to create a new integrated method of demand forecasting. By improving these tools, we can now project more accurate forecasts, helping to provide better information to market participants and reduce our operating costs.

**MAKING RELIABILITY A TOP PRIORITY >** Besides enhancing day-to-day operating systems, the AESO also plans for unforeseen events that could potentially jeopardize grid operations. In the electricity business, being prepared for the unexpected is part of our job.

Throughout our operations, we have operating policies and procedures in place to manage contingencies and worst-case scenarios. We also maintain our systems and equipment at a high level of emergency preparedness.

During 2003, we invested \$1 million in new hardware and software to enhance our backup System Coordination Centre. The improvements reduce the time needed to activate the centre during an emergency and expand the centre's functionality. In September, a test of the backup centre successfully demonstrated our capacity to maintain both transmission and market operations in the event of a disaster.



HOW IS THE AESO IMPROVING CUSTOMER SERVICE?



BY WORKING HARD TO BETTER  
UNDERSTAND AND RESPOND  
TO CUSTOMERS' NEEDS MORE  
QUICKLY AND EFFICIENTLY

We look to deliver quality and innovation in all our interactions with customers. In 2003, we focused on improving information services and streamlining our interconnection process to make it easier to do business with the AESO.

**TRAINING ACCOUNT MANAGERS** > Our efforts to deliver excellent customer service start with dedicated account managers who offer customers one point of contact for all their business. Besides setting up new participants and assets, the AESO's account managers work with each customer to clarify information and resolve issues that prevent customers from efficiently doing business with the AESO.

The work of the account managers is augmented by other customer services such as market participant training, service brochures and email updates that keep customers and market participants up to date on issues that affect their business.

In 2003, we continued to look for further information opportunities to add convenience and responsiveness for our customers.

We launched a new Web site ([www.aeso.ca](http://www.aeso.ca)) to provide real-time information on all aspects of Alberta's electricity market. We also introduced AESOfirstcall (1-888-588-AESO), a one-stop information resource for electricity market and transmission inquiries and application information as well as research, data and publication requests. From its launch in March to the end of the year, AESOfirstcall received nearly 400 inquiries.

**STREAMLINING INTERCONNECTIONS** > We are working diligently to simplify processes to improve our delivery time for customer service. Our goal is to be better and quicker at providing customers with interconnections to the transmission system.

In 2003, we invested considerable time and resources to improve the interconnection process, a series of steps that distribution companies or generators follow to connect to the transmission system.

At the request of our customers, we redesigned and streamlined the interconnection application process for new participants joining the AESO. This led to a redesigned process for customer-requested 25-kilovolt breaker additions. By partnering with distribution companies to jointly prepare the required needs application, the AESO was able to significantly reduce the time required for this interconnection process. We also cut our response time for handling customer requests for increased load capacity at substations from two months to two weeks.

Thanks to these and other innovations, we reduced the time required, from application to energization, for companies to connect to the transmission system, despite the higher volume of applications we received during the year — 59 in 2003, compared with 33 in 2002.

In 2004, we plan to further redesign this process in collaboration with stakeholders. This effort will include conducting best-practice research and working with a team of industry partners to generate new ideas and develop a proposed redesign.

**SURVEYING CUSTOMERS** > Surveying our customers provides a valid and reliable assessment of trends in our performance from their point of view, enabling us to find out what services are working — or not, what's important to our customers, and what needs to be developed to better fulfil their expectations.

In July 2003, we sent a survey to more than 300 customers to find out if the AESO is on track with meeting their expectations. Conducted by an independent third party, the electronic survey provided an opportunity for customers to rate the full range of AESO services.

The results found that 53 per cent of the 105 respondents said the AESO, on average, provides good to excellent customer services. A follow-up survey in December showed improvement in these ratings, with 60 per cent of respondents ranking AESO services, on average, as good to excellent.

Although encouraged by these results, we recognize there is significant room for improvement. Comments on the surveys also identified transmission planning and the interconnection process as key areas for future improvements in customer service. We plan to take further action in 2004 to improve customer satisfaction levels in these areas.



HOW DOES THE AESO CONSULT WITH STAKEHOLDERS?



BY SEEKING  
DIRECT FEEDBACK  
ON OUR BUSINESS

Our stakeholders represent diverse interests. They include hundreds of groups and individuals — such as generators, retailers, consumers, community groups, energy traders, municipalities, distribution companies, load settlement agents, billing agents and transmission facility owners — all with a stake in the electricity system and its impacts.

As a new organization, the AESO is incorporating stakeholder engagement principles and processes into the way we do business. In carrying out our mandate of planning the province's transmission system and leading the safe, reliable and economic operation of Alberta's interconnected power system, we realize we must effectively engage our stakeholders in the development of the industry and be responsive to their needs.

**RESTRUCTURING TO ACHIEVE OBJECTIVES** > Early in 2003, we created an internal team to help facilitate our stakeholder relations efforts. This group supports business units in their stakeholder activities and provides a consistent, coordinated approach to the AESO's stakeholder consultation.

During the year, the AESO hosted numerous stakeholder sessions covering a variety of business issues. Attendance at these events ranged from 50 to over 200 people. We also consulted with stakeholders regularly at the working group level.

**MEASURING PROGRESS** > Stakeholder consultation is an area of ongoing development for the AESO.

Late last year, the AESO commissioned an independent third party to carry out an audit of our stakeholder relations practices, involving interviews with a cross-section of stakeholders. More than half of the stakeholders interviewed believe the AESO has improved, or is committed to improving, in this area. At the same time, they told us gaps still exist in our processes and the AESO should adopt a more transparent, consistent and defined approach for stakeholder consultation.

Based on this feedback, the AESO developed high-level principles and a structured model that will guide our approach to stakeholder consultation. These were presented to stakeholders in the first quarter of 2004.





This discussion and analysis should be read in conjunction with the financial statements and Auditors' Report included in this Annual Report. In accordance with its terms of reference, the Audit Committee of the Alberta Electric System Operator ("AESO") Board has reviewed and approved the contents of this Management Discussion and Analysis.

The AESO is responsible for the operation of the competitive power pool; determining the order of dispatch of electric energy and ancillary services; providing system access service on the electric transmission grid; directing the safe, reliable and economic operation of the interconnected electric system; planning the capability of the transmission system to meet future needs; and regulating and administering load settlement.

## 1 OVERVIEW

**2003 Reporting Basis** > On June 1, 2003, the AESO was established under the *Electric Utilities Act* ("EUA") of the Province of Alberta. Upon formation, the AESO assumed the duties of the Power Pool Council ("Council") with the exception of the Balancing Pool Administrator ("BPA") and the Market Surveillance Administrator ("MSA") functions, which were transferred to separate and distinct statutory corporations.

As such, the financial statements of the AESO for the year ended December 31, 2003 reflect the operations of the Power Pool of Alberta (excluding the BPA and including the MSA) and the Transmission Administrator of Alberta Ltd. ("TA") for the five months ended May 31, 2003 together with the operations of the AESO for the seven months ended December 31, 2003. The revenue and costs of the AESO for the period June 1 to December 31, 2003 do not include amounts collected on behalf of the MSA or the costs associated with the operations of the MSA during this period.

The financial statements have been prepared using continuity of interest accounting in accordance with Canadian generally accepted accounting principles. For further discussion on continuity of interest accounting, see Note 1 – Basis of Presentation of the audited financial statements.

**2002 Reporting Basis** > On October 25, 2002, the Council acquired all of the issued and outstanding shares of ESBI Alberta Ltd. ("EAL"), the previous transmission administrator. Immediately following the share purchase, the Council assigned the Purchase and Sale Agreement, together with all rights and obligations to its newly formed wholly-owned subsidiary, the TA. Subsequently, EAL and the TA were amalgamated.

The financial statements for the year ended December 31, 2002 include the operations of the Power Pool of Alberta (excluding the BPA and including the MSA), for the 12 months ended December 31, 2002 together with the financial statements of the TA for the period from October 26, 2002, the date of the acquisition by the Council, to December 31, 2002.

**2003 Management Discussion and Analysis Presentation** > This management discussion and analysis has been prepared using a comparison of the 2003 audited AESO revenues and costs with the combined 2002 audited financial results of the Power Pool of Alberta (excluding the BPA and including the MSA) and pro forma transmission financial information for the 12 months ended December 31, 2002. The pro forma transmission financial information represents a combination of EAL for the period January 1 to October 25, 2002 and the Council for the period from October 26 to December 31, 2002. In preparing this analysis, the system controller cost sharing arrangement that existed between the Power Pool of Alberta and the TA in 2002 has been eliminated.

**2 OPERATING RESULTS**

The AESO, a not-for-profit statutory corporation, recovers its operating and capital costs through three separate revenue sources, each of which is designed to recover the costs directly related to the provision of a specific service, as well as a portion of the shared corporate service costs. The overall revenues and costs of the AESO are as follows:

(\$ MILLIONS)	2003	PRO FORMA 2002	VARIANCE	% VARIANCE
Transmission revenues	\$ 704.7	\$ 675.5	\$ 29.2	4
Energy market charge	12.6	17.1	(4.5)	(26)
Load settlement recovery	2.4	0.3	2.1	700
Interest and other income	5.3	3.6	1.7	47
Wire costs	\$ 327.8	\$ 371.4	\$ (43.6)	(12)
Line losses	186.2	117.7	68.5	58
Ancillary services	155.8	166.2	(10.4)	(6)
General and administrative	34.1	25.8	8.3	32
Amortization and depreciation	10.4	5.7	4.7	82
Other industry costs	9.2	4.8	4.4	92
Interest expense	1.0	1.0	0.0	0

**3 REVENUE**

The EUA requires that the AESO be operated so that no profit or loss results on an annual basis from its operations. To achieve this, revenue is recognized to the extent of annual operating costs, including the amortization of capital assets. When the annual sum of collections differs from the annual operating costs, the difference is accrued as deferred revenue.

**3.1. Transmission**

(\$ MILLIONS)	2003	PRO FORMA 2002	VARIANCE	% VARIANCE
Transmission revenue	\$ 704.7	\$ 675.5	\$ 29.2	4
Interest and other income	4.1	3.3	0.8	24
Total transmission revenue	\$ 708.8	\$ 678.8	\$ 30.0	4

The AESO is responsible for paying all of the costs of managing the transmission system and recovering those costs through a tariff approved by the Alberta Energy and Utilities Board ("EUB"). The tariff is designed to allocate the costs to all users of the transmission system based upon their level of usage. In circumstances where annual collections are in excess of the transmission costs, the excess amount is recorded in the deferral accounts and refunded in subsequent years. In circumstances where annual collections are less than the transmission costs, the shortfall is recovered in subsequent years.

At December 31, 2003, the transmission deferral reflects a \$40.2 million shortfall, compared to a surplus of \$112 million at the end of 2002. The significant change in the transmission deferral during 2003 occurred as a result of: EUB Decision 2003-099, which is the reconciliation and financial settlement of the June 2000 to December 2002 AESO deferrals; and EUB Decisions 2003-033 and 2002-103, which are the settlement of the Article 24 dispute regarding 2001 and 2002 transmission must run.

Transmission revenue and interest collections in 2003 were \$646.4 million compared to transmission costs of \$708.8 million. This resulted in a shortfall of transmission revenue in the current year of \$62.4 million, which was deferred and will be collected in 2004. As the tariff allows for the recovery of all transmission costs, the increase in annual costs in 2003 increases transmission revenues.

Interest revenue in 2003 has increased to \$4.1 million or 24% over the prior year amount of \$3.3 million. As a result of EUB Decision 2003-033, the negotiated settlement of transmission must run compensation for 2001 and 2002, the AESO received an interest payment of \$1.9 million in May 2003. As part of this EUB Decision, the AESO also held the settlement amount of \$91.7 million for eight months in 2003 while awaiting the resolution of the matter and the financial settlement. The interest earned by the AESO on these funds was \$1.8 million in 2003. The settlement of Decision 2003-033 occurred in January 2004.

In 2002, the AESO received an interest payment of \$3 million related to EUB Decision 2002-103 on the same transmission must run matter.

A substantial amount of the transmission interest and other revenues is non-recurring.

### 3.2. Energy Market

(\$ MILLIONS)	2003	PRO FORMA 2002	VARIANCE	% VARIANCE
Energy market charge	\$ 12.6	\$ 17.1	\$ (4.5)	(26)
Interest and other income	1.2	0.3	0.9	300
Total energy market revenue	\$ 13.8	\$ 17.4	\$ (3.6)	(21)

The AESO recovers the costs of operating the real time energy market through a charge on all MWhs traded. For 2003, the energy market trading charge was 11.0 cents per MWh, consistent with 2002. The trading charge for a period is set to recover the operating costs and the amortization of capital assets during that period. In circumstances where annual collections are in excess of energy market costs, the excess amount is recorded as deferred revenue and incorporated into future trading charges. In circumstances where annual collections are less than the energy market costs, the shortfall is recovered in subsequent years.

At December 31, 2003, the energy market deferral is a \$4.3 million surplus amount. Of this amount, \$1.9 million is payable to energy market participants and is incorporated into the trading charge requirements in future periods. The remaining deferral balance of \$2.4 million relates to the system controller capital assets purchased by the Power Pool of Alberta and cost shared by the Transmission Administrator. The Transmission Administrator charged these costs to transmission customers through the transmission tariff in previous years. The revenue associated with the system controller capital assets is recognized by the AESO over the assets' useful lives.

Energy market trading charge and interest collections in 2003 were \$12.3 million compared to costs of \$13.8 million in 2002. This resulted in a draw down of the deferred revenue surplus by \$1.5 million in 2003 from a balance of \$5.8 million at December 31, 2002. As the trading charge is set to recover all energy market costs, the increase in annual costs increases energy market revenues.

Upon the creation of a separate statutory corporation for the MSA on June 1, 2003 with the proclamation of the EUA, a portion of the energy market charge has been collected by the AESO and remitted to the MSA according to its revenue requirement. In previous periods, the general and administrative costs incurred by the MSA were included in the Power Pool of Alberta financial statements and recovered through the trading charge. The amount remitted to the MSA in 2003 was \$1.3 million.

### 3.3. Load Settlement Recovery

(\$ MILLIONS)	2003	PRO FORMA 2002	VARIANCE	% VARIANCE
Load settlement recovery	\$ 2.4	\$ 0.3	\$ 2.1	700

In October 2002, the functions of the Power Pool of Alberta were expanded to include the oversight responsibility for load settlement within the province. As a result of this timing, 2003 represents the first full year of load settlement responsibilities within the AESO. The expenses that are incurred by the AESO to provide services related to regulating provincial load settlement are charged to the owners of electric distribution systems and wire service providers conducting load settlement under the Independent System Operator (ISO) rules. The costs associated with load settlement include direct function costs, an allocation of the AESO corporate shared services and an allocation of amortization and depreciation.

## 4 OPERATING COSTS

### 4.1. Transmission System Costs

The costs of managing the transmission system are as follows:

(\$ MILLIONS)	2003	PRO FORMA 2002	VARIANCE	% VARIANCE
Wire costs	\$ 327.8	\$ 371.4	\$ (43.6)	(12)
Line losses	186.2	117.7	68.5	58
Ancillary services	155.8	166.2	(10.4)	(6)
Other industry costs	9.2	4.8	4.4	92

#### 4.1.1. Wires Costs

Wires costs represent the amount paid to the owners of the transmission facilities in accordance with their EUB approved tariffs and are not controllable costs of the AESO. These costs decreased \$43.6 million or 12% compared to 2002 due to changes in the regulated rates charged by the transmission facility owners.

#### 4.1.2. Line Losses

Transmission line losses represent the amount of energy that is lost as a result of resistance on the transmission lines. The volumes associated with line loss are determined through the energy market settlement as the difference between the generation and import volumes less consumption and export volumes. The line loss volumes are then valued at the hourly pool price. General operations and events on the Alberta Interconnected Electric System ("AIES") will impact the hourly volumes of line losses.

The cost of transmission line losses in 2003 is \$186.2 million compared to \$117.7 million in 2002, an increase of \$68.5 million or 58%. This increase is largely due to the average pool price increasing 47% from \$43 per MWh in 2002 to \$63 per MWh in 2003.

#### 4.1.3. Ancillary Services

Ancillary services are procured by the AESO in order to ensure the ongoing reliability of the transmission system. The AESO has entered into various ancillary service futures contracts in order to meet the AIES operating reserve requirements. These contracts are traded on the

Alberta Watt Exchange Limited or through over-the-counter transactions. Ancillary services acquired include the provision of operating reserves, transmission must run, system restoration, remedial action schemes and other support services.

The cost of ancillary services decreased from \$166.2 million in 2002 to \$155.8 million in 2003, a decrease of \$10.4 million or 6% in 2003. The ancillary service costs reflected in the 2003 and 2002 audited financial statements have been adjusted for the impact of EUB Decisions 2003-033 and 2002-103, ordering a supplier of transmission must run services to refund amounts to the AESO for the provision of services billed in 2001 and 2002, together with interest charges. The impact of these decisions has been reflected as a reduction in ancillary service costs of \$21.5 million in 2003 (\$59.6 million in 2002) and as interest income of \$1.9 million in 2003 (\$3 million in 2002).

To provide a more accurate financial comparison for 2003 and 2002, in addition to making necessary adjustments to add back the above noted EUB Decisions to the financial statement amounts, the \$21.5 million refund of transmission must run service costs that occurred in 2003 must be deducted from the 2002 ancillary service costs. As a result of these adjustments, ancillary service costs were \$204.3 million in 2002 compared to \$177.3 million in 2003, a decrease of \$27 million.

This decrease was due to the following factors:

- There was a \$36 million decrease in the cost of operating reserves to \$121 million in 2003 compared to \$157 million in 2002. This reduction was mainly due to a decrease in the average unit cost of reserves resulting from increased competition with more liquidity in the market and a more competitive procurement strategy by the AESO. This was achieved in a year where the average pool price to which operating reserve prices are indexed increased by 47% to an average of \$63 per MWh.
- There was a \$5 million increase in transmission must run services to \$44 million in 2003 from \$39 million in 2002. The increase in service costs was due to the impact of commodity prices of electricity and natural gas on transmission must run costs. The lower the market heat rate (pool price divided by the natural gas price) the higher the average transmission must run MWh cost. In 2003, the market heat rate was 10.0 compared to 11.4 in 2002.

#### **4.1.4. Other Industry Costs**

Other industry costs represent certain costs the AESO funds on behalf of industry participants, including the costs of stakeholder participation in the AESO's regulatory proceedings, the cost of membership in the Western Electricity Coordination Council, and an allocation for EUB-related costs.

The increase in other industry costs to \$9.2 million or an increase of \$4.4 million in 2003 from the previous year's costs of \$4.8 million is due primarily to regulatory hearing costs. The intervenor costs associated with the congestion management and Article 24 EUB hearings that were approved in 2003 contributed to the increase in other industry costs.

#### 4.2. General and Administrative ("G&A") Costs

In preparing the discussion on the AESO's costs, the aggregate of AESO costs across all functions are presented. The following table presents these costs:

(\$ MILLIONS)	2003	PRO FORMA 2002	VARIANCE	% VARIANCE
Salaries and benefits	\$ 18.5	\$ 17.3	\$ 1.2	7
Professional fees and consulting	7.0	3.7	3.3	89
Office and administrative	6.1	4.4	1.7	39
AESO transition	2.5	0.4	2.1	525
Total general and administrative	34.1	25.8	8.3	32
Amortization and depreciation	10.4	5.7	4.7	82
Interest expense	1.0	1.0	0.0	0
Total	\$ 45.5	\$ 32.5	\$ 13.0	40

##### 4.2.1. General & Administrative

- **Salary and benefits** > The increase in salaries and benefits is due to a full year's salary and benefits for staff hired during 2002 and additional staff hired in 2003.
- **Professional fees and consulting** > Additional transmission planning and corporate regulatory work contribute to the increase in professional fees and consulting.
- **Office and administrative** > The increase in office and administrative costs corresponds to the increase in staff levels.
- **AESO transition** > These are non-recurring costs resulting from the merger of the Power Pool of Alberta and TA organizations. The new EUA was proclaimed in June 2003 and the AESO incurred merger costs throughout the year in various stages of the reorganization. These costs include consulting, legal, recruitment, infrastructure and severance costs.

##### 4.2.2. Amortization and Depreciation

In order to recover the purchase price of the EAL shares and related acquisition costs from transmission customers, Regulation AR 250/2002 was passed by the Government of Alberta in 2002. This regulation permitted the TA to recover the EAL share purchase price, together with all acquisition related costs and taxes, net of any management fee earned subsequent to the acquisition. These costs were collected from transmission customers through the tariff in 2003. The amortization of the acquisition costs of \$4.9 million that occurred in 2003 was the primary factor for the increase in amortization and depreciation compared to 2002.

##### 4.2.3. Interest

Interest expense is incurred as a result of the bank debt held throughout the year.

##### 4.2.4. Functional Cost Detail

The AESO has been organized to integrate the functions of transmission, energy market and load settlement in order to maximize the benefits from the merger under the EUA. This integration results in cost allocations in many parts of the organization. In determining the revenue requirement on a function-by-function basis, all AESO costs are assigned or allocated to one of the three functions.

The following table provides the 2003 general and administrative, amortization and depreciation and interest cost detail by AESO function.

(\$ MILLIONS)	AMORTIZATION/ DEPRECIATION			INTEREST	TOTAL
	G&A				
Transmission	\$ 22.8	\$ 6.2	\$ 0.4	\$ 29.4	
Energy market	8.9	4.2	0.6	13.7	
Load settlement	2.4	0.0	0.0	2.4	
<b>Total</b>	<b>\$ 34.1</b>	<b>\$ 10.4</b>	<b>\$ 1.0</b>	<b>\$ 45.5</b>	

#### 4.3. Financial Position and Liquidity

(\$ MILLIONS)	2003
Cash and equivalents, beginning of period	\$ 67.4
Operating activities	\$ 27.4
Investing activities	(3.3)
Financing activities	29.1
	<b>53.2</b>
Cash and equivalents, end of period	<b>\$ 120.6</b>

The cash balance as at December 31, 2003 was \$120.6 million compared to \$67.4 million at December 31, 2002. The increase is primarily the result of the following:

- Operating activities provided an increase in cash of \$27.4 million in 2003. The increase is mainly attributed to changes in working capital of \$19.2 million.
  - > Accounts receivable balance at December 31, 2003 was \$79.1 million compared to \$153.3 million at December 31, 2002, a decrease of \$74.2 million. A significant contributor to this reduction in the current year is the \$59.6 million receivable recognized in 2002 related to EUB Decision 2002-103 for the refund of transmission must run costs.
  - > Regulatory deferral amounts receivable balance at December 31, 2003 was \$40.2 million that relates to the shortfall of cash collections for the 2003 transmission settlement that will be recovered in 2004.
  - > Accounts payable balance at December 31, 2003 was \$201.6 million compared to \$94.5 million at December 31, 2002, an increase of \$107.1 million. The most significant factor contributing to this increase is the financial settlement of the 2000 to 2002 transmission deferral amounts and Article 24 from EUB Decision 2003-099 that occurred on January 30, 2004.
  - > Participants' security deposits balance at December 31, 2003 was \$7.2 million compared to \$15.8 million at December 31, 2002, a decrease of \$8.6 million. The balance of security deposits held by the AESO is solely dependent on how participants elect to meet the AESO security requirements.
  - > Regulatory deferral amounts payable of \$112 million at December 31, 2002 has been reduced to nil at December 31, 2003 as a result of the financial settlement of the 2000 to 2002 deferrals and Article 24 as determined in EUB Decision 2003-099.

- Investing activities used cash of \$3.7 million for the purchase of capital assets.
- Financing activities provided cash of \$30.7 million related to the issuance of bank debt. The drawings under the revolving load facility were required as short-term funds for timing issues related to transmission settlement and will be repaid within the first quarter of 2004.

As at December 31, 2003, the AESO had the following credit lines available to fund general operating and capital activities:

(\$ MILLIONS)	TOTAL	AVAILABLE	USED
Demand operating facility	\$ 10.0	\$ 5.1	\$ 4.9
Revolving credit facility	50.0	0.0	50.0

The revolving credit facility includes an option for a \$10 million Letter of Credit, which was fully utilized at December 31, 2003.



**MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING**

The financial statements included in the Annual Report are the responsibility of management and have been approved by the Alberta Electric System Operator Board. These financial statements have been prepared by management in accordance with Canadian generally accepted accounting principles, and include the use of estimates and assumptions that have been made using management's best judgement. Financial information contained elsewhere in this Annual Report is consistent with that in the financial statements.

To discharge its responsibility for financial reporting, management maintains a system of internal controls designed to provide reasonable assurance that the Alberta Electric System Operator's assets are safeguarded, that transactions are properly authorized and that financial information is relevant, accurate and available on a timely basis.

The financial statements have been examined by Deloitte & Touche LLP, the Alberta Electric System Operator's external independent auditors. The responsibility of these external auditors is to examine the financial statements and to express their opinion on the fairness of the financial statements in accordance with Canadian generally accepted accounting principles. The auditors' report outlines the scope of their examination and states their opinion.

(signed)

**John Tapics**  
*Chief Executive Officer*

(signed)

**David Erickson**  
*Chief Financial Officer*

**TO THE MEMBERS OF  
THE ALBERTA ELECTRIC SYSTEM OPERATOR BOARD**

We have audited the balance sheet of Alberta Electric System Operator as at December 31, 2003 and the statements of operations and cash flows for the year then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Company as at December 31, 2003 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.

The financial statements of Alberta Electric System Operator as at December 31, 2002 and for the year then ended, were audited by other auditors who expressed an opinion without reservation in their report dated January 22, 2004.

(signed)

Deloitte & Touche LLP  
Calgary, Alberta  
*Chartered Accountants*

January 27, 2004

**BALANCE SHEET**

AS AT DECEMBER 31, (IN THOUSANDS OF DOLLARS)	2003 (NOTE 1)	2002 (NOTE 1)
<b>Assets</b>		
Current assets		
Cash and cash equivalents	\$ 120,647	\$ 67,396
Accounts receivable	79,089	153,348
Recoverable acquisition and transition costs (note 5)	–	5,314
Regulatory deferral amounts receivable (note 6)	40,153	–
Prepaid expenses and deposits	1,591	274
	<b>241,480</b>	226,332
Capital assets (note 7)	16,492	18,190
	<b>\$ 257,972</b>	\$ 244,522
<b>Liabilities</b>		
Current liabilities		
Accounts payable and accrued liabilities (note 8)	\$ 201,561	\$ 94,512
Participants' security deposits (note 13)	7,232	15,804
Bank debt (note 10)	44,900	2,988
Regulatory deferral amounts payable (note 6)	–	112,035
Current portion of energy market deferral (note 9)	2,428	2,999
	<b>256,121</b>	228,338
Long-term bank debt (note 10)	–	11,213
Long-term energy market deferral (note 9)	1,851	2,799
Future income taxes (note 3)	–	2,172
<b>Equity (note 2)</b>	–	–
	<b>\$ 257,972</b>	\$ 244,522

Contingencies and commitments (note 12)

On behalf of the AESO Board:

(signed)  
**Maury Parsons**  
*AESO Board Chair*

(signed)  
**William Burch, CA**  
*AESO Board Member*

## STATEMENT OF OPERATIONS

FOR THE YEAR ENDED DECEMBER 31, (IN THOUSANDS OF DOLLARS)	2003 (NOTE 1)	2002 (NOTE 1)
<b>Revenue</b>		
Transmission revenue	\$ 704,692	\$ 86,279
Energy market charge	12,607	17,052
Load settlement recovery	2,410	321
Interest and other (note 10)	5,324	3,566
	<b>\$ 725,033</b>	<b>\$ 107,218</b>
<b>Operating costs and expenses</b>		
Wire costs	\$ 327,794	\$ 65,654
Line losses	186,202	37,582
Ancillary service costs (note 11)	155,845	(18,072)
General and administrative	34,141	15,319
Amortization and depreciation	10,357	5,118
Other industry costs	9,172	1,124
Interest expense (note 10)	1,003	493
	<b>\$ 724,514</b>	<b>\$ 107,218</b>
<b>Income before taxes</b>	<b>\$ 519</b>	<b>\$ -</b>
Current income taxes (note 3)	519	109
Future income taxes (note 3)	-	(109)
<b>Net income</b>	<b>\$ -</b>	<b>\$ -</b>

## STATEMENT OF CASH FLOWS

FOR THE YEAR ENDED DECEMBER 31, (IN THOUSANDS OF DOLLARS)	2003 (NOTE 1)	2002 (NOTE 1)
<b>Operating activities</b>		
Net income	\$ -	\$ -
Amortization and depreciation	10,357	5,118
(Decrease) increase in future income taxes	(2,172)	2,172
Cash flows from operations	8,185	7,290
Changes in non-cash working capital*	19,231	63,539
Net cash provided by operating activities	27,416	70,829
<b>Investing activities</b>		
Purchase of capital assets	(3,731)	(6,410)
Decrease (increase) in recoverable acquisition and transition costs	386	(5,314)
Net cash used in investing activities	(3,345)	(11,724)
<b>Financing activities</b>		
Increase in bank debt	30,699	8,201
(Decrease) in energy market deferral	(1,519)	(1,237)
Net cash provided by financing activities	29,180	6,964
<b>Increase in cash and cash equivalents</b>	<b>53,251</b>	<b>66,069</b>
<b>Cash and cash equivalents, beginning of year</b>	<b>67,396</b>	<b>1,327</b>
<b>Cash and cash equivalents, end of year</b>	<b>\$ 120,647</b>	<b>\$ 67,396</b>

\*Consists of changes in accounts receivable, regulatory deferral amounts receivable/payable, prepaid expenses and deposits, accounts payable and accrued liabilities and participants' security deposits.

## 1 BASIS OF PRESENTATION

The Independent System Operator ("ISO"), operating as the Alberta Electric System Operator ("AESO"), is a statutory corporation established on June 1, 2003 under the *Electric Utilities Act* ("EUA-2003") of the Province of Alberta.

Upon formation, the AESO assumed the duties of the Power Pool Council ("Council"), excluding the Balancing Pool Administration ("BPA") and Market Surveillance Administration ("MSA") functions which were transferred to separate and distinct statutory corporations. All rights and obligations, including contracts, tariffs, assets, and liabilities of the Council were transferred to the three statutory corporations as appropriate on June 1, 2003 in accordance with transitional provisions included in the EUA-2003.

The Council was a statutory corporation established on May 17, 1995 under the *Electric Utilities Act*. It commenced operations on January 1, 1996 under the name Power Pool of Alberta.

In 1998, the duties of the Council were expanded to include the operations of the Balancing Pool. The Balancing Pool was established to receive and disburse funds arising from the transition to a competitive electricity market in Alberta on behalf of consumers. In October 2002, the functions of the Council were expanded to include the oversight responsibility for load settlement within the province.

The Council acquired all of the issued and outstanding shares of ESBI Alberta Ltd. ("EAL"), the former Transmission Administrator, on October 25, 2002. Immediately following the share purchase, the Council assigned the Purchase and Sale Agreement, together with all rights and obligations to its newly formed wholly-owned subsidiary, Transmission Administrator of Alberta Ltd. ("TA"). Subsequently, the TA and EAL were amalgamated.

The TA was a for-profit, regulated corporation under the provisions of the previous *Electric Utilities Act*. The Alberta Energy and Utilities Board ("EUB") approved the TA's transmission rates, charges and terms and conditions of service and related regulatory accounting treatment. The TA's 2003 tariff application was approved by the EUB on November 4, 2003 in Decision 2003-077. These financial statements reflect the impact of this decision.

The financial statements of the AESO for the year ended December 31, 2003 include the operations of the Power Pool of Alberta (excluding the BPA and including the MSA) and the TA for the 5-month period ended May 31, 2003, together with the operations of the AESO for the 7-month period ended December 31, 2003, in accordance with the recommendations of the Emerging Issues Committee of the Canadian Institute of Chartered Accountants Abstract, which addresses the use of continuity of interest accounting. The results of the operations of the AESO for the 7-month period ended December 31, 2003 do not include amounts related to the BPA or the MSA.

The financial statements for the year ended December 31, 2002, provided for comparative purposes, include the operations of the Power Pool of Alberta (excluding the BPA and including the MSA), for the year ended December 31, 2002 and the TA for the period from October 26, 2002, the date of acquisition by the Council, to December 31, 2002. This presentation is in accordance with continuity of interest accounting.

Management views the operations as one fully-integrated operation; therefore, segmented information is not applicable.

## 2 OPERATIONS

Effective June 1, 2003, the AESO assumed responsibility for the operation of the competitive power pool; determining the order of dispatch of electric energy and ancillary services; providing system access service on the electric transmission grid; directing the safe, reliable and economic operation of the interconnected electric system; planning the capability of the transmission system to meet future needs; and regulating and administering load settlement.

The AESO is governed by the AESO Board, whose members are appointed by the Alberta Minister of Energy and are independent of any person or entity having a material interest in the Alberta electric industry. The AESO Board has an Audit Committee and a Human Resource Committee.

EUA-2003 requires that charges to industry, including the energy market charge, load settlement charge and transmission tariff, be set to recover the costs required to operate the AESO, and that the AESO be operated so that no profit or loss results on an annual basis from its operations. The AESO transmission-related activities continue to be regulated by the EUB. The AESO has no equity.

## 3 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

These financial statements have been prepared by management on the historical cost basis in accordance with Canadian generally accepted accounting principles. Preparation of these financial statements requires estimates and assumptions that affect the amounts reported and disclosed in the financial statements and related notes. Actual results could differ from those estimates.

**Cash and Cash Equivalents** > Cash and cash equivalents comprise cash, term deposits and other short-term investments with original maturity dates of less than 90 days.

**Deferrals** > The AESO utilizes deferral accounts to facilitate a matching of revenues and costs on a function-by-function basis.

For transmission operations, the EUB has approved the use of deferral accounts for transmission-related costs and revenues. In circumstances where annual collections are in excess of the transmission costs, the excess amount is recorded in the deferral accounts and refunded in subsequent years. In circumstances where annual collections are less than the transmission costs, the shortfall is recovered in subsequent years.

For energy market operations, where the annual collections are in excess of the aggregate costs, the excess is deferred and recognized in future periods. In the event of a shortfall between collections and costs, the shortfall in revenue is accrued and will be collected in a subsequent period.

**Capital Assets** > Capital assets are stated at cost. These assets are amortized on a straight-line basis over their estimated useful life as follows:

Energy Trading System	8 years
Energy Trading System start-up costs	3 years
System Coordination Centre	8 years
Software development	5 years
Furniture, office equipment and computer hardware	3 years
Leasehold improvements	10 years

To establish an AESO amortization policy, the policy of the TA was adopted by the AESO. This resulted in a change in the estimated useful life of Power Pool of Alberta assets, where necessary.

**Income Taxes** > Although the AESO is a not-for-profit organization as set out in EUA-2003, the TA was a for-profit entity prior to June 1, 2003 and thus, was subject to income tax.

For the five month period ended May 31, 2003, the TA used the liability method of accounting for the tax effect of temporary differences between the carrying amount and the tax basis of the TA's assets and liabilities. Temporary differences arose when the realization of an asset or the settlement of a liability would give rise to either an increase or decrease in the TA's income tax payable for the year or a later period.

Future income taxes were recorded at the income tax rates that were expected to apply when the future income tax liability was settled or the future income tax asset was realized. Income tax expense consists of the income taxes payable for the period and the change during the period in future income tax assets and liabilities.

**Revenue Recognition** > The AESO's revenue is primarily derived through three separate charges: (1) the Transmission revenue; (2) the Energy market charge; and (3) the Load settlement recovery. Each of these charges is set to recover those costs directly attributable to one of the AESO's main functions as well as a portion of shared corporate costs. Consistent with the requirements of EUA-2003, which requires the AESO to operate with no annual profit or loss, revenue is recognized equivalent to the aggregate of annual operating costs on a function-by-function basis.

EUA-2003 requires the AESO to provide funding for the MSA with the amount to be recovered through the energy market charge. The energy market charge included in the AESO's Statement of Operations does not include amounts recovered related to the MSA's funding requirements and the AESO's costs do not include amounts related to the operations of the MSA for the period from June 1, 2003 to December 31, 2003.

**Futures Contracts, Operating Reserves** > The AESO uses ancillary services futures contracts solely to ensure an adequate supply of operating reserves is available as required by the Alberta Interconnected Electric System ("AIES"). It does not enter into contracts on a speculative basis. Any gain or loss on these transactions is applied to the cost of the products purchased when the physical operating reserves are provided.

#### 4 RELATED PARTY TRANSACTIONS

Accounts receivable as at December 31, 2002 includes \$412,687 owing from the Balancing Pool related to the provision of administrative services. The amount was repaid in 2003.

During the period from January to May 2003, the Power Pool of Alberta provided administrative services to the Balancing Pool in the amount of \$166,777 at cost.

#### 5 RECOVERABLE ACQUISITION AND TRANSITION COSTS

In order to recover the purchase price of the EAL shares and related acquisition costs from the transmission customers, Regulation AR 250/2002 was passed by the Government of Alberta. This regulation permitted the TA to recover the EAL share purchase price, together with all acquisition-related costs and taxes, net of any management fee earned subsequent to the acquisition through its 2003 tariff.

In anticipation of the formation of the AESO, the Power Pool of Alberta incurred certain transition-related costs in 2002, which were fully recovered through the TA's 2003 tariff.

Recoverable acquisition and transition costs at December 31, 2002 (December 31, 2003 – nil) were comprised of:

IN THOUSANDS OF DOLLARS	2002
Recoverable acquisition costs	\$ 4,928
ISO transition-related costs	386
Recoverable acquisition and transition costs	\$ 5,314

## 6 REGULATORY DEFERRAL AMOUNTS RECEIVABLE (PAYABLE)

The audited financial statements for the TA for the period from October 26, 2002 to December 31, 2002 prepared on a stand alone basis included a regulatory deferral amount payable of \$111.6 million. The amount payable included in these financial statements is \$460,842 more due to the elimination upon consolidation of system controller related costs charged.

IN THOUSANDS OF DOLLARS	2003
Opening balance, January 1	\$ (112,035)
Current year deferral amount	62,387
Settlement of 2000 to 2002 deferral amounts and Article 24 from EUB Decision 2003-099	89,801
Closing balance, December 31	\$ 40,153

## 7 CAPITAL ASSETS

IN THOUSANDS OF DOLLARS	2003			2002
	COST	ACCUMULATED AMORTIZATION	NET BOOK VALUE	NET BOOK VALUE
Energy Trading System	\$ 13,961	\$ 7,588	\$ 6,373	\$ 8,268
System Coordination Centre	10,928	5,760	5,168	6,312
Software development	4,820	2,295	2,525	2,013
Furniture, office equipment and computer hardware	4,901	3,560	1,341	1,478
Leasehold improvements	1,201	116	1,085	119
	\$ 35,811	\$ 19,319	\$ 16,492	\$ 18,190

Included in the Statement of Operations is the amortization of the purchase price of the EAL shares and related acquisition costs in the amount of \$4.9 million. These funds were fully recovered through the TA's 2003 tariff (see note 5).

**8 ACCOUNTS PAYABLE AND ACCRUED LIABILITIES**

IN THOUSANDS OF DOLLARS	2003	2002
Accounts payable,		
December transmission settlement (2002 and 2003) and financial settlement of 2000 to 2002 transmission deferral amounts and Article 24 from EUB Decision 2003-099 (2003)	<b>\$ 157,670</b>	\$ 71,259
Accounts payable, Trade	<b>34,477</b>	21,918
Accrued liabilities	<b>9,414</b>	2,174
Current income taxes recoverable	-	(839)
	<b>\$ 201,561</b>	\$ 94,512

**9 ENERGY MARKET DEFERRAL**

The audited financial statements for the Power Pool of Alberta at December 31, 2002 prepared on a stand alone basis included a deferral amount payable of \$6.3 million. The amount payable included in these financial statements is \$460,842 less due to the elimination upon consolidation of system controller related costs charged by the Council to the TA for the period October 26, 2002 to December 31, 2002.

IN THOUSANDS OF DOLLARS	2003
Opening balance, January 1	<b>\$ 5,798</b>
Current year deferral amount	<b>(1,519)</b>
Closing balance, December 31	<b>4,279</b>
Current portion of energy market deferral	<b>(2,428)</b>
Long-term energy market deferral	<b>\$ 1,851</b>

**10 CREDIT FACILITIES**

The AESO has two credit facilities. Under the terms and conditions of these facilities, up to \$10 million can be borrowed under a demand operating loan facility and \$50 million under a revolving loan facility. Included in the \$50 million revolving loan facility is the AESO's option to request \$10 million in Letters of Credit. The revolving loan facility is renewable every two years. If the revolving loan facility is not extended, repayment is in full. Both credit facilities are based on prime rates of interest with the option for the loans to be issued in bankers' acceptances.

At December 31, 2003, \$40 million was drawn on the revolving loan facility, a \$10 million Letter of Credit was issued to the Alberta Watt Exchange Limited and \$4.9 million was drawn on the demand operating loan facility. The drawings under the revolving loan facility were required as short-term funds for standard timing issues with transmission settlement and will be repaid within the first quarter of 2004.

The amount of interest paid during the year was \$1 million (2002 - \$0.5 million).

In order to mitigate exposure to fluctuations in interest rates, the Power Pool of Alberta had fixed the interest rate on \$2 million of its debt through the use of an interest rate swap contract with its bank. Under the contract, a fixed rate interest of 6.54% was paid and a floating rate of interest from 90 day bankers' acceptances on the notional principal amount was received. The swap was terminated during the year at a cost of \$67,000 which was included in interest expense.

**11 ANCILLARY SERVICE COSTS**

On December 19, 2002, the EUB, in Decision 2002-103, ordered a supplier to refund \$59.6 million to the TA for the provision of transmission must run services billed in 2001, together with \$3 million in interest. The total refund to the TA was \$62.6 million. These adjustments have been reflected in ancillary service costs and interest revenue for the period from October 26 to December 31, 2002.

On May 1, 2003, the EUB, in Decision 2003-033, approved the Article 24 Settlement Agreement that required the same supplier to refund \$21.5 million to the TA for the provision of transmission must run services billed in 2002, together with \$1.9 million in interest. The total refund to the TA was \$22.8 million. These adjustments have been reflected in ancillary service costs and interest revenue in 2003.

**12 CONTINGENCIES AND COMMITMENTS**

- (i) The AESO leases office space and data processing equipment under various operating leases. The minimum lease payments associated with these leases are not material to the operations of the AESO.
- (ii) EUA-2003 requires the AESO to provide funding for the MSA with the amount to be recovered through the energy market charge. \$1.3 million was paid to the MSA in the period from June 1, 2003 to December 31, 2003.

**13 PARTICIPANT SECURITY**

All market participants and transmission customers who have financial obligations to the AESO must adhere to the ISO rules and Transmission Tariff terms and conditions regarding security requirements. Unsecured credit limits are provided for those organizations with acceptable investment-grade bond ratings, either directly or indirectly through a guarantee, and for organizations that are exempt as determined through government regulation. Security requirements for financial obligations in excess of unsecured credit limits are met with cash deposits and letters of credit.

**14 FINANCIAL INSTRUMENTS**

The AESO's financial instruments consist of cash and cash equivalents, accounts receivable, recoverable acquisition and transition costs, regulatory deferral amounts receivable/payable, accounts payable and accrued liabilities, participants' security deposits, energy market deferral and bank debt. Due to their short-term nature, the fair market value of the financial instruments approximates the carrying value.

The AESO has entered into various ancillary service futures contracts in order to meet the AIES operating reserve requirements. These contracts are traded on the Alberta Watt Exchange Limited or through over-the-counter transactions. At December 31, 2003 the volume of operating reserve contracts not yet delivered was 130,964 MWh. All of these contracts have settled subsequent to year end at an aggregate cost of \$1.3 million, which will be recorded in the period in which the underlying operating reserves were provided.





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