



**Atomic Energy of Canada Limited**  
**Énergie atomique du Canada limitée**

**Corporate Plan Summary**  
2006-2007 to 2010-2011

**Operating Budget Summary**  
**Capital Budget Summary**  
2006-2007



The Imaging X-Ray Photoelectron Spectrometer, which has been specifically configured for microchemical analysis of highly radioactive materials, examines the outer few layers at surface and interfaces and can provide considerable insight into the performance of metals and ceramics in the nuclear industry.

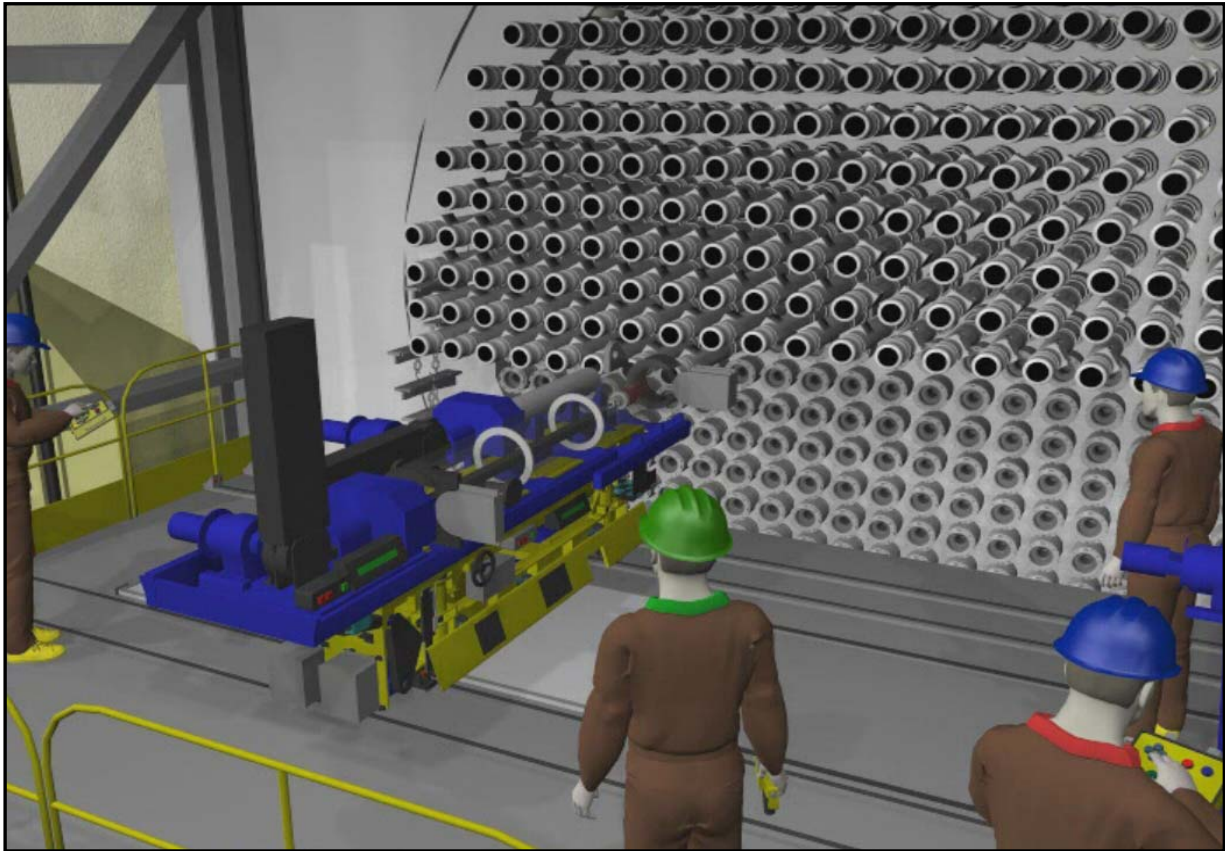


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Simulation of End- fitting removal from CANDU 6 reactor face during retubing

This plan reflects a summary of the approved Corporate Plan and the business environment at February 2006



### 1. EXECUTIVE SUMMARY

AECL is entering an exciting and demanding era where nuclear energy has received continued public and government recognition as the only alternative that can supply baseload volumes of electricity at a cost that is economically competitive and offers stable pricing without damaging the environment.

Building on its recent project construction successes and the reactor refurbishment orders won this past year with New Brunswick Power and Bruce Power Inc., AECL has solidified its commercial base and is poised to meet the demands of the Ontario market. In order to achieve its Vision and deliver on its commitments and meet public expectations AECL is focused on the following priorities:

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| <p>Corporate Plan Priorities</p> <ul style="list-style-type: none"> <li>➤ Meeting the requirements for new nuclear plant construction in Ontario, including launching the Generation III + Advanced CANDU Reactor</li> <li>➤ Obtaining three additional CANDU 6 refurbishment contracts in the first two years of the plan, and meeting all commercial contract requirements</li> <li>➤ Continuing Isotope production and bringing into operation the new Dedicated Isotope Production Reactors and Processing Facility</li> <li>➤ Renewing the Chalk River site operating licence including operation of the NRU research and isotope production reactor</li> <li>➤ Obtaining the necessary funding to begin re-investment in the national nuclear laboratory at Chalk River, including supporting the National Research Council in the provision of a nuclear research reactor for the next 50 years</li> <li>➤ Implementing the Comprehensive Waste Management and Decommissioning Plan for AECL’s nuclear sites</li> <li>➤ Continuing the culture change program and improving Employee Dialogue to ensure alignment of employees with Corporate objectives</li> </ul> |
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On December 9 2005, the Ontario Power Authority released its Supply Mix Advice to the Minister of Energy and to the public. It states “Ontario’s most critical need in the long term is for base-load supply. Nuclear power is particularly well suited to this role, owing to its low operating cost and lack of air emissions during operation.” “Ontario will therefore need between 9,400 to 12,400 MW of nuclear to be added by 2025”(in addition to the current refurbishment at the Bruce and Pickering sites).

<p>“Ontario will require significant additions of nuclear power generation.” OPA Dec 2005</p>
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AECL has a robust CANDU refurbishment and services business that will continue through the next decade. To meet the Ontario market requirements AECL can participate further in the refurbishment of reactors, provide enhanced CANDU 6 new build plants, based on the recent construction of a twin-unit plant in China, and provide the Generation III+ ACR 1000.

AECL’s ultimate goal is to be recognized as a leader in health, safety and the environment. To this end AECL and NRCan have prepared a Decommissioning Plan, outlining actions to be taken over the next 70 years at AECL’s nuclear sites. The Preliminary Comprehensive Decommissioning Plan for the Chalk River site must be tabled in the first quarter of 2006 with the Canadian Nuclear Safety Commission. AECL and the Government of Canada have



recognized the long-term liability for the management and remediation of AECL's nuclear facilities and waste. This program was previously funded by appropriations and the proceeds from the sale and lease of government funded heavy water. A new Waste Management and Decommissioning program at a significantly higher level has been put in place.

NRCan and AECL are also developing a submission to address the scientific and site infrastructure at the Chalk River Nuclear Laboratories. This site is the equivalent of a small town for which AECL must supply its own town services. AECL's reference level appropriations of \$104 million have been virtually frozen since program review in 1996. Curtailment of programs, coupled with improved efficiencies and increased commercial funding has allowed operations to continue. However, the continued aging of the infrastructure coupled with increasing regulatory requirements require additional funding and capital investment. AECL and NRCan will be consulting the government on these requirements in 2006. AECL is also supporting the National Research Council's plan for the continuation of the availability of a nuclear research reactor for AECL's and the broader scientific communities needs.

AECL has positioned itself to take advantage of the increasing market by internally restructuring and instilling commercial business practices across the organization. Investments in the current and next generation CANDU power plants, refurbishment technology, waste management and decommissioning and ongoing research and development in CANDU technology will allow AECL to successfully meet customer requirements. AECL has engaged with companies such as SNC-Lavalin, General Electric Canada, Babcock & Wilcox and Hitachi in order to achieve higher sales and meet customers' demands more effectively.

AECL has conducted extensive reviews of its organization, processes, capabilities, and business opportunities. The management team has implemented significant organizational changes and implemented business practices to improve the corporation's performance. AECL continually assesses its governance processes and, over the past few years, for example, has revised its Board of Directors profiles, reporting structure, and Code of Ethics, Environment and Disclosure policies. The organization has been restructured along business lines to improve accountability, commercial focus and transparency. This has been further enhanced with the creation of a Divisional structure that reflects the two major segments of the business: Commercial Operations and Technology. The Liability Management Unit (LMU) has also been established to lead the waste management and decommissioning program.

The Government of Canada supports a flexible mix of energy options with nuclear as an important component of Canada's diversified energy supply. Nuclear power generation produces no smog-creating emissions, no greenhouse gases, is cost competitive with fossil fuels and has a proven track record of safe operations. The benefits of nuclear for base load generation and its position versus alternative technologies are recognized for both the short and long term.

Canada is in position to benefit economically not only as a consumer of nuclear power and the economic activity associated with the refurbishment and new build projects, but also as an exporter of uranium and reactor technology. Canada has the largest secure supply of uranium in the world and owns leading edge CANDU technology. Renewed investment in CANDU technology and the supporting infrastructure will ensure Canada will continue to realize the



significant economic, health, environmental and other benefits of nuclear technology that the nuclear industry in Canada has generated.

### **Strategic Objectives**

AECL intends to fulfill its Mandate and achieve its Vision through the following objectives:

#### **1. Achieve leadership in our markets through performance excellence and business relationships**

The corporation is focused on increasing returns from the investment in the nuclear platform by providing innovative, technological solutions to our customers. A multi-reactor, multi-billion-dollar CANDU refurbishment program is underway in Ontario. AECL has successfully obtained major life extension contracts with Bruce Power in Ontario for the retubing of Bruce Units 1 & 2, and with New Brunswick Power for refurbishment of the Point Lepreau reactor. AECL is in negotiations with the South Korean utility, KHNP for refurbishment of the Wolsong Unit 1 plant and with Hydro-Quebec, and contracts for those two units are expected in the first two years of the plan, followed by a contract with the Argentine utility. A contract for the refurbishment of an additional unit for Bruce Power is also expected to proceed.

Increasing market opportunities for nuclear products and services are evidenced by robust competition with new private and other international companies in the Canadian market. AECL is aggressively competing to meet the needs of CANDU customers given its role as CANDU developer, designer, builder, and life-cycle services provider.

AECL continues to develop innovative technology in response to market demands and requirements. AECL and its partners are developing the ACR-1000 to meet the demands for new or replacement nuclear generation that will require significant new installed base load in the next decade. The CANDU 6 model is also available if the Ontario government requires an earlier deployment date for energy supply security.

#### **2. Demonstrate Vigilance and Leadership in Health, Safety the Environment and Operational Excellence**

The nuclear platform comprises research and development and its related infrastructure, plus waste management and decommissioning obligations. AECL's objective is to be recognized as a leader in environmental and health related technologies and operations. As a minimum, this requires being compliant with all requirements and standards, i.e. to fully meet the regulatory requirements. As a Crown Corporation, AECL's objective is to go further and exceed the minimum requirements to ensure it is setting the standards. To minimize nuclear legacy obligations for future generations, AECL is committed to managing its nuclear sites and facilities on behalf of the Government of Canada in a safe, secure and cost-effective manner. A review is underway to identify the resources required to upgrade the Chalk River facilities to meet the increasing regulations.

On-going review of processes and implementation of improvement initiatives to strengthen quality practices and ensure environmental and regulatory compliance are priorities in the organization's activities. In the first year of the plan AECL must seek renewal of the Chalk River Site Licence, including the operating licence for the NRU reactor. Significant progress has been





made in improving AECL's site operations practices and meeting regulatory commitments. It is expected that the CNSC will issue the licence renewal.

### **3. Lead Technology Development and Application to Continuously Improve CANDU Life-Cycle Performance**

A key component of the nuclear platform is the expert knowledge required to sustain the safety, licensing and design basis for Canadian nuclear technology and products. AECL helps to ensure the high standards in safety, security and operational performance of the CANDU fleet as one of Canada's largest high-tech research and development based companies employing 3,750 staff, with over 2200 highly skilled engineers, scientists, technicians and professionals. The nuclear platform research and development program covers those areas of nuclear R&D that impact on the radiological safety of the public, nuclear facility workers, and the environment, and that sustain the generic understanding for the peaceful application of nuclear technology, including medical isotope production.

AECL is developing the ACR-1000. The development of this Generation III<sup>+</sup> technology will result in a product with further-enhanced economics, operability and improved safety characteristics, such as enhanced application of passive safety systems. An in-depth program for the licensing of the ACR-1000 is underway with the CNSC.

Safety analysis methodologies and qualified and predictive tools that support the design, safety, licensing and operation of current CANDU and MAPLE reactors, and licensed nuclear sites will continue to be developed. These analyses are required by the CNSC in addition to supporting the CANDU utilities. Research in support of the CANDU Owners Group (COG) to support current utility operations will continue.

## **2. CORPORATE PLAN OBJECTIVES AND MEASURES**

The success of the corporation and individual performance evaluation is directly linked to achievement of AECL's objectives. Objectives are cascaded down through the corporation and individual deliverables are established. The following table contains the corporation's five-year measures, objectives, strategies and priority projects.



		<b>Measures</b>	
<b>Flow</b>	<b>People</b>	<b>Process</b>	
		<ul style="list-style-type: none"> <li>➤ Improve Safety performance for the frequency and severity of accidents by 10%</li> <li>➤ Improve Employee feedback measurement</li> <li>➤ &gt; 90% of Resource Plan milestones achieved</li> </ul>	<ul style="list-style-type: none"> <li>➤ Quality index improved by 5%</li> <li>➤ On Time and On Budget delivery &gt;90%</li> <li>➤ Improve environmental index by 5% over the previous three year average</li> </ul>
<b>Outcome</b>	<b>Customer</b>	<b>Financial</b>	
	<ul style="list-style-type: none"> <li>➤ Maintain Customer Scorecard results</li> <li>➤ Customer quality ranking of 7 or higher</li> <li>➤ Achievement of customer performance improvement objectives</li> </ul>	<ul style="list-style-type: none"> <li>➤ Revenue of \$596 million</li> <li>➤ Net Cash Outflow of \$54 million</li> <li>➤ Profit margin at or better than budget for 90% of projects</li> </ul>	
<b>Five Year Objective</b>			
<b>Achieve leadership in our markets through performance excellence and business relationships</b>			
<b>Five Year Strategies</b>			
<ul style="list-style-type: none"> <li>➤ Successfully negotiate and execute refurbishment and re-tubing contracts</li> <li>➤ Achieve new-build CANDU sales in Ontario and globally</li> <li>➤ Continue the uninterrupted supply of isotopes and develop the business</li> <li>➤ Strengthen the product and services portfolio by developing and selling value added CANDU products and services</li> <li>➤ Focus on delivering quality processes to improve customer satisfaction</li> <li>➤ Broaden capabilities through recruitment, outsourcing and partnerships and strategic acquisitions</li> </ul>			
<b>Priority Projects</b>			
<ul style="list-style-type: none"> <li>➤ Obtaining three additional CANDU 6 refurbishment contracts in the first two years of the plan, and meeting all commercial contract requirements</li> <li>➤ Meeting the requirements for new nuclear plant construction in Ontario, including launching the Generation III + Advanced CANDU Reactor</li> <li>➤ Continuing Isotope production and bringing into operation the new Dedicated Isotope Production Reactors and Processing Facility</li> <li>➤ Continuing the culture change program and improving Employee Dialogue to ensure alignment of employees with Corporate objectives</li> </ul>			
<b>Five Year Objective</b>			
<b>Demonstrate Vigilance and Leadership in Health, Safety, the Environment and Operational Excellence</b>			
<b>Five Year Strategies</b>			
<ul style="list-style-type: none"> <li>➤ Encourage, communicate and lead a safety culture</li> <li>➤ Achieve operational excellence by exceeding environmental policy and regulations</li> <li>➤ Achieve NRU and Chalk River licence extensions</li> <li>➤ Demonstrate value and cost effectiveness of NLBU programs and activities</li> <li>➤ Demonstrate progress and value in the delivery of the Waste Management and Decommissioning Program</li> <li>➤ Obtain sustainable funding for the refurbishment of the CRL nuclear laboratories and support NRC in the refurbishment or replacement of NRU</li> </ul>			
<b>Priority Projects</b>			
<ul style="list-style-type: none"> <li>➤ Renewing the Chalk River site operating licence including operation of the NRU research and isotope production reactor</li> <li>➤ Ensuring the uninterrupted supply of isotopes</li> <li>➤ Implementing the Comprehensive Waste Management and Decommissioning Plan for AECL's nuclear sites</li> <li>➤ Obtaining the necessary funding to begin re-investment in the national nuclear laboratory at Chalk River, and supporting NRC in the provision of a nuclear research reactor for the next 30 years</li> </ul>			
<b>Five Year Objective</b>			
<b>Lead Technology Development and Application to Continuously Improve CANDU Life-cycle Performance</b>			
<b>Five Year Strategies</b>			
<ul style="list-style-type: none"> <li>➤ Ensure that the technology base will address Safety, Licensing and Design Basis requirements of the CANDU fleet.</li> <li>➤ Attract and retain key resources to advance capability</li> <li>➤ Focus on technology development and commercialization to improve customer value</li> </ul>			
<b>Priority Projects</b>			
<ul style="list-style-type: none"> <li>➤ Developing the ACR to meet customer requirements</li> <li>➤ Reinvestment in the nuclear infrastructure including knowledge management</li> </ul>			



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### **3. CORPORATE PROFILE**

Incorporated in 1952, Atomic Energy of Canada Limited (AECL) through its Board of Directors is part of the portfolio responsibility of the Minister of Natural Resources Canada. AECL is an agent commercial Crown Corporation, incorporated pursuant to the authority and powers of the Minister of Natural Resources under the Nuclear Energy Act. AECL reports to Parliament through the Minister of Natural Resources. AECL has two wholly owned subsidiaries, AECL Technologies Inc., which operates in the United States and AECL Technologies B.V., incorporated in the Netherlands but which is currently dormant.

AECL leads the Canadian nuclear industry in domestic and international sales of nuclear products and services. AECL is the designer of CANDU technology and custodian of the nuclear option for Canada, advancing Canada's nuclear technology through applied nuclear research and development. On behalf of the federal government, AECL fulfills a unique public policy role managing the federal nuclear platform including medical isotope production capability and the management of legacy and historic wastes.

Worldwide, AECL has built more than 30 reactors in seven countries. Since 1990, AECL has contracted for seven CANDU 6 reactors for international customers, more than any other power reactor vendor, and is constructing two MAPLE reactors for the production of medical isotopes in Ontario.

The federal government has invested approximately \$6 billion in nuclear research and development since 1952. AECL has led the Organization of CANDU Industries in leveraging this public investment into a \$5 billion per year industry (value of electricity generated, CANDU equipment and components, uranium exports as the world's leading uranium producer, medical isotopes, high-tech services, etc.), which employs over 30,000 highly skilled Canadians. AECL leads a strong nuclear business sector that generates economic benefit for Canada and relies on approximately 150 small and medium sized enterprises and a further 3,000 sub-suppliers, in the private sector.

Nuclear energy is a vital component of the solution to air quality and climate change issues. In health care, Canada is the world's largest exporter of medical radioisotopes used to diagnose and treat disease, as well as the world's largest exporter of Cobalt 60 used in cancer treatment and industrial irradiators. Globally there are more than 70,000 nuclear medicine procedures per day, two-thirds of which depend on isotopes produced by AECL for MDS Nordion, a former business unit of AECL that was privatized.

Today, AECL is one of Canada's largest investors in high-tech research and development, playing a key role as a national nuclear laboratory for the assurance of nuclear safety. AECL's initiatives in support of education in nuclear and related disciplines with universities across Canada, including participation in the Universities Network of Excellence in Nuclear Engineering (UNENE), enhance the Canadian knowledge base and skills to encourage further innovation.

#### **Mandate**



AECL's mandate combines two roles: 1) the public policy roles of sustaining and enhancing nuclear technology to safely and securely support Canada's nuclear energy supply and other applications of nuclear technology, and of managing nuclear wastes and legacy liabilities, and 2) AECL's commercial role to maximize the return to Canada on the investment in nuclear technology by supplying innovative products and services. These two roles are reflected in the following mandate statement:

AECL will create Customer and Shareholder value through:

- Managing the Canadian nuclear platform responsibly and cost effectively
- Leveraging the technology base to deliver nuclear products and services to market
- Paying dividends from profitable growth

### **Vision**

AECL's vision is to:

- Be the top worldwide nuclear products and services company
- Protect the health and safety of the public, our employees and the environment
- Minimize nuclear legacy obligations for future generations

### **Values**

To achieve our vision AECL people must be:

- Driven by customers needs
- Obsessed by quality, excellence and safety
- Personally responsible and accountable
- Engaged in open and honest communication
- Empowered to challenge and innovate
- Committed to learning and teamwork
- Motivated by performance

## **3.1 Governance**

AECL is a leader in the Crown corporation community in terms of best-in-class governance, for example, the external and public recruitment of the President and CEO and a completely transparent relationship with the Auditor General via the Special Examination. Leading security, quality and safety management systems, and planning and reporting protocols are in place to conduct business operations. Currently an eleven member Board of Directors appointed by the government oversees the corporation's activities. Five Committees -Audit, Human Resources and Governance, Risk Evaluation and Science and Technology- actively review the progress towards plan and performance against objectives and assess major risks. There is also a Nominating Committee with a mandate to recommend appointments to the Board.



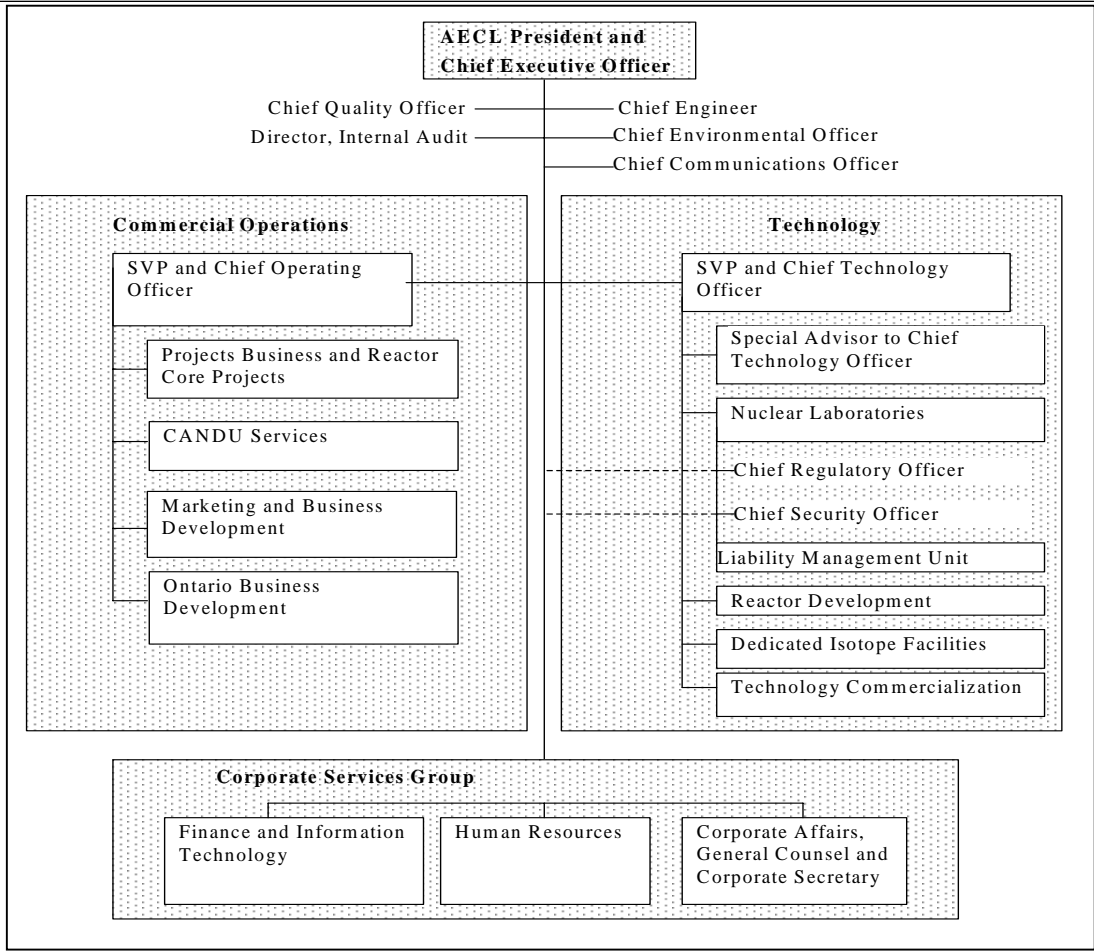
The Board approves the strategic direction of AECL through the corporate plan approval process, and sets the strategy with respect to each risk identified by its Risk Evaluation Committee. The Board has reviewed the management information system aimed at addressing the accuracy, quantity, timing, frequency and usefulness of Board information. The Board and management maintain an on-going dialogue with the Shareholder on matters of importance. An effective working relationship exists between the Board, Chairman, CEO and management. Senior management attend Board meetings, and the Board also meets *in camera* with the CEO. The Chairman meets with management and members of the executive independently of the CEO. The Audit committee regularly meets *in camera* with management and auditors.

A skills profile for Directors has been developed and forwarded to the Shareholder for consideration. An analysis of the skill set of current Board members individually and collectively is reviewed annually for consideration in the skills profile. All new Board members undertake an orientation program, and all members attend training sessions as appropriate. The effectiveness of the Board is self-assessed by detailed survey annually and action plans are developed and implemented based on the survey results.

In addition, the external and independent Research and Development Advisory Panel of the Board, comprising ten respected academics from across Canada, has the mandate to advise AECL's Board of Directors on the strategic needs, alliances and direction of the R&D activities of AECL, reporting through the Science and Technology Committee. The Panel provides the Board with objective, independent advice and counsel, and contributes a unique "peer review" perspective to AECL's scientists. The process assures the Board that the research programs have the appropriate scope, quality, composition and balance between short and long-term activities to sustain Canada's nuclear program, nationally and internationally.

### **3.2 Organization**

To achieve the Vision, AECL is organized around two primary activities: **Technology**, charged with maintaining and enhancing the knowledge and technology base and the nuclear platform infrastructure, and managing the legacy liabilities; and **Commercial Operations**, the primary commercial activities of AECL, where the focus is on aggressive growth of the business by leveraging the technology and applying sound quality management principles to meet customers needs. Each activity draws synergies, levers intellectual capital and competitive strengths from each other to unlock value from the country's underlying nuclear investment. The Corporate Services group provides support to the operations groups. Financially, the Liability Management Unit is reported independently of the Technology Group to ensure an arms-length and transparent relationship in the planning and use of Shareholder's funds.



AECL employs over 3750 staff covering a wide range of professional and technical disciplines including nuclear operators scientists, engineers and technicians. Its principle offices are; the nuclear laboratories at Chalk River, Ontario with 1980 employees, and at Whiteshell, Manitoba, which is currently undergoing decommissioning, where there are 215 staff; 1500 staff are headquartered in Mississauga, Ontario; and there are 38 staff in offices in Ottawa, and 23 staff in the Montreal engineering office.

AECL has restructured itself into Business Units on a profit and loss basis, and established transfer pricing internally for maximum financial transparency and to ensure there are no internal subsidies. Three separate AECL divisions, Commercial Operations, Technology and the Liability Management Unit have been established to separate for accounting purposes the commercial business from the public policy role of AECL, the latter supported by appropriations, i.e., the Nuclear Platform. The restructuring provides greater focus, accountability and transparency for the commercial operations. The segregation provides clarity and accountability for the vote funding of AECL’s safety R&D conducted at Chalk River Laboratories, waste management and decommissioning programs and reactor development. The intent is to improve transparency and demonstrate that Government funding is clearly tracked and accounted for. The accounting system allows for the external auditors to audit each division and provides financial statements that can be used to value the Commercial Operations Division. Formal work authorization and transfer pricing procedures are in place to achieve accountability



and cost allocation between divisions. Each unit has separate business plans and financial targets to improve performance.

The Chief Regulatory Officer position was established to maintain an effective interface at all levels with the CNSC and other regulatory bodies. This position also strengthens the internal linkages between our licensing commitments and Nuclear Operations Compliance programs and oversight function. The position ensures we are developing, tracking and completing all regulatory commitments in a timely and effective manner and complements the AECL Single Point of Contact position for facility licensing.

**4. BUSINESS ENVIRONMENT**

Over the past year AECL has secured two major Refurbishment and Retubing contracts, and the outlook for the refurbishment of CANDU reactors around the world is promising. In diverse areas such as the UK, US, Romania, China and India the opportunities for the growth in the new build and services areas are increasing. In order to capitalize on these opportunities AECL has reviewed our business environment and identified these areas of significance for the upcoming five years.

<p><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>• Experienced and knowledgeable staff</li> <li>• Advantages of CANDU Technology</li> <li>• Performance of CANDU Reactors</li> <li>• Shareholder</li> </ul> <p><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>• Increased global demand for electricity and Nuclear Renaissance</li> <li>• Refurbishment Business</li> <li>• Services business growth</li> </ul>	<p><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>• Resourcing</li> <li>• Public perception of nuclear</li> <li>• Aging Facilities at Chalk River Laboratories</li> </ul> <p><b>THREATS</b></p> <ul style="list-style-type: none"> <li>• Funding</li> <li>• Regulatory Process may delay early Ontario Deployment</li> <li>• Competition</li> </ul>
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**Strengths**

AECL’s competitive advantage is largely rooted in its 3750 staff and contract employees, without whose expertise, the organization will not be able to achieve its mandate. As one of Canada’s largest high-tech companies with over 2200 highly skilled engineers, scientists and technicians in a wide range of technical disciplines, AECL helps to ensure that the safety, security and operational performance of the CANDU fleet exceed international standards.

The performance of the CANDU-6 fleet, with its lifetime 87% gross capacity factor compares favourably with the closest US light water reactor rival at 73% and serves to reinforce AECL’s reputation as a leader in the nuclear industry. The CANDU design has been proven to be safe and reliable, over the past four decades of operations there has never been an accident involving the release of radioactivity from a CANDU reactor.

AECL is completing the design of the ACR-1000, which is based on the highly successful CANDU 6 model and features a modular design enabling it to be cost effective and faster to



construct. It is designed for Ontario as the primary market, but includes features for global licensing, and to satisfy various market needs and electricity grids. The design also provides the capability of using various future fuels such as thorium.

### **Weaknesses**

The success in obtaining the contracts for the refurbishment of Point Lepreau and the retubing of Bruce A units 1 and 2, as well as continuing the design of the ACR-1000 will require that the corporation increase its work force by as many as 500 employees. We will be seeking partnerships and collaborations with other qualified companies combined with an aggressive hiring campaign to alleviate this problem.

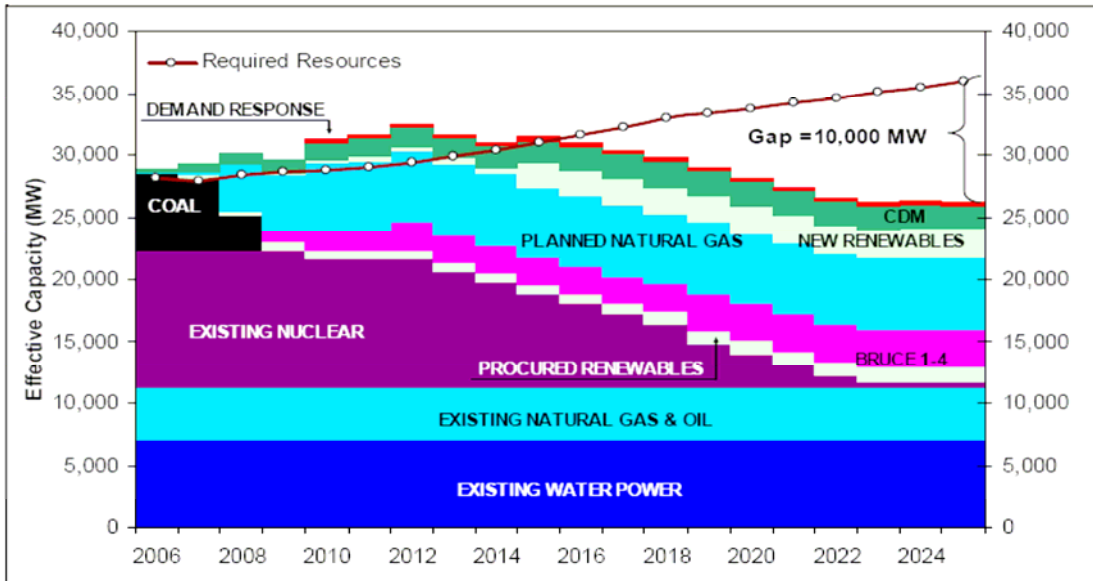
The perception by the public surrounding the nuclear industry centres primarily around performance in Ontario, nuclear waste and security is slowly changing. The Nuclear Waste Management Office recently released its final recommendation to Government for the long-term management of nuclear fuel waste. It is envisaged that this will provide a basis for broad public consensus and address concerns about the management of waste generated by nuclear reactors. An IPSOS Reid survey of Ontario residents conducted in the fall of 2005 indicated that 59% support nuclear technology.

Over the next five years the corporation needs to invest in upgrading its nuclear facilities and infrastructure, some of which is up to sixty years old. The replacement and refurbishment of the Nuclear Research Universal (NRU) reactor, which is nearing the end of its intended life, is important for providing an ongoing testing platform for AECL's products and services.

### **Opportunities**

The market outlook for AECL is very promising. The Ontario Power Authority recently released their recommendations for the supply mix for Ontario to the provincial government that included the construction of new nuclear. The following chart is the OPA's assessment of meeting the Ontario electricity supply gap. It illustrates the expected demand for electricity in the Ontario market, and a recommended scenario to satisfy this growing market. The graph assumes that coal plants will be phased out gradually by 2009, a conservative scenario from a supply perspective given that the Ontario government policy is to close all coal plants by 2007. 7,000MW of new wind and gas plants will be built, (even though they will be quite expensive to operate, and are unsuitable for baseload delivery), the Niagara tunnel will be online in 2010, all four of the Bruce units will be refurbished along with 1,300MW of extra power from conservation and demand management efforts. The graph indicates that even with these efforts a shortfall in energy supply will occur starting in 2015 growing to 10,000MW by 2025.




**Figure 1.2.13: Current Procurements, CDM and Renewables Cover Needs to 2015**


Source: OPA

The potential for additional new nuclear plants consisting of six ACR-1000 units with a net output of about 1,100 MW each will satisfy this growing demand requirements. The well-proven CANDU 6 model is also available for earlier deployment in Ontario, if necessary.

An independent assessment of the economic market for new nuclear units predicts the potential for up to eight new reactors in the UK, twenty-five in China and up to twenty-nine in the US. The United States government has recognized the use of nuclear power as an essential part of the energy mix to satisfy the growing demand for electricity over the long term. Opportunities exist for AECL's penetration into this market during the second wave of new power plant construction with smaller utilities, providing we can demonstrate the viability of the ACR technology in Ontario. The Chinese economy along with its demand for electricity is increasing, however concerns over the environmental costs of burning fossil fuel and a dependence on imported energy is causing China to explore cleaner technologies. Over the next 20 years China plans to invest heavily in the production of nuclear power. AECL will capitalize on the performance of its two reactors in China to demonstrate its abilities to supplement China's preferred technology the PWR. AECL has entered into a cooperative agreement with China involving nuclear technology, and will use this forum as a method for demonstrating the capability and suitability of the ACR-1000.

Many reactors around the world are approaching their end of life and utilities are becoming aware that the economics for refurbishment outweigh all other options for providing clean reliable and affordable base load power. The CANDU reactors in Korea and Argentina are candidates for refurbishment and proposals are underway.

### Threats

The services environment is changing with utilities looking to divest non-core activities previously done in-house and the refurbishment programs encouraging competitors to focus on the domestic market. AECL continues to succeed against competition that have all entered the



Canadian marketplace eager to capitalize on the growth of the industry but with minimum CANDU experience.

Currently there are three main competitors to AECL for advanced reactor technology in the new build markets; Areva with the European Pressurized Water Reactor (EPR), Westinghouse with the Advanced Passive Pressurized Water Reactor (AP-1000) and General Electric with its Economic Simplified Boiling Water Reactor (ESBWR).

General Electric's ESBWR is under development, and its predecessor the ABWR has been certified in the US and has been built in Japan. The GE ESBWR is strong in the US, but may not be a strong contender in the China or UK markets since these countries do not appear to be considering boiling water technology at this time. General Electric is a strong contender in the US market as the only US owned reactor vendor and is included in several Combined Construction and Operating licenses (COL) applications and is likely to receive its US design certification in 2006. GE has no immediate plans to enter the Ontario market because of GE Canada's strong alignment with CANDU products in Ontario.

The Westinghouse AP-1000 has received final design approval and design certification from the US Nuclear Regulatory Commission. The AP-1000 is a strong contender in the US and UK markets but is somewhat hampered by a pending sale of Westinghouse by the UK Government. The Chinese view Westinghouse as the original developer of the PWR technology and together with its strong US government support will make the AP-1000 a strong contender in China.

AREVA NP, whose majority owner is the French government, is the only vendor that sells reactors in France. The Evolutionary Pressurized Water Reactor has been confirmed as the new standard design for France having received its French design approval in 2004. The first unit is currently being built in Finland and the second one in France. Areva has a strong presence in China having built four reactors. In the US it has a joint venture with Constellation to market their US EPR. Areva is very active in the Ontario market and appears willing to offer long term reactor service and fuel supply packages to entice utilities.

The ACR is very competitive with these products and includes the following features;

1. Enhanced safety and resistance to external events, with both passive and robust engineering systems
2. Enhanced performance, with a lifetime capacity factor over 60 years that will exceed 93%, fully leveraging CANDU's unique on-power refuelling capability
3. Improved economics, with reduced electricity costs compared to building current generation plants
4. Fast construction schedule, based on advanced construction technology and AECL's ongoing new build project performance

### **Regulatory Environment**

Regulations continue to drive increasing expenditures and time to market and other program delivery schedules. Increasing regulations within the regulatory process continue to increase pressure on AECL to meet requirements given the nuclear platform funding base. For example,



regulations for increasing site security and environmental protection drive higher analysis, studies and facility operating costs. These costs are not discretionary and are required to meet AECL's commitment as a leader in health, safety and the environment. There is a high probability of future increases being required beyond those shown in the current plan.

A highly streamlined environmental assessment and technology licensing process is required in Ontario in order for new build nuclear to be available to address the shortfall in energy supply predicted in 2014. AECL is exploring environmental assessment (EA) process options for new nuclear builds in Ontario in order to ensure that the electricity is available when it is needed. These EA process options will be put forward to federal government officials for consideration.



## **5. OBJECTIVE 1: ACHIEVE LEADERSHIP IN OUR MARKETS THROUGH PERFORMANCE EXCELLENCE AND BUSINESS RELATIONSHIPS**

AECL is committed to providing full support and partnering with its customers throughout the life cycle of nuclear power technology management. By capitalizing on the synergy between the nuclear platform and the commercial opportunities, AECL, with partners, will provide innovative solutions to maximize the value to both customers and AECL. AECL's position as the CANDU designer and its ability to offer high quality services covering the nuclear life-cycle is a competitive advantage with CANDU utility customers versus foreign firms who have little CANDU specific expertise. The corporation will focus on the following strategies to achieve the first objective.

### **Five Year Strategies**

- Achieve new-build CANDU sales in Ontario and globally
- Successfully negotiate and execute refurbishment and re-tubing contracts
- Continue the uninterrupted supply of isotopes and develop the business
- Strengthen the product and services portfolio by developing and selling value added CANDU products and services
- Focus on delivering quality processes to improve customer satisfaction
- Broaden capabilities through recruitment, outsourcing and partnerships and strategic acquisitions

### **Priority Projects**

- Meeting the requirements for new nuclear plant construction in Ontario, including launching the Generation III + Advanced CANDU Reactor
- Obtaining three additional CANDU 6 refurbishment contracts in the first two years of the plan, and meeting all commercial contract requirements
- Continuing Isotope production and bringing into operation the new Dedicated Isotope Production Reactors and Processing Facility
- Continuing the culture change program and improving Employee Dialogue to ensure alignment of employees with Corporate objectives

### **5.1 Successfully negotiate and execute refurbishment and re-tubing contracts**

A multi-reactor, multi-billion-dollar CANDU refurbishment program is underway in Ontario and New Brunswick. In 2005 AECL won the life extension contracts for a combined value of \$1.2 billion with New Brunswick Power and Bruce Power Inc. These projects will extend each reactor's life for another 25 years. Both projects will be completed in 2009. Fabrication of test rigs, prototype testing and software development, including integration of systems with suppliers has been undertaken. Design, procurement and project scheduling and planning are well underway.

AECL plays a large role in refurbishment projects as the CANDU Design Authority, and acts as the prime contractor for AECL scope. Other major international nuclear companies have competed hard for the business. However, in Ontario, for example, the provincial government and privately owned Bruce Power recognize that AECL as the plant designer is important to a successful CANDU refurbishment program.



AECL has completed refurbishment feasibility work for Hydro-Quebec and South Korea, and contracts are expected in the first two years of the plan.

The commercial workload associated with anticipated refurbishment projects will ensure that AECL remains a robust commercial enterprise for an extended period of time, which will only be enhanced by the ACR. The corporation is planning to add as many as 500 employees over the next two years to handle the additional workload mainly associated with refurbishment projects.

## **5.2 Achieve new-build CANDU sales in Ontario and globally**

### **Ontario**

As noted, the Ontario Power Authority has recommended that the government move quickly to enable new nuclear construction to meet Ontario's energy supply crisis. AECL continues to work with the Ontario Government and OPG to develop options to meet the energy demand requirements. AECL anticipates further refurbishment work in Ontario and can also offer the well-proven CANDU 6 for new build projects. AECL has been actively working with the Ontario utility and government to position the ACR-1000 and enable an early start to the environmental assessment process.

### **ACR-1000**

AECL and the government have been funding the development of the ACR-1000, a Generation III<sup>+</sup>, evolutionary CANDU design, to further improve the performance, economics and safety of CANDU to meet Canadian and international market requirements. Numerous market studies over the past three years have confirmed that there is a significant market, primarily in Canada, United States, the United Kingdom and China in the coming decade, and that AECL is well positioned relative to its competitors with a product that will meet the customer's requirements in the deregulated electricity market. During the plan period AECL's major product launch efforts will be directed at the Ontario market.

As AECL's Corporate Plan cannot include any funding that has not been approved, the plan only includes continuing the program through the fall.

The ACR-1000 investment is attractive for the following reasons:

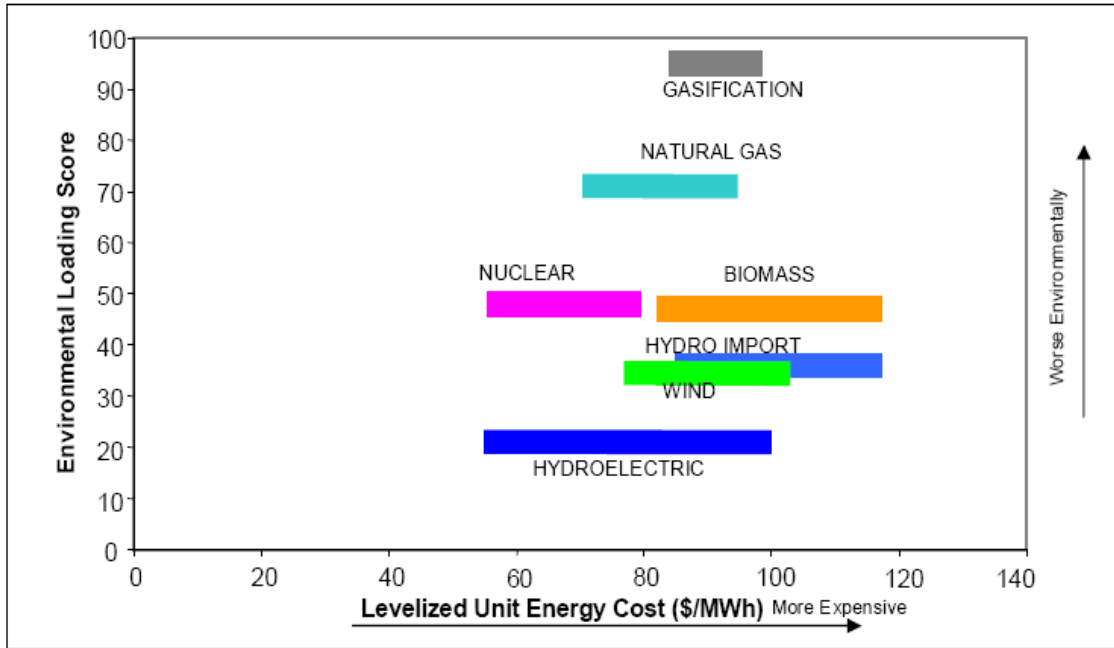
- It is needed as a safe, competitive, clean-air, baseload option in Canada and other nations.
- It will earn a commercial return on investment and payback on the government's investment.
- ACR is the most cost-effective, large-scale technology for reducing GHG emissions from the power sector and in the oil sands to meet emission targets.
- Domestic Canadian energy technology, industry jobs and investment stay in Canada and are not exported to other nations.
- ACR technology is fully supported by a comprehensive CANDU infrastructure, already present in Canada.
- ACR as a premier export product will create and sustain thousands of high-knowledge, skilled jobs in Canada's strategic nuclear and power industries.



Ontario’s energy gap is predicted to begin opening up significantly in the period 2013-2016. AECL’s planned approach to new build in Ontario envisions the first ACR-1000 going in to service in 2016. The ACR-1000 development program is planned to enable a first project start to achieve this goal. An Enhanced CANDU 6 Project remains an option to in-fill the energy gap, for in-service in 2013/14, if necessary.

The table below illustrates the OPA’s assessment of both the environmental impacts and cost ranges of the energy supply options for Ontario; indicating the advantages of the nuclear option.

**Figure 1.2.11: Combined Environmental Impacts and Cost Ranges – Base Load**



Source: OPA, CERI and SENES; Note: Levelized Cost based on 11% discount rate.

AECL launched a comprehensive marketing program in order to have Ontario embrace our solution model. AECL will also lead the Canadian nuclear suppliers, major industrial power users and other stakeholders to engage the necessary public and private decision makers to advance the new build process.

**CANDU 6**

As noted the CANDU 6 is available for deployment in Ontario. Environmental assessment and CNSC licensing processes would determine the critical path for achieving an early in-service date. Internationally, potential opportunities for new builds exist in Romania and China. In Romania, with the Cernavoda Unit 2 project underway, the infrastructure for additional units is in place and the economic benefits to Romania from nuclear power are proven. A joint venture project company and the Romanian nuclear utility SNN will undertake completion of Unit 3. AECL will be one of the members of the project company. The success of AECL’s Qinshan project (twin CANDU 6’s) has confirmed that the Chinese decision to proceed with the CANDU was the correct one. While China is currently focused on its advanced PWR program, the high demand for energy maintains this market as a major opportunity and AECL and Canada continue to push hard in China for a replication project to build two additional CANDU 6 reactors. Development of the ACR-1000 is a key driver to maintaining the CANDU profile in China.

**5.3 Continue the uninterrupted supply of isotopes and develop the business**

At present, medical and industrial isotope targets are irradiated in the NRU Reactor at Chalk River and processed by MDS Nordion Inc in Kanata, Ontario. These activities represent a significant health benefit provided from the Canadian nuclear platform, and a significant contribution to the Canadian and international nuclear medicine business. Molybdenum-99 produced in NRU represents approximately 60% of the world supply, and is used in 34,000 diagnostic medical procedures per day worldwide.

Further, over twelve million cancer treatments are delivered with MDS Nordion's cobalt teletherapy units each year. Since virtually all of the Cobalt-60 used by MDS Nordion is produced in NRU, this translates to about 33,000 treatments per day around the world.

The near term focus of the Isotope Services business is to maintain supply and support a sufficiently gradual transition to new facilities. AECL has designed and constructed at the Chalk River site the Dedicated Isotope Facility (DIF), which comprises two MAPLE reactors and a New Processing Facility (NPF). DIF will be dedicated to isotope production and will be operated by AECL. In the interim, achieving the NRU licence extension will be critical to continue with the uninterrupted supply of isotopes.

DIF is a "one-of-a-kind" unique project. The two MAPLE reactors are the very first reactors designed solely to produce isotopes, and therefore different computer codes and design parameters, for example, were required to be developed rather than to use those proven for the commercial power reactor design. Due to the requirement for a compressed schedule, design and construction proceeded on parallel paths, hence a number of design changes necessitated equipment and construction re-work. In addition, in the middle of the project an entirely new regulatory regime was brought into effect with the creation of the new CNSC and laws, requiring further additional work. As a consequence, the original budgetary estimate and nominal schedule have been surpassed. AECL and MDS Nordion have undertaken voluntary mediation, to which the Shareholder was an observer. The mediation has been successfully completed. The Agreement calls for the MAPLE 1 reactor and the Nuclear Processing Facilities to be operating by October 31 2008, with the supply of nine production batches of isotopes for product acceptance testing, and for the backup reactor, MAPLE 2, to be in production by Oct. 31, 2009.

**5.4 Strengthen the Product and Services Portfolio by developing, and selling value added CANDU products and services**

The nuclear products and services business line ranges from the supply of scientific and engineering analysis, through to the manufacture, testing and assembly of nuclear equipment. Through focusing on its core CANDU skills and technologies and leveraging partners with other major suppliers AECL will strengthen its position in the services market place. Assuming achievement of a greater portion of the domestic reactor services business, AECL's objective is to achieve a substantial increase in the services' revenue. This growth will be accomplished by strategic partnerships, developing innovative products, offering contracts that include incentives on a risk-reward basis and developing new strategic alliances to promote next generation technology.



AECL is actively pursuing these business opportunities, which are a natural expansion of its current business lines. AECL will exploit the synergies between the commercial development of CANDU features for future new build projects, and the ability to offer these features to existing operating units. The Canadian utilities also actively support AECL's participation with private sector firms. Partnering with AECL provides a new business model and approach for the delivery of services. For example, AECL, in conjunction with Babcock and Wilcox, has in place agreements for the design and supply of feeder replacement tooling for Bruce Power and OPG.

It is essential that AECL participate in these emerging business opportunities to ensure long-term continuity and security of supply of the highly technical expertise and technology required for the successful management of the nuclear infrastructure and the growth of AECL's revenue base.

### **5.5 Focus on delivering Quality Processes to improve Customer Satisfaction**

Key to meeting AECL's sales and earnings targets is customer satisfaction. Fundamental change in AECL's culture is underway to achieve improvements in customer satisfaction and improve AECL's delivery process. A root cause analysis of key areas has been completed and initiatives in leadership, communications, quality, operations planning, project management, union relations, and performance management have been launched. In addition training programs have been launched to sensitize employees to become customer oriented.

### **5.6 Broaden capabilities through recruitment, outsourcing and partnerships and strategic acquisitions**

To deliver on its sale commitments requires aggressive succession planning tailored to meet aging demographics, hiring to meet staffing for the multiple anticipated projects, and partnering with companies to expand our capability base. AECL has identified its key resources and is implementing training and hiring programs for key technical, commercial and project management functions. AECL will also work with partners in developing an integrated view of the resource requirements over the near and medium term. From this work, a comprehensive plan will be implemented under AECL leadership.

Relationships and agreements with large global companies, notably SNC, GE, Hitachi, and Babcock and Wilcox are in place to enable AECL to meet customers' demands and compete in an effective manner.





## 6. OBJECTIVE 2: DEMONSTRATE VIGILANCE AND LEADERSHIP IN HEALTH, SAFETY, THE ENVIRONMENT AND OPERATIONAL EXCELLENCE

To achieve its potential to be an industry leader, AECL's objective is to position itself as a global leader in environmental and health-related technologies and site operations. AECL is committed to managing the nuclear platform on behalf of the Government of Canada in an effective and efficient manner to meet regulatory, environmental, and technical program requirements. The nuclear platform comprises the research and development and related infrastructure, plus the management of nuclear waste and decommissioning obligations. The health and safety of our employees, the communities we conduct business in and the safety of our products is paramount. Strategies are developed and deployed to ensure the operations at all AECL facilities are conducted to meet and exceed the standards required by regulations.

The strategies to achieve this objective are outlined in the table below.

<p><b>Five Year Strategies</b></p> <ul style="list-style-type: none"> <li>➤ Encourage, communicate and lead a safety culture</li> <li>➤ Achieve operational excellence by exceeding environmental policy and regulations</li> <li>➤ Achieve NRU and Chalk River licence extensions</li> <li>➤ Demonstrate value and cost effectiveness of NLBU programs and activities</li> <li>➤ Obtain sustainable funding for the refurbishment of the CRL nuclear laboratories and support NRC in the refurbishment or replacement of NRU</li> <li>➤ Demonstrate progress and value in the delivery of the Waste Management and Decommissioning Program</li> </ul>
<p><b>Priority Projects</b></p> <ul style="list-style-type: none"> <li>➤ Renewing the Chalk River site operating licence including operation of the NRU research and isotope production reactor</li> <li>➤ Ensuring the uninterrupted supply of isotopes</li> <li>➤ Implementing the Comprehensive Waste Management and Decommissioning Plan for AECL's nuclear sites</li> <li>➤ Obtaining the necessary funding to begin re-investment in the national nuclear laboratory at Chalk River, and supporting NRC in the provision of a nuclear research reactor for the next 30 years</li> </ul>

### 6.1 Encourage, communicate and lead a safety culture

AECL is committed to providing a safe and healthy work environment throughout all activities at all levels of the organization. Key program activities include use of safe work practices, management safety reviews of projects, activities and tasks, safety training and safety meetings, use of personal protective equipment, workplace inspections, accident/incident investigations identification, and monitoring and control of hazards and use of event-free tools in operations. These initiatives promote the importance of a safety culture as the basis of operational excellence, enhancing safety and reducing the occurrence of unplanned events at AECL.



## **6.2 Achieve operational excellence by exceeding environmental policy and regulations**

AECL's Environmental Protection Program has proven to be effective in continuing to reduce emissions and protect the environment from activities at AECL's sites in Canada. By enhancing the existing program to the ISO 14001 Environmental Management System standard and achieving ISO-14001 Registration at CRL in 2004, AECL commits itself to continual improvement, including improved identification, assessment and management of the potentially significant radiological and non-radiological environmental aspects associated with AECL's sites in Canada. AECL upgraded its certification to ISO 14001: 2004 standard in 2005/06. Additionally, AECL has achieved ISO-9001 certification for Management Systems Standard, and the ACR-1000 program has sub-certification under ISO-9001.

AECL is committed to providing assurance to its many stakeholders that it will address both its regulated and non-regulated environmental concerns, including those associated with current operations and its historical liabilities. There will be an open and honest communication with the public on environmental performance and related issues.

## **6.3 Achieve NRU and Chalk River Licence Extensions**

The NRU Reactor at Chalk River Laboratories is one of the largest and most versatile research reactors in the world. Operation of NRU over the period of the corporate plan (and beyond) is required for AECL to continue to advance the CANDU technology. NRU is required for demonstration irradiation tests of ACR fuel and fuel channel components until at least 2012. In addition the transition from NRU production to production in the new MAPLE facilities will need to be gradual to ensure reliability of operation before ceasing production in NRU, and as a result, the NRU will be required for isotope production until at least 2009. This major facility will also continue to produce other medical isotopes including Cobalt 60, which will not be produced in the new DIF.

AECL has received an extension of the NRU Licence to July 2006 to coincide with the Chalk River Site Licence. An extensive program has been in place to address CNSC requirements to enable both licenses to be renewed in the first year of the plan.

## **6.4 Demonstrate value and cost effectiveness of NLBU Programs and Activities**

AECL's base appropriations have been frozen since 1996 and its ability to meet nuclear platform requirements from current appropriations, even when augmented by earned revenues and profits from commercial sales, has eroded. On-going initiatives continue to seek reductions in overhead costs and increase recoveries for services provided. To achieve overall efficiency in managing and integrating the platform programs, management will focus on optimizing space utilization, site revitalization, and disposal of surplus properties where feasible.

The operation of nuclear facilities and the handling of nuclear materials for research programs require the operation of CRL to fall under the *Nuclear Safety and Control Act* and the regulatory jurisdiction of the Canadian Nuclear Safety Commission (CNSC). Increasing regulatory requirements, including those for security and for the operation of aging nuclear facility



infrastructure continue to increase pressure on the nuclear platform-funding base. Rising energy costs, grants in lieu of taxes to municipalities, and increased charges from the CNSC for site and nuclear facility licensing, are examples of escalating non-discretionary expenditures that AECL incurs.

### **6.5 Obtain sustainable funding for the refurbishment of the CRL nuclear laboratories**

The planned costs for the Nuclear Laboratories Business Unit is \$340 million in 2006/07. Approximately one-half of these costs are funded through government appropriations. The remainder is provided through commercial work, sale of isotopes, third party funding for research, and dividends from the profits generated by the sale of CANDU products and services. The proportion of funding from Commercial Operations has increased over the past ten years to meet requirements while appropriations have decreased in terms of real dollars. Furthermore, AECL has commissioned several studies by independent organizations of the operations of Chalk River that concluded that there is no opportunity for further operational reductions, and that in order to achieve any further efficiency, investment in the infrastructure is required to consolidate buildings and improve operations as compared to the existing 1940's wooden barracks-style infrastructure and utility services.

Since 1997, AECL has been able to continue operating the Nuclear Laboratories at its Chalk River site by eliminating programs, deferring maintenance on facilities, reducing headcount, outsourcing non-core activities, increasing emphasis on commercial activity and implementing process improvements to reduce operating costs. In 2006, NRCan expects to review the nuclear laboratory including the issue of funding requirements. Increased investment is equally necessary to permit us to continue to achieve excellence in our R&D and operational activities.

In parallel, an analysis has been undertaken, led by NRC, of options for the longer-term provision of research reactor capability at CRL. The options include a new multi-purpose research reactor, a major refurbishment of NRU to last until about 2050, and a combination of a new special purpose reactor for NRC neutron scattering and use of offshore facilities by AECL. Scientists from the National Research Council (NRC) and as many as 100 institutions conduct neutron measurements using the neutron beam facilities at NRU.

### **6.6 Demonstrate progress and value in the delivery of the Waste Management and Decommissioning Program**

Liabilities at AECL sites have arisen from a wide variety of sources, including wartime activities, wastes received from universities, medical facilities, government and industry from across Canada, and a variety of R&D programs carried out in support of Canada's nuclear power program.

Until a long-term solution for legacy nuclear wastes on sites managed by AECL is fully implemented, the nuclear legacy liabilities require continuous monitoring, assessment and management. AECL continues to provide on-going responsible management of these liabilities and also manages the majority of the off-site historic waste for which the Government of Canada has ultimate responsibility.



In March 2005, AECL submitted a draft Comprehensive Preliminary Decommissioning Plan (CPDP) to the CNSC. The CPDP presents the strategy, scope, planning assumptions, and schedule as they apply to the Waste Management and Decommissioning of the Chalk River facilities. The document represents a conceptual technical strategy for managing the nuclear legacies and is consistent with modern international standards and practices; ensures the health, safety and security of the public and employees, protects the environment; and addresses regulatory requirements and expectations.

In concert with Natural Resources Canada, AECL has developed a more aggressive and optimized waste management and decommissioning plan for all AECL sites. The accelerated plan reduces the timeframe for decommissioning to 70 years from the previous plan of 100 years. The plan has been costed and has received scrutiny by CNSC staff, the Office of the Auditor General (and associated third-party consultants). As a result of the change in approach and, particularly due to the acceleration on timing and additional waste management facility costs, AECL and the Government of Canada have each recognized a one-time increase in the legacy liability from \$431 million to \$2,750 million in discounted dollars.

With the formal recognition of the liability, AECL established the Liability Management Unit (LMU) as a separate financial reporting centre within the Technology Business unit. Its mandate is to direct the technical program and manage the funds provided by the Government of Canada (GOC) to cost effectively reduce the federal “legacy” nuclear liabilities at AECL sites. The LMU will provide the oversight in the delivery of the waste management and decommissioning program in an arm’s length and cost effective manner. The LMU facilitates greater transparency in financial reporting and accountability for program objectives in accordance with good governance.



## 7. OBJECTIVE 3: LEAD TECHNOLOGY DEVELOPMENT AND APPLICATION TO CONTINUOUSLY IMPROVE CANDU LIFE-CYCLE PERFORMANCE

AECL ensures that its skills and facilities support the design and licensing basis for domestic and international customers over the life span of all CANDU reactors – up to 2044 for China’s Qinshan Unit 2 for example. This is the type of R&D that is performed in national government funded nuclear laboratories in other countries, and not by nuclear vendors who focus strictly on commercial and applied development work that leads directly to products and services. AECL is unique as it fulfills both the national laboratory function and the reactor vendor role. This integrated capability ensures a more effective transfer of technology from the platform to commercial products and services. The leveraging and on-going investment in the nuclear platform advances the capability to perform research and development while providing the ability to address public policy requirements.

The strategies to achieve this objective are outlined in the table below.

<p><b>Five Year Strategies</b></p> <ul style="list-style-type: none"> <li>➤ Ensure that the technology base will address Safety, Licensing and Design Basis requirements of the CANDU fleet</li> <li>➤ Attract and retain key resources to advance capability</li> <li>➤ Focus on technology development and commercialization to improve customer value</li> </ul>
<p><b>Priority Projects</b></p> <ul style="list-style-type: none"> <li>➤ Developing the ACR to meet customer requirements</li> <li>➤ Reinvestment in the nuclear infrastructure including knowledge management</li> </ul>

### 7.1 Ensure the Technology Base addresses Safety, Licensing and Design Basis Requirements of the CANDU Fleet

The nuclear platform research and development program covers those areas of nuclear R&D that impact on the radiological safety of the public, nuclear facility workers, and the environment, and that sustain the generic understanding for the peaceful application of nuclear technology. In particular, it involves the maintenance of the intellectual property that has been developed over a period of sixty years covering basic knowledge of: materials, reactor physics, chemistry, critical components, radiation, and the environment; that could have an impact on the safety, licensing and design basis of CANDU technology. The R&D program is organized around the following five main functional programs:

**Generic Safety Research** - Define the behaviour of CANDU and MAPLE reactors under off-normal conditions and the subsequent technologies necessary to mitigate the potential consequences of these conditions, support existing designs and enhance safety in new designs.

**Reactor Core Technology** - Reactor and radiation physics technologies and new fuel options for CANDU and MAPLE



The Molten Fuel Moderator Injection Program investigates the potential impact of a severe accident scenario.



reactors to support competitive operation and future designs.

**Fuel Channels** - Materials science research that allows for an understanding of fuel channel behaviour with respect to material and operating variables, and the tools and methodologies for design, manufacturing, installation, monitoring and predicting performance, and development of improved fuel channel designs.

**Reactor Chemistry and Systems** - Reactor chemistry and reactor material behaviour technologies that are necessary to ensure continued safe, reliable and cost-effective CANDU operation and mitigate the effects of plant ageing.

**Other Nuclear Research** – A range of activities that are an integral part of supporting CANDU plant design and operations and nuclear technology in general, including plant information and control, data communications and improved work processes, environmental protection, radiation monitoring and dosimetry, heavy water technology and exploitation for the hydrogen economy, and next-generation reactor concepts.

In the longer term, as evidenced by the formation of the Generation IV initiative by the ten leading industrial nations, including Canada, plus the European Union, AECL will co-operate in the development of the technology for nuclear generation that will replace the ACR thirty years in the future. AECL already has in place cooperative Generation IV R&D with the US, under the International Nuclear Energy Research Initiative umbrella. Nuclear energy is strongly linked with the hydrogen economy and is also a viable steam supply option for oil sands extraction, both unique opportunities for Canada.

## **7.2 Attract and retain key R&D resources to advance capability**

A significant risk to achieving the underlying R&D objectives relates to the fact that singleton experts exist in several technology areas. Major areas identified were within Reactor Safety, Reactor Chemistry and Systems and Control and Instrumentation. Review of current staff demographics shows an aging workforce with many disciplines facing loss of expertise through natural attrition. Renewed attention to hiring and succession planning will be the strategic focus to bridge these gaps in resource capability. New staff will be hired in key core technology areas and mentored by senior experts before they retire to maintain an acceptable level of expertise. Management plans will also continue to use university collaboration agreements in addressing this situation including participation with partners in programs such as the Universities Network for Excellence in Nuclear Engineering.

## **7.3 Focus on technology development and commercialization to improve customer value**

Current and emerging issues affecting the operation of CANDU stations are often addressed through the development of new technology. The Nuclear Platform takes responsibility for the development to the “proof-in-principle” pre-commercial stage. This technology development supports the qualification of new commercial products and services in support of revenue growth targets. This technology development is also leveraged to support and qualify many key technologies in the ACR.



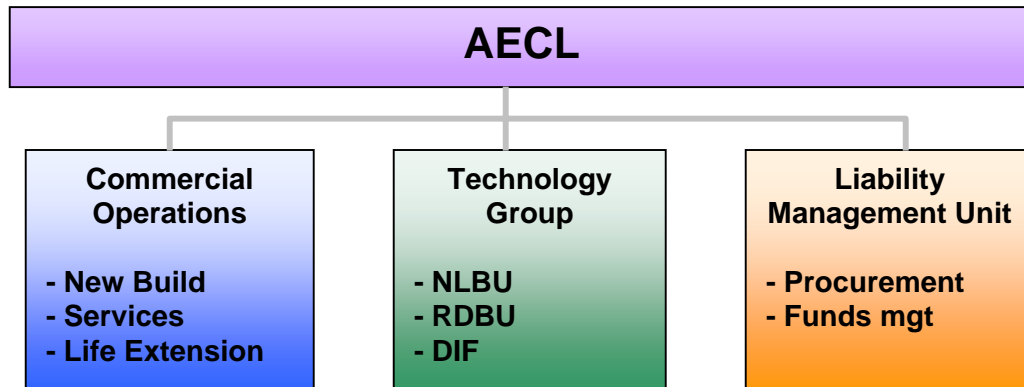
The strategic initiatives over the plan period are focused on:

- Ensuring existing CANDUs operate at world-class levels of safety, reliability and competitiveness for continued operation and life extension.
- Developing advanced pre-commercial CANDU technology to meet emerging market needs.
- Leveraging existing intellectual property to specifically cover the new design concepts in the ACR-1000.



## 8. FINANCIAL PLAN

This financial plan has been prepared to illustrate the corporation's plan including the funding requirements for the Waste Management and Decommissioning program, the ACR Program, and one year of the health and safety capital refurbishment requirements for the Chalk River site. It has been included to detail the full scope of the business on a going-concern basis.



The analysis of Corporate Plan financials is divided into the three business segments comprising AECL, namely, Commercial Operations Group, Technology Group and Liability Management Unit. Each segment is accounted for separately and reported on separately in the company's annual report.

The **Commercial Operations Group** is responsible for two lines of business, Projects and Services. Projects include new-build and refurbishment projects, together with related project management services, equipment procurement and sale of heavy water. Services business includes a full line of engineering and technical products and services that support operating CANDU plants and improve customer productivity and competitiveness.

The **Technology Group** develops new reactor technology and supports safety, licensing and the design basis for the life cycle of the CANDU product set and other Canadian nuclear technology. The group also manufactures and sells medical isotopes, constructs isotope production facilities and provides waste management and decommissioning operations.

The **Liability Management Unit (LMU)** manages the waste management and decommissioning programs and oversees funding received from the Government of Canada for the program. This liability has arisen from a wide variety of sources, including activities before AECL was incorporated, wastes received from universities, medical facilities, government and industry from across Canada, and R&D in support of Canada's nuclear power program. In addition, the LMU operates the Low-Level Radioactive Waste Management Office on a cost-recovery arrangement with Natural Resources Canada.





<b>Five-year Funding Profile</b>		\$ Millions
<b>Cash Flow by Division</b>		
<b>Commercial Operations</b>		
Commercial		580
Heavy Water proceeds paid to Shareholder		-125
		<u>455</u>
<b>Technology Group</b>		
Net Cash Flow before Funding		-1,064
Reference Level Funding		519
		<u>-545</u>
<b>LMU</b>		
Net Cash Flow before Funding		-441
Decommissioning Funding		513
		<u>72</u>
<b>Net Cash Flow</b>		<u><u>-19</u></u>

The profits from the Commercial Operations group help fund the Technology group and the positive cash flow from LMU arises from the payments from NLBU for the costs associated with the long term waste management of new waste both of which contribute to the overall small net use of cash over the next five years.

### 1.1 Commercial Operations Group

The Commercial Operations growth is based on the growing refurbishment market, the appetite for new reactor builds in Ontario and potentially China and Romania, and the growing Services business.

<b>Commercial Operations Group Income Statement</b>						
\$ Millions	FCST	PLAN				
	05/06	06/07	07/08	08/09	09/10	10/11
Revenue External	316	532	768	705	819	660
Revenue Internal	6	1	0	0	0	0
EBIT	37	56	122	103	125	61

Commercial Operations forecasts a robust revenue base in the refurbishment market. The recent contract awards in New Brunswick and Ontario have validated AECL's strategy in this area. The South Korean government has indicated a strong desire to refurbish Wolsong 1, and it is expected that this contract could be finalized in the later part of 2006/07. It is also anticipated



that Gentilly 2, Quebec, Bruce Power 3, Ontario and the Embalse, Argentina reactors will also be refurbished and these opportunities are included in years two through four of the plan.

The Cernavoda 2 project will be successfully completed in year two of the plan. With the increasing worldwide demand for power AECL has forecast the sale of a pair of CANDU 6s by 2008/09 in Ontario, China or Romania. During the Plan period AECL forecasts spending \$36 million on enhancing the product capability of the CANDU 6. The CANDU services business is expected to grow over the plan period at an annual compound rate of 15% reflecting increased penetration into the services market due to improved delivery and execution of products and services offerings. The increased refurbishment market and the services related work that will be attracted by the CANDU Services Business Unit support this growth in Services.

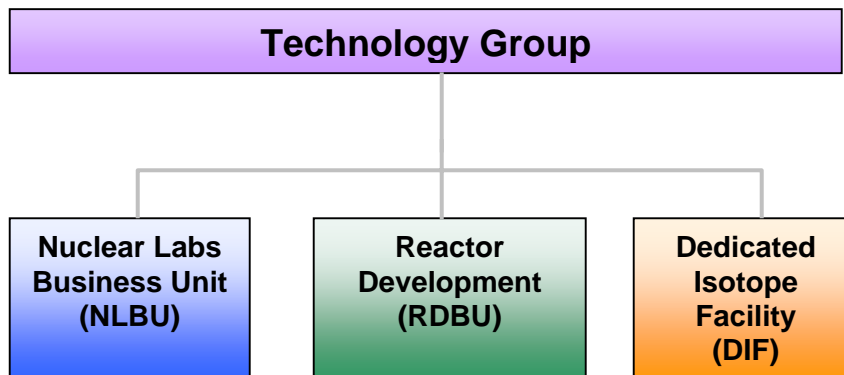
Commercial Operations Cash Flow	PLAN				
	06/07	07/08	08/09	09/10	10/11
\$ Millions					
EBIT	56	122	103	125	61
Add interest	1	-	-	-	-
Add back amortization	3	2	2	2	2
Cash from Operations	60	124	105	127	63
Change in Current Assets	(5)	(7)	(9)	(28)	(0)
Change in Current Liabilities	105	(33)	27	(17)	(32)
<b>Change in Working Capital</b>	<b>100</b>	<b>(40)</b>	<b>18</b>	<b>(45)</b>	<b>(32)</b>
Investment in Fixed Assets	(1)	(1)	(1)	(1)	(1)
Cash from Long Term Receivables	31	30	30	30	30
Change in Long Term Liabilities	(40)	(29)	(37)	(24)	(39)
	(10)	(1)	(9)	4	(11)
<b>Cash Flow before Dividends &amp; Loans</b>	<b>149</b>	<b>84</b>	<b>115</b>	<b>87</b>	<b>20</b>
Less Dividends	(57)	(83)	(71)	(54)	(20)
Less Loans Receivable from Technology Group	(155)	(10)	(10)	(11)	(54)
<b>Net Cash Flow</b>	<b>(63)</b>	<b>(10)</b>	<b>34</b>	<b>22</b>	<b>(54)</b>



<b>Balance Sheet - Commercial Operations</b>						
\$ Millions	Fcst	PLAN				
	2006	2007	2008	2009	2010	2011
	MARCH	MARCH	MARCH	MARCH	MARCH	MARCH
<b><u>Assets</u></b>						
Cash & ST Investments	82	19	9	43	65	11
Accounts Receivable	29	35	41	50	77	76
Long Term Receivables	355	324	295	265	236	206
Loan Receivable from Technology Group	9	164	174	185	195	249
Heavy Water Inventory	299	299	299	299	299	299
Inventory	3	2	3	3	4	4
Prepaid Expenses	1	1	1	1	1	1
Fixed Assets (Net)	9	7	7	6	4	3
	787	852	828	851	881	851
<b><u>Liabilities</u></b>						
Accounts Payable & Accrued Liabilities	(32)	(68)	(88)	(90)	(93)	(82)
Provisions	(1)	(0)	(0)	(0)	(0)	(0)
Customer Advances	(160)	(229)	(176)	(201)	(181)	(161)
Deferred Revenue	(98)	(84)	(80)	(67)	(68)	(52)
Other Government Loans	(3)	(2)	(1)	-	-	-
Employee Future Benefits	(19)	(19)	(19)	(20)	(21)	(22)
	(312)	(402)	(364)	(379)	(363)	(316)
<b><u>Equity</u></b>						
Capital Stock	(5)	(5)	(5)	(5)	(5)	(5)
Dividends	124	181	264	335	389	409
Contributed Capital	(74)	(49)	(25)	(0)	24	49
Deficit	(519)	(577)	(699)	(802)	(927)	(987)
	(787)	(852)	(828)	(851)	(881)	(851)
<b>Cash Flow before Loans &amp; Dividends</b>		<b>149</b>	<b>84</b>	<b>115</b>	<b>87</b>	<b>20</b>
<b>Loans &amp; Dividends</b>		<b>(213)</b>	<b>(93)</b>	<b>(81)</b>	<b>(65)</b>	<b>(74)</b>
<b>Cash Flow after Loans &amp; Dividends</b>		<b>(63)</b>	<b>(10)</b>	<b>34</b>	<b>22</b>	<b>(54)</b>



## 1.2 Technology Group



The Technology Group develops new reactor technology and supports the safety, licensing and design for the life cycle of the CANDU product set and other Canadian nuclear technology. Funding for this group comes from the Government of Canada, as well as from revenues earned from the commercial activities of the Nuclear Laboratories Business Unit (NLBU) and from dividends paid from Commercial Operations. The Technology Group is closely linked to the Commercial Operations and Liability Management (LMU) Groups and supports project delivery activity and new product development, and is paid, based upon arm's length transfer prices, by Commercial Operations and LMU for the work performed.

### **Technology Group – Reactor Development Business Unit (RDBU)**

The primary activity of the RDBU is the development, licensing and pre-project management of the ACR. It is also responsible for maintaining the design and addressing new requirements for the CANDU 6.

The ACR business case reflects the basis for proceeding with the investment in the ACR program, leading to the project to develop and construct the first ACR-1000 reactor. The financial Business Case is based on the six ACR-1000 units in Ontario over the next 20 years, with the first sale of an ACR twin unit expected in year 5 of the Plan.

The Government of Canada has provided \$145 million in funding for the ACR development program since 2002. NRCAN will be addressing the funding requirement to complete the program in the first year of the plan.

AECL believes that the ACR is an integral part of the commercial success of the corporation in the future. However, as the Plan can only reflect approved funding, the program costs are only reflected in the first year of the plan.

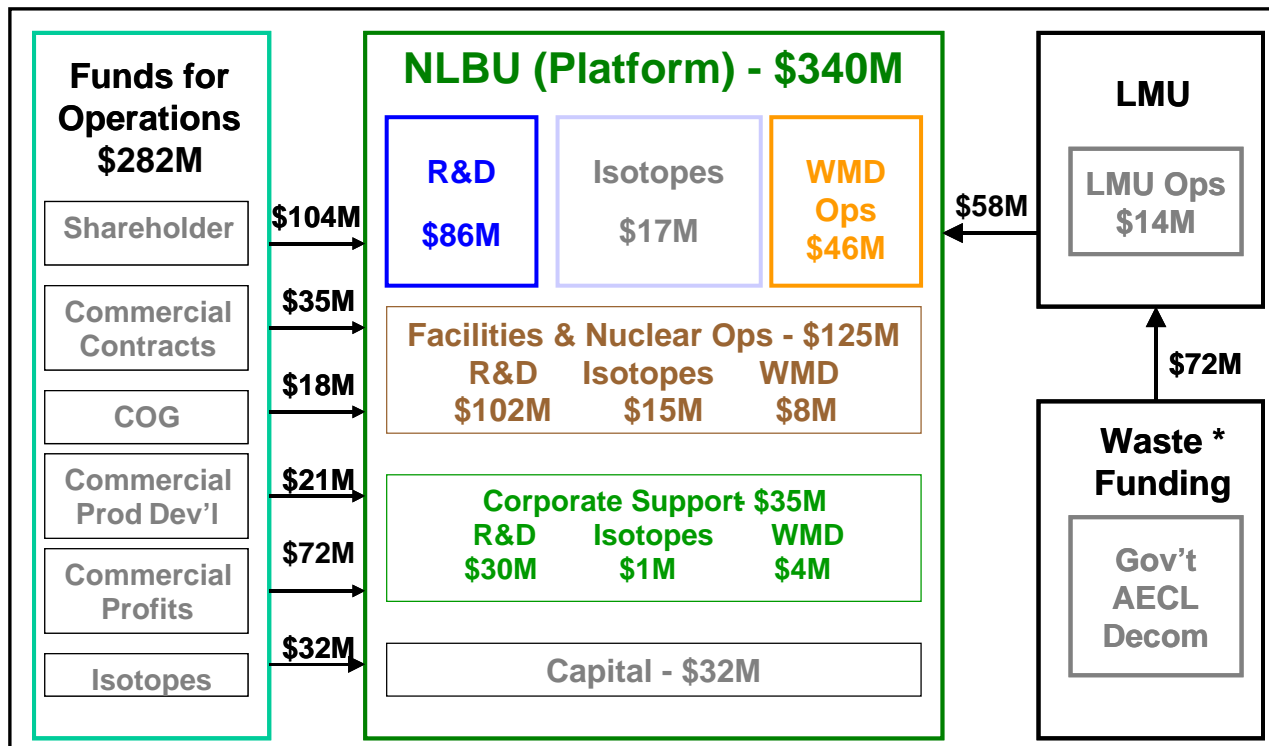
### **Technology Group - Dedicated Isotope Facility (DIF)**

The DIF project encompasses all of the activities required to bring the two MAPLE reactors (M1/M2) and New Processing Facility (NPF) into commercial production. The Plan assumes MAPLE 1 and the New Processing Facility will be operational by October 2008 with the second MAPLE reactor coming into operations in the fall of 2009.



These facilities were constructed under the terms of the “Isotope Production Facilities Agreement” (IPFA) entered into with MDS Nordion in 1996. To address contractual disputes that have arisen between the parties, a confidential mediation process was undertaken that resulted in returns superior to the expected cost of litigation. The revised agreement results in a significant change in the business and financial relationship between AECL and MDS Nordion. AECL now retains ownership of the facilities and will receive a revenue share for the isotopes produced, whereas the previous contract had AECL receive payment for operating the facilities. While AECL shares in the market risk, it also benefits from the growth in the market.

### Technology Group - Nuclear Laboratories Business Unit (NLBU)



The chart above illustrates the cost of operating the NLBU platform and the funding sources used to maintain its operations.

The Nuclear Laboratories Business Unit operates several lines of business which are funded from different sources:

#### Research & Development - (\$251 million including capital)

- Safety Licensing and Design Research – (\$104 million Government Funding)
- Commercial contracts mainly as a sub-contractor to Commercial Operations - (\$35 million)
- Directed R&D work for CANDU Owners' Group (COG) - (\$18 million)
- Product & Services Development - (\$21 million)
- Supplementary cash from Commercial Operations – (\$72 million)



The Safety Licensing and Design research performed by NLBU is partially paid for by appropriations from the Government of Canada, the residue is subsidized by commercial profits.

### Isotope Production – (\$32 million)

Isotopes will continue to be produced in the NRU reactor until 2008/09 at which time production will transfer to MAPLE with processing being carried out in the New Processing Facility. (It is expected that DIF would then be folded into NLBU). Market analysis indicates isotope revenue growth of 7-10% annually can be expected. Following MAPLE start-up, the NRU reactor will continue producing long-lived isotopes and providing the facilities for neutron and irradiation R&D.

### Waste Management & Decommissioning Operations – (\$58 million)

The Liability Management Unit (LMU) contracts with NLBU to perform waste management and decommissioning work. This work is expected to generate \$58 million of interdivision revenue in 2006/07, growing to \$106 million by year 5, for a total of \$470 million over 5 years. This work is carried out on a cost recovery basis including facility and support charges, which will contribute approximately \$90 million over 5 years to offset NLBU's cost of facilities, space and nuclear operations support programs.

### NLBU Additional Requirements

Investment by the Government of Canada beyond the base funding amount is needed to ensure that the Nuclear Platform remains a strong contributor to Canada's successful use of nuclear technology and that site operations are compliant with current regulations ensuring that the health and safety of employees, the public and the environment are retained. These requirements have not been included in the financial statements of this plan but have been identified as important activities. Failure to incur these investments could result in increased risks regarding the occurrence of accidents or health, safety, security or environmental violations. AECL and NRCAN will present a plan outlining the capital investment and increased funding levels required to meet these minimum health, safety, security and environment standards.

#### TECHNOLOGY GROUP CONSOLIDATED INCOME

\$ Millions	FCST	PLAN				
	05/06	06/07	07/08	08/09	09/10	10/11
Revenue External	72	56	55	60	72	75
Revenue Internal:						
Comm Ops	24	29	29	31	35	44
LMU	48	63	106	119	89	111
Total Revenue	143	148	189	211	197	231
Funding	159	104	104	104	104	104
EBIT	19	(123)	(58)	(70)	(70)	(61)





### 1.3 Liability Management Unit (LMU)

LMU was created, within AECL, as a planning and procurement office to manage AECL's nuclear waste and decommissioning activities safely and efficiently, to provide independent arm's length management, and to improve transparency in the use and accounting of funds. Also, now within LMU, the LLRWMO also provides expertise to manage projects that address Canada's historic liabilities, such as Port Hope.

<b>LMU Income Statement</b>						
\$ Millions	FCST	PLAN				
	05/06	06/07	07/08	08/09	09/10	10/11
External Revenue (LLRWMO)	7	7	3	1	1	1
Internal Revenue (NLBU)	-	5	6	6	3	3
Funding	49	65	110	124	96	118
Expenses	56	77	119	130	100	122
EBIT	0	(0)	0	0	(0)	(0)
Accretion	96	84	43	31	61	42
Net Income	(96)	(84)	(43)	(31)	(61)	(42)

<b>LMU Cash Flow</b>					
\$ Millions	PLAN				
	06/07	07/08	08/09	09/10	10/11
EBIT	-	(0)	0	(0)	(0)
Add back amortization	-	1	1	1	1
Cash from Operations	-	1	1	1	1
Change in Current Assets	1	-	-	-	-
Change in Current Liabilities	2	2	2	5	5
<b>Change in Working Capital</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>5</b>
Investment in Fixed Assets	(6)	(2)	(6)	(9)	(2)
Change in Long Term Assets	(1)	(1)	(1)	(1)	(1)
Change in Long Term Liabilities	11	11	20	21	14
	5	9	13	12	12
<b>Cash Flow before Dividends &amp; Loans</b>	<b>8</b>	<b>12</b>	<b>16</b>	<b>17</b>	<b>17</b>
Less payments from Technology Group	1	(2)	(6)	(7)	(6)
Plus Loans Payable to Commercial Operations	-	-	-	-	-
<b>Net Cash Flow</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>11</b>





In March 2005, based on a revised waste management and decommissioning strategy developed jointly with NRCan, AECL increased its recorded liability for future waste management and decommissioning costs from \$431 million to \$2,750 million. The revised strategy reflects an accelerated approach to remediation of the legacy liability at AECL sites. This approach, consistent with recent international practice, has been reviewed by CNSC. The plan calls for execution of all activities over a 70-year period, versus 100 years previously, and includes necessary enabling facilities to process and dispose of resulting wastes. In addition, disposal occurs earlier in the process. The net present value of expenditures associated with the strategy is \$2.8 billion.

<b>Balance Sheet - Liability Management Unit</b>						
\$ Millions	Fcst	PLAN				
	2006	2007	2008	2009	2010	2011
	MARCH	MARCH	MARCH	MARCH	MARCH	MARCH
<b><u>Assets</u></b>						
Cash & ST Investments	0	-	-	-	-	-
Segregated Funds	9	18	28	39	50	61
	9	18	28	39	50	61
Trust Fund	17	18	19	19	20	20
Accounts Receivable	1	-	-	-	-	-
Receivable from Technology Group	3	2	4	10	17	22
Fixed Assets (Net)	-	6	6	11	19	20
	31	44	57	79	105	123
<b><u>Liabilities</u></b>						
Accounts Payable & Accrued Liabilities	(1)	(1)	(1)	(1)	(1)	(1)
Deferred Waste Funding	(3)	(6)	(8)	(10)	(15)	(19)
Customer Advances	(1)	-	-	-	-	-
Waste Management, Decomm & Site Remediation	(2,854)	(2,947)	(2,999)	(3,048)	(3,126)	(3,178)
Employee Future Benefits	(1)	(1)	(1)	(1)	(1)	(1)
	(2,859)	(2,954)	(3,008)	(3,060)	(3,142)	(3,198)
<b><u>Equity</u></b>						
Capital Stock	(5)	(5)	(5)	(5)	(5)	(5)
Contributed Capital	(14)	(14)	(14)	(14)	(14)	(14)
Deficit	2,848	2,929	2,970	3,000	3,056	3,094
	(31)	(44)	(57)	(79)	(105)	(123)
<i>Cash Flow before Loans</i>		<b>8</b>	<b>12</b>	<b>16</b>	<b>17</b>	<b>17</b>
Loans		1	(2)	(6)	(7)	(6)
<i>Cash Flow after Loans</i>		<b>9</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>11</b>

### Liability and Accretion

The waste management and decommissioning liability regarding AECL sites is based on the estimated expenditure profile that supports the waste management and decommissioning strategy. That estimate is comprised of the individual estimates for the individual projects, activities and enabling facilities to be executed or constructed as part of the strategy. These estimates vary in terms of the inherent degree of uncertainty. Also they are in many instances based on several assumptions ranging from regulatory requirements to technologies to be employed to waste volumes to be generated.



The reported liability is derived based on the discounted (net present value or NPV) value of the seventy years of expenditures to be incurred. With the passage of time that NPV increases simply as a result of the accretion. At the same time the liability will be reduced by the amount expended annually. In the Plan period the projected annual accretion adjustment is expected to exceed the projected annual expenditures. That will cause the reported liability to grow over the Plan period, all other things being equal and create a net expense for the LMU. Each year the waste management and decommissioning liability is reviewed and updated to reflect major changes in the estimates, schedule or underlying assumptions. These changes could cause a material increase in the reported liability. The financial impact of that increased liability would be recognized as an expense in the year the change is adopted.

### CONSOLIDATED FINANCIAL STATEMENTS

AECL has embarked upon a period of high revenue growth, fuelled by the refurbishment and life extension of CANDU nuclear reactors. The recent success of contracts won in New Brunswick and Ontario has laid the groundwork for future growth in the refurbishment and new build markets. The Technology Group, which benefits from the growth of Commercial Operations through inter-group revenue, also receives funding from the Government of Canada. The growth of the nuclear industry in Canada is dependent upon continued investment in the Nuclear Laboratories Business Unit (NLBU), a part of the Technology Group, and leveraging the intellectual property developed as a result of the investment.

<b>AECL Consolidated Income Statement</b>						
\$ Millions	<b>FCST</b>	<b>PLAN</b>				
	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>09/10</b>	<b>10/11</b>
<b>Revenue</b>	<b>395</b>	<b>596</b>	<b>826</b>	<b>766</b>	<b>892</b>	<b>736</b>
Funding						
Govt. Funding - Parliamentary Approp.	99	104	104	104	104	104
Govt. Funding - Waste Management & Decommissioning	49	65	110	124	96	118
Govt. Funding - ACR	60	-	-	-	-	-
Total Funding	207	169	214	227	200	222
<b>EBIT (Earnings before Interest and Taxes)</b>	<b>56</b>	<b>(65)</b>	<b>66</b>	<b>35</b>	<b>59</b>	<b>4</b>
Interest/Other	4	(24)	-	-	-	-
Accretion	(96)	(84)	(43)	(31)	(61)	(42)
<b>Net Income/(Loss)</b>	<b>(36)</b>	<b>(172)</b>	<b>23</b>	<b>4</b>	<b>(2)</b>	<b>(38)</b>



<b>Balance Sheet</b>						
\$ Millions	Fcst	PLAN				
	2006	2007	2008	2009	2010	2011
	MARCH	MARCH	MARCH	MARCH	MARCH	MARCH
<b><u>Assets</u></b>						
<b>Cash &amp; ST Investments</b>	82	19	9	43	65	11
<b>Segregated Funds</b>	9	18	28	39	50	61
	91	37	38	82	115	72
<b>Trust Fund</b>	17	18	19	19	20	20
<b>Accounts Receivable</b>	43	46	51	60	87	86
<b>Long Term Receivables</b>	355	324	295	265	236	206
<b>Heavy Water Inventory</b>	299	299	299	299	299	299
<b>Inventory</b>	60	60	56	47	42	43
<b>Prepaid Expenses</b>	15	17	18	19	20	20
<b>Fixed Assets (Net)</b>	171	252	292	322	326	324
	1,052	1,053	1,067	1,113	1,143	1,072
<b><u>Liabilities</u></b>						
<b>Accounts Payable &amp; Accrued Liabilities</b>	(78)	(130)	(147)	(156)	(162)	(146)
<b>Deferred Waste Funding</b>	(3)	(6)	(8)	(10)	(15)	(19)
<b>Provisions</b>	(6)	(3)	(3)	(3)	(3)	(3)
<b>Customer Advances</b>	(160)	(229)	(176)	(201)	(181)	(161)
<b>Waste Management, Decomm &amp; Site Remediation</b>	(2,854)	(2,947)	(2,999)	(3,048)	(3,126)	(3,178)
<b>Deferred Revenue</b>	(98)	(84)	(80)	(67)	(68)	(52)
<b>Long Term Payables</b>	(44)	(46)	(48)	(43)	(32)	(19)
<b>Deferred capital funding</b>	(37)	(34)	(32)	(29)	(26)	(23)
<b>Other Government Loans</b>	(3)	(2)	(1)	-	-	-
<b>Employee Future Benefits</b>	(62)	(63)	(65)	(67)	(70)	(72)
	(3,346)	(3,544)	(3,559)	(3,626)	(3,682)	(3,673)
<b><u>Equity</u></b>						
<b>Capital Stock</b>	(15)	(15)	(15)	(15)	(15)	(15)
<b>Contributed Capital</b>	(505)	(481)	(456)	(432)	(407)	(383)
<b>Deficit</b>	2,814	2,986	2,963	2,959	2,961	2,999
	(1,052)	(1,053)	(1,067)	(1,113)	(1,143)	(1,072)
<b>Cash Flow</b>		(54)	0	44	33	(42)

In the assets section, the Cash and Short Term Investments includes funds set aside to address future waste storage and disposal facility expenditures. The “Trust Fund” represents the accumulated contributions (plus accrued interest) AECL has made to the trust fund established under the Nuclear Fuel Waste Act to pay for AECL’s share of the long-term waste management facility for nuclear fuel waste in Canada.

The accounts receivable represents outstanding invoices to customers, plus any work in progress. Long-term receivables primarily relate to the China heavy water sale which is payable to AECL over a period of fifteen years, with interest.

In the liabilities section, accounts payable and accrued liabilities represent amounts or obligations owing to suppliers, salaries payable to employees, and outstanding vacation liability.



Provisions are liabilities set up to offset future losses that have been recognized. Customer advances are cash received from customers for future work not yet performed, primarily down payments on major projects. It should be noted that AECL's cash in bank throughout the plan period is less than the customer advances liability. The Waste Management and Decommissioning and site remediation liability represents the future obligation to address AECL's waste management and decommissioning liabilities. That liability is expressed in terms of the present value of future expenditures required to discharge the obligation. Deferred revenue is the unearned interest portion of the long term receivable pertaining to the heavy water sale. Deferred capital funding is the amount of past federal funding for capital items that have yet to be amortized. Long term Payable represents a deferred payment arrangement for Isotope target material and other supplies associated with the MAPLE reactor. The Other Government Loan represents the outstanding portion of the Cordoba loan, which will be fully paid by May 2008.

Cash Flow	PLAN				
	06/07	07/08	08/09	09/10	10/11
\$ Millions					
<b>Operating activities</b>					
Cash receipts from customers	672	791	798	873	729
Cash receipts from parliamentary appropriations	169	214	227	200	222
Cash paid to suppliers and employees	(713)	(817)	(789)	(898)	(836)
Interest on investments received	1	-	-	-	-
Cash from operating activities	128	188	236	175	115
<b>Investing Activities</b>					
Funds used for waste management & decommissioning activities	(65)	(110)	(124)	(96)	(118)
Acquisition of property, plant & equipment	(92)	(52)	(43)	(22)	(15)
Cash used in investing activities	(157)	(162)	(167)	(118)	(133)
<b>Financing activities</b>					
Repayment of long-term debt	(1)	(1)	(1)	-	-
Repayment of capital contributions	(25)	(25)	(25)	(25)	(25)
Cash used in financing activities	(26)	(26)	(25)	(25)	(25)
<b>Cash and cash equivalents</b>					
Increase/(decrease)	(54)	0	44	33	(42)
Balance at beginning of the year	91	37	38	82	115
Balance at end of the year	37	38	82	115	72

The above schedule is a presentation of the cash flow for AECL split between operating, investing, and financing activities. The Operating Activities section reflects all cash received and spent with respect to ongoing operations of the company. The Investing Activities section reflects funds used for waste management and decommissioning activities, which are sourced from government appropriations. The debt repayment reflected in the Financial Activities section is for the Cordoba loan.



Contributed capital represents parliamentary appropriations formerly received for the production of heavy water. Based on a 1997 decision by the Treasury Board, up until March 31, 2006 the net proceeds from the sale or lease of government-funded heavy water were transferred to deferred waste management and decommissioning funding to be used for ongoing waste management and decommissioning activities. This Plan assumes that the proceeds from the heavy water loan will be used to pay back the contributed capital at \$24.5 million per year.

<b>Capital</b>	<b>FCST</b>	<b>PLAN</b>					<b>5 Year Total</b>
	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>09/10</b>	<b>10/11</b>	
\$ Millions							
Ongoing Operations	10	35	12	16	19	12	<b>93</b>
MAPLEs & NPF	51	57	40	27	3	3	<b>130</b>
Net	<u>61</u>	<u>92</u>	<u>52</u>	<u>43</u>	<u>22</u>	<u>15</u>	<b>223</b>

General capital includes items such as computer equipment, equipment needed to conduct commercial operations, and pre-work for addressing health, safety, and environmental concerns. To begin work on urgent infrastructure improvements the first year of the plan includes \$25 million for capital projects dependent on cash management of funds from commercial sources.

**8.1 Operating and Capital Budget**

<b>Income Statement by Division</b>	
<b>\$ Millions</b>	<b>PLAN 06/07</b>
<b><u>Commercial Operations Group</u></b>	
Commercial Revenue	532
Internal Revenue	1
Expenses	478
EBIT	56
<b><u>Technology Group</u></b>	
Commercial Revenue	56
Internal Revenue	92
Appropriations	104
Expenses	375
EBIT	(123)
<b><u>Liability Management Unit</u></b>	
Commercial Revenue	7
Funding	65
Expenses	72
EBIT	-
Interest & other	(24)
Net income/(loss)	(91)
Accretion	(84)
Elimination entry	3
Net Income after Accretion	<b>(172)</b>

**Total AECL**

Net loss before accretion is projected to be \$88 million in 2006/07 after investment in the ACR. The Commercial Operations Group contributes a net income of \$56 million on combined commercial revenues of \$532 million. The Technology Group is operating at a loss of \$123 million in support of the Nuclear Laboratories operations, ACR, DIF and waste management and decommissioning.



<b>Balance Sheet</b>	
\$ Millions	<b>PLAN 2007 MARCH</b>
<b><u>Assets</u></b>	
Cash & ST Investments	19
Waste Management & Decomm Funding Shortfall	-
Segregated Funds	<u>18</u>
	37
Trust Fund	18
Accounts Receivable	46
Long Term Receivables	324
Heavy Water Inventory	299
Inventory	60
Prepaid Expenses	17
Fixed Assets (Net)	<u>252</u>
	1,053
<b><u>Liabilities</u></b>	
Accounts Payable & Accrued Liabilities	(130)
Deferred Waste Funding	(6)
Provisions	(3)
Customer Advances	(229)
Waste Management, Decomm & Site Remediation	(2,947)
Deferred Revenue	(84)
Long Term Payables	(46)
Deferred capital funding	(34)
Other Government Loans	(2)
Employee Future Benefits	<u>(63)</u>
	<u>(3,544)</u>
<b><u>Equity</u></b>	
Capital Stock	(15)
Contributed Capital	(481)
Deficit	<u>2,986</u>
	(1,053)
<b>Cash Flow</b>	<b>(54)</b>



<b>Cash Flow</b>	<b>PLAN</b>
<b>\$ Millions</b>	<b>06/07</b>
<b>Operating activities</b>	
Cash receipts from customers	672
Cash receipts from parliamentary appropriations	169
Cash paid to suppliers and employees	(713)
Interest on investments received	1
Cash from operating activities	128
<b>Investing Activities</b>	
Funds used for waste management & decommissioning activities	(65)
Acquisition of property, plant & equipment	(92)
Cash used in investing activities	(157)
<b>Financing activities</b>	
Repayment of long-term debt	(1)
Repayment of capital contributions	(25)
Cash used in financing activities	(26)
<b>Cash and cash equivalents</b>	
Increase/(decrease)	(54)
Balance at beginning of the year	91
Balance at end of the year	37

<b>Capital Budget</b>	<b>PLAN</b>
<b>\$ Millions</b>	<b>06/07</b>
Ongoing Operations	35
MAPLEs & NPF	57
Net	92

General capital includes items such as computer equipment, equipment needed to conduct commercial operations, and pre-work for addressing health, safety, and environmental concerns. To begin work on urgent infrastructure improvements the first year of the plan includes \$25 million for capital projects dependent on cash management of funds from commercial sources.



**8.2 Comparison of 2005/06 Forecast to Approved Operating Budget**

(\$ Millions)	2005/06	
	Forecast	Operating Budget
<b>Revenue</b>	395	485
<b>Net Income before accretion</b>	60	11
<b>Accretion</b>	(96)	-
<b>Cash Flow</b>	23	(22)
<b>Cash Position (incl. Segregated cash)</b>	91	46

The key planning assumptions of 2005/06 included our obtaining the Bruce Power and Point Lepreau Retube/refurbishment projects, which we have successfully done.

The Bruce project was originally budgeted to begin in June 2005, however, due to delays beyond our control required at the Provincial government level, contract effectiveness was not achieved until the end of October. This delay resulted in a \$100 million of revenue being deferred to future years. The contract effectiveness date of the Pt. Lepreau project, originally planned for July 2005, occurred August 5, 2005. This delay resulted in a \$35 million of revenue being deferred to future years.

Consolidated net income before accretion is projected to be \$60 million compared to the \$11 million in the operating budget. The primary contributors to this difference were the adjustment of the Dedicated Isotope Production budget due to the settlement agreement and the Bruce and Pt. Lepreau contract delays.

Expenditures on the ACR-1000 program were \$62 million for which funding of \$60 million was received. The expenditures were below plan by \$21 million due to the need to manage the expenditures against the timing of the receipt of funds and total company cash requirements.

Cash, including segregated funds, is projected to be \$91 million this year compared to a planned cash of \$46 million. The two major contributors to this positive cash flow change are the Bruce and Pt. Lepreau contracts whose cash flows are higher than planned due to the achievement of milestone payments. In addition, services business is up which is offset by an \$8 million increased spend on the NRU; a spend primarily due to regulatory requirements.

Capital expenditures exceeded plan by \$47 million for the construction costs of the new Dedicated Isotope Production facilities, due to the agreement to a new business model with MDS Nordion. The agreement reached at the end of the year in February 2006 resulted in AECL acquiring ownership of the assets in return for a long-term production agreement. Following generally accepted accounting principles resulted in the capitalization of the project costs that were originally planned as commercial contract costs.



**9. CORPORATE RESULTS 2005-2006**

In last year’s corporate plan, AECL outlined corporate strategies, measures and first year deliverables to monitor progress towards the implementation of these strategies. The projected results for fiscal year 2005-2006 are presented below.

<b>Achieve Services Revenue annual growth rate of 10%, and four refurbishment and two new build contracts</b>		
<b>Strategies</b>	<b>Year One Measures/Deliverables</b>	<b>Projected Progress</b>
Successfully negotiate and execute refurbishment and re-tubing contracts.  Achieve a CANDU 6 project replication sale.	Achieve revenue of \$485M	Current forecast of \$395 million is \$90 million below plan due to delays in obtaining retubing contracts.
	Achieve Net Income of \$11M	Forecast indicates a net income of \$35 million up from \$11 million due primarily to the change in the Dedicated Isotope Facility business model, and lower than anticipated outflows from major projects.
	Achieve plan cash balance of \$46M	Forecast indicates a cash balance of \$91 million at year-end, including segregated funds reflecting less than anticipated outflows for major projects.
	Obtain two retube contracts	Secured two retubing contracts with New Brunswick Power and Bruce Power. Negotiations for the refurbishment of Wolsong 1 are underway.
	90% of 2005-06 project deliverables completed	86% of Cernavoda 2, 2005-06 deliverables are completed. The deliverables for the refurbishment of Pt. Lepreau and Bruce Power are tracking to the revised plan based on contract effective dates.
	Develop for SNN Romania a possible draft project scope definition and schedule to promote Cernavoda 3 project commitment	AECL has tabled its input to SNN’s feasibility study, as have other participants. Review of this input with a view of developing a realistic project model including project financing will be completed in Q4.
	Leverage the existing strong relationships with CNNC/TQNPC	AECL and CNNC signed a Nuclear Energy Cooperation Agreement in September, which will be used to demonstrate AECL’s capabilities.
Complete the MMIR Project	90% of project milestones delivered	Forecasted to achieve 72% of project milestones as a result of delays in obtaining approval to restart.
	CNSC approval of licence renewal	The two-year licence renewal was approved by the CNSC in November.
Strengthen the product and services portfolio by developing and selling value added CANDU products and services to maximize profits	Obtain services revenue of \$107M	Current forecast revenue of \$128M is higher than plan by \$21M.
	Achieve 9% revenue growth	Expected to achieve a 19% services revenue growth due to increased ECC strainers and reactor core projects.
	Implement Services and Product development program	10 development projects have been approved with 4 additional proposals under review for investment.
Launch the ACR in Ontario	Deliver 90% of project milestones	The Board of Directors approved the business case for the ACR-1000 in November. The technical description is complete. The planning document aimed at facilitating early initiation of an environmental assessment is complete. 100% of Corporate/Government milestones and over 90% of the remaining milestones have been completed.



Focus on delivering quality processes to improve customer satisfaction	Improve customer Satisfaction by 10%	The total score for the Customer Satisfaction Leading Indicators at the end of this quarter was 80 out of 100, compared to 86 for December 2004. The drop was due primarily to delays in the dispositioning of corrective actions, which falls under the “Accuracy and Reliability” component of the CSI. Additional staff has been hired to address the backlog of corrective actions.
	Improve Quality Index by 10%. Target for 2005/06 is 75	The quality index currently stands at 61. The decline compared to last quarter resulted from the inability to deal with the backlog of corrective actions in addition to findings from customer audits. New staff were hired earlier to address this backlog in a more timely fashion. Efforts in the previous quarter were focused on developing a recovery plan.
Access Capital to invest in growth	Resources in place to meet business requirements  Retube/refurbishment projects launched on time with appropriate resources  Completion of milestones for project management and commercial awareness training	AECL advanced the reference level appropriations to ensure adequate cash pending the receipt of ACR funding and the refurbishment down payments.
Make strategic acquisitions and partnerships to acquire broader capabilities and to secure the supply chain		AECL and GE Canada have signed an agreement to collaborate on refurbishment contracts. GE has made proposals to supply pressure tubes and calandria tubes.  Resource forecast of all retubing contracts have been completed.
Attract and retain key resources through succession planning, outsourcing, partnerships and acquisitions		Project management training is underway with approximately 200 people trained to date. Commercial awareness training will commence in Q4 or early next fiscal year.
<b>AECL and Nuclear power recognized as leaders in health, safety and the environment.</b>		
Encourage, communicate and support a safety culture	5% improvement in amount of radiation exposure over prior three-year average	Collective dose at the end of the October was 1371 p-mSv, trending to 2547 p-mSv at year-end compared to target of 2800 p-mSv.
	10% improvement over two year average for work days lost due to accident	Frequency current rate of 0.25 is better than our target of 0.70. Severity current rate of 0.9 is better than our target of 6.2. Improved focus, communication and safety culture training are having a positive impact.
	Achieve a 4% training expense to payroll corporate wide	The training expense as a percentage of payroll stood at 3.6 percent after the first three quarters.
	Completion of safety and compliance training requirements	Over 50% of managers have completed the Behavioural observation program and 43% of NLBU have completed the safety culture workshop and on track to achieve the year-end target of 60%.
Fulfil environmental policy and regulations	Achieve a 5% improvement in the Environment Index over prior three-year average	The Environmental Index is on track to achieve the target of 5%.
	Establish environmental objectives for AECL products and services	Environmental objectives have been established and milestones developed for monitoring performance against these objectives.
Continue the uninterrupted supply of isotopes	Achieve Isotope Revenue of \$37M	The current forecast of \$33M is \$4M lower than plan due to unfavourable currency exchange rates and market demand.



Achieve NRU Licence extension	Achieve NRU capacity factor of 80%	The current forecast for capacity factor has been lowered to 76.4% due to the fuel rod extractor problem and reactor improvement initiatives.
	Submit CNSC application and supporting documentation for removal of existing CRL site licence condition	The CNSC extended the condition that required the NRU to shutdown prior to Dec 31 2005 to July 2006 to coincide with the CRL site licence.
Enhance the awareness of and understanding for benefits of nuclear through associations, media and with key stakeholders	Achieve 50% public acceptance nationally in support of nuclear	A recent IPSOS-Reid poll completed in November indicates 41% of all Canadians currently support nuclear energy. In Ontario, support for refurbishment of existing nuclear has increased to 72%, while support for new builds was 58%, up from 70% and 53% respectively since August.
Demonstrate linkage of nuclear technologies in new technology markets	Demonstrate AECL leadership in nuclear power/hydrogen synergy	Provided essential advice to NRCAN to enable the signing of the International Generation IV Nuclear R&D agreement on Dec. 20 2005.
<b>Achieve measured progress by effectively supporting the CANDU asset life-cycle and nuclear platform obligations</b>		
Ensure that the technology base will address Safety, Licensing and Design Basis requirements of the CANDU fleet	Achieve a 10% improvement in the Research Effectiveness Index over 2004/05 target	The Research Effectiveness at the end of Q3 stood at 82 against the 2005/06, target of 82.
	Achieve a 10% improvement in the COG satisfaction index	The index has been developed and is being presented to the COG R&D program director; results are being tracked to facilitate improvement.
Attract and retain key R&D resources to advance capability	Achieve 90% of targets	100% of succession planning targets complete. 70% of hiring plans complete. Succession plans have been completed for all key R&D staff in addition to an aggressive hiring campaign that has resulted in 25 new hires.
	Delivery of capability maintenance program training requirements	Training requirements have been specified in all performance appraisals and the training program for new hires is now in place.
Focus on Technology development and commercialization to improve customer value	Achieve ACR and product and services development milestones	52% of 2005/06 deliverables were completed to December.
Demonstrate value and cost effectiveness of NLBU programs and activities	Achieve a 15% reduction in reportable events	There were 15 reportable events at the end of Q3, compared with a year-end target of 22, indicating that the target is attainable.
	Complete eight Continuous Business Initiative projects with implementation plans	All eight CBI projects have been started and results will be monitored.
	8% improvement in the platform expenditures to revenue and funding ratio over 2004/05	Regulatory driven issues and NRU performance initiatives have increased expenditures and the 8% target will not be achieved.



Structure the management of waste & decommissioning to ensure good governance consistent with available resources	Achieve 90% of waste management and decommissioning plan milestones	68% of YTD waste management and decommissioning program milestones were achieved. Delays were caused by resourcing issues and slower than expected regulatory processes.
	Establish the Liability Management Unit	The LMU has been established as a separate financial reporting centre and all key staff positions have been filled. MOU principles have been drafted and will be the basis for discussions with NRCAN, once approved by AECL Executives.
Reduce AECL Site Liability	10% improvement in the Liability Reduction Index from the 2004/05 target	The Liability Reduction Index is being restated to reflect changes in the liability estimate and Waste Management and Decommissioning Plan. The new Liability Reduction Measure, exclusive of accretion is \$7.73M, better than the year to date target of \$5.26M.
		The Waste Management and Decommissioning Plan and request for funding have been submitted to the Shareholder.



## 10. ACRONYMS

<b>Abbreviation</b>	<b>Description</b>
ACR	Advanced CANDU Reactor
CANDU	CANada Deuterium Uranium
CNSC	Canadian Nuclear Safety Commission
COG	CANDU Owners Group
CPDP	Comprehensive Preliminary Waste Management and Decommissioning Plan
CRL	Chalk River Laboratories
DIF	Dedicated Isotope Facility
EA	Environmental Assessment
GHG	Greenhouse Gases
LLRWMO	Low-Level Radioactive Waste Management Office
LMU	Liability Management Unit
MAPLE	Multipurpose Applied Physics Lattice Experiment
MMIR	MMIR (MDS NORDION) Medical Isotopes Reactor Project
NLBU	Nuclear Laboratories Business Unit
NRCAN	Natural Resources Canada
NRU	National Research Universal (heavy-water-moderated and -cooled test reactor)
RDBU	Reactor Development Business Unit
OPG	Ontario Power Generation
TQNPC	Third Qinshan Nuclear Power Company
WM&D	Waste Management and Decommissioning