



**Corporate Plan Summary
2012-2013 to 2016-2017**

**Operating Budget Summary 2012-13
Capital Budget Summary 2012-13**



Atomic Energy of Canada Limited



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1 EXECUTIVE SUMMARY

1.1 Introduction

This Corporate Plan was approved by the Board of Directors on December 6, 2011. Detailed financial tables have not been included in this Summary due to commercial sensitivities. Consolidated financial tables are shown within Section 6: Financial Statements. Similarly, expenditures will be required in future years for the Wrap Up Office but are not included in this Summary due to commercial sensitivities.

Atomic Energy of Canada Limited (AECL) is Canada's premier nuclear science and technology organization. It is a strategic element of both Canada's national science and technology infrastructure and its national innovation system.

The mandate for AECL, a Crown Corporation, flows from the powers given to the Minister of Natural Resources under the Nuclear Energy Act. The company is governed by a Board of Directors which provides strategic direction and advice to the President and Chief Executive Officer. With the sale of its commercial operations completed in October 2011, AECL principally comprises its Nuclear Laboratories, headquartered at its Chalk River site.

AECL has unique capabilities of working with radioactive materials, under license from the federal regulator, that have application in fields important to public policy and to the nuclear sector domestically and internationally. Its public policy role includes: conducting nuclear research and development, producing medical isotopes, and managing legacy and historic nuclear wastes.

AECL has three aspects to its Value Proposition:

1. As an advisor to, and agent of, the Government of Canada for public policy purposes;
2. As an enabler of business innovation and technology transfer; and,
3. As a generator of highly qualified people.

AECL's Strategic Outcome is for Canadians and the world to receive energy, health, environmental and economic benefits from nuclear science and technology, with confidence that nuclear safety and security are assured.

AECL's programs, through which it delivers its Strategic Outcome, are framed in the AECL Program Activity Architecture¹ (PAA), which provides the structure of this

¹ AECL is presenting its activities using the Federal Government's PAA construct. Pending the results of the second phase of the restructuring, this architecture will be submitted for official approval through the Management Resources and Results Structure (MRRS) approval process by the Results Based Management Directorate of the Treasury Board Secretariat.



Corporate Plan. The AECL PAA comprises six output and two enabling Program Activities:

Output Program Activities:

1. **Nuclear Industry Capability:** The Canadian nuclear sector remains safe and productive with access to S&T resources to address emergent technological challenges.
2. **Nuclear Safety and Security:** Canada's nuclear safety and security is assured, based on high quality expertise and technology.
3. **Clean, Safe Energy:** Development of energy technologies that make a beneficial impact on Canada's use of clean energy.
4. **Health, Isotopes and Radiation:** Canadians experience health benefits from nuclear Science and Technology.
5. **Nuclear Environmental Stewardship:** Nuclear sites are clean and healthy environments.
6. **Nuclear Innovation Networks:** Canadian Science and Technology communities advance their innovation agendas through access to federal nuclear innovation infrastructure and expertise.

Enabling Program Activities:

7. **Mission-Ready Science and Technology Infrastructure:** Ensuring that the science and technology infrastructure is ready to enable the six (6) outcome Program Activities by investing in people, plant and processes to achieve safe and efficient execution.
8. **Internal Services:** The suite of business support services that is common across the Program Activity Architectures of all federal departments and agencies.

1.2 Planning Environment

For the period covered by this Corporate Plan, AECL's strategic direction as established by its Board in consultation with its Shareholder has two core components. First, AECL is committed to excelling in the delivery of its Value Proposition by meeting and exceeding its commitments as expressed in its Program Activity Plans. Second is to focus on priorities set jointly with its Shareholder and stakeholders.

The Government of Canada is currently in the midst of restructuring AECL. The first phase of restructuring was concluded on October 2, 2011 when the Government of Canada completed the sale of the assets of AECL's commercial operations to Candu Energy Inc., a wholly owned subsidiary of SNC-Lavalin Group Inc. AECL has retained its CANDU intellectual property and all pre-close liabilities and obligations, including on going CANDU Life Extension Projects. The new company, Candu Energy Inc., has been sub-contracted to work on the Life Extension Projects. Candu Energy Inc. will take full



responsibility for all future commercial projects. AECL has created a "Wrap Up Office" (WUO) to manage its retained liabilities; the WUO is expected to complete its mandate over a five year period.

Although AECL no longer has a mandate for commercial activities related to the design, development, construction, servicing and refurbishment of nuclear reactors, it does retain a crucial role in supporting Candu Energy Inc. and the wider nuclear industry in maintaining and enhancing Canada's nuclear platform.

Subsequent to closing of the sale, the Government has launched the second phase of AECL restructuring, to be focussed on the Nuclear Laboratories. This Corporate Plan has been prepared without making any assumptions as to the outcome of the restructuring of the Nuclear Laboratories, nor does it contemplate any changes to the existing mandate. At the same time, the initiatives to be undertaken by AECL through this Corporate Plan are aligned with the Government of Canada's policy objectives for AECL restructuring.

Through this Corporate Plan, AECL will address three near-term policy priorities of the Government of Canada:

- Contribute to the Deficit Reduction Action Plan;
- Stimulate business innovation; and,
- Enhance public safety and security.

The Corporate Plan provides a five year profile, with a focus on improvement opportunities in the first two years. This two-year focus on improvements is intended to facilitate a smooth transition into the to-be-determined restructuring solution, while providing a direct response to the Government's near term policy priorities.

1.3 Strategic Direction

To deliver on AECL's Value Proposition, and to contribute to the Government of Canada's near term priorities, the AECL Board in consultation with the Shareholder has determined that the company's strategic direction for the planning period will comprise the following:

1. Meet and exceed AECL Program Commitments.
2. Improve AECL alignment, effectiveness and efficiency through the following six Action Areas:
 - a. **Focus on AECL's S&T Priorities:** AECL's Program Activities will focus on it's S&T Priorities, which translate federal and stakeholder S&T



priorities to the necessary granularity for effective Program Activity management:

- Understand, and address public perceptions of, the effects of radiation;
 - Enable CANDU technology as a key contributor to Canada's energy superpower portfolio;
 - Understand, prevent and mitigate risks associated with nuclear operations and activities;
 - Advance the knowledge base for informed standards and regulations;
 - Enhance national and global nuclear security;
 - Secure options for future energy needs and sustainability through nuclear technology; and,
 - Develop, and demonstrate the minimal impact of, nuclear technologies on the environment.
- b. **Implement a Robust Program Governance:** Each Program Activity will enhance its effectiveness through a governance structure that engages stakeholders to direct, execute, and exploit the results of each activity.
- c. **Enhance Productivity:** Productivity improvements will be implemented, focused on Program Activity results, and informed by a review of all activities. The AECL Performance Measurement Framework will be used to target improvements and to subsequently gauge progress.
- d. **Stimulate Business Innovation:** AECL assets will be used for the benefit of Canadian Industries and Canadian Researchers to promote innovation, develop highly qualified people, and exploit AECL's Intellectual Property.
- e. **Leverage Collaborations:** Program Activity delivery, scope and effectiveness will be enhanced by having AECL leverage more synergistic collaborations that directly contribute to Program Activity objectives.
- f. **Improve Multi-year Management of Infrastructure Recapitalization:** The revisited recapitalization strategy will consider various delivery mechanisms and approaches including alternative financial arrangements for supporting multi-year projects.



1.4 Financial Summary

AECL’s development of the financial ask of the Government of Canada for the 2012-13 Corporate Plan has used its 2011-12 Corporate Plan submission as the point of departure. AECL has subsequently reassessed its commercial revenue projections, taking into account the implications of the recent sale of its commercial operations. Finally, AECL has adjusted downward its financial ask for its operating and capital funding consistent with the Government’s Deficit Reduction Action Plan and AECL restructuring policy objectives, taking into account forecast economies to be realized through the Action Areas identified in Section 1.3 above.

The resulting AECL 2012-2017 budget, including an assessment of risks, is detailed in Section 6 and supporting Annexes of the Corporate Plan. Table 1 provides a brief summary of the expenditures by type. Table 2 provides a high-level summary of the budget:

Table 1: Expenditure Summary 2012-2017

\$ Millions	Budget 2011-12	Plan					5 Year Total
		2012-13	2013-14	2014-15	2015-16	2016-17	
Operating Expenditures	991	787	554	521	507	533	2,678
Capital Expenditures	62	75	110	93	73	93	443
Consolidated Budget	1,053	862	664	614	579	626	3,345

Note: Minor differences are due to rounding.



Table 2: Budget Summary 2012-2017

\$ Millions	Budget 2011-12	Plan					5 Year Total
		2012-13	2013-14	2014-15	2015-16	2016-17	
Government Ask							
Operating Funds	253	245	234	224	223	219	1,146
% Annual Savings (relative to 2011-12 Budget)		3.1%	7.5%	11.5%	11.9%	13.4%	
Cumulative Savings (relative to 2011-12 Budget)		8	27	56	85	119	
Total Capital	62	75	110	93	73	93	443
Cumulative Savings (relative to 2011-12 Corp Plan)		29	51	74	103	103	
Non-Recurring	9	6					6
Legacy Obligations (DIF)	25	18	1	1	1	2	23
Legacy & Historic Wastes	151	178	209	184	162	204	937
Escalation (2% per year beginning 2014-15)				4	9	13	27
Nuclear Laboratories Government Ask	500	521	554	507	468	532	2,581
Government "B" Base Funding (GEN IV, CRTI)	2	2	2	2	2	2	10
Commercial Revenue (Nuclear Laboratories)	100	115	108	105	109	92	530
Total Budget	602	638	664	614	579	626	3,121
Wrap Up Office Government Ask	258	224					224
CANDU Reactor Division (excluding Commercial Revenue)	193						
Consolidated Budget (Funding & Commercial)	1,053	862	664	614	579	626	3,345

Note: Minor differences are due to rounding.

Key observations include the following:

- Compared to the operating funds provided to AECL by the Government in 2011-12, the requirement for non-escalated operating funds has been reduced by 7.5% in 2013-14, and further reduced to 13.4% by 2016-17. These reductions represent a cumulative savings over the 5-year planning period of \$119 million in non-escalated operating funds compared to 2011-12 funding, for an average annual reduction of 9.4%. These reductions will be realized principally through the planned wind-down of Isotope Supply Reliability Program (ISRP) spending, productivity improvements and through the offset of Government funding by commercial revenues.
- The planned profile of capital funding as submitted via the 2011-12 Corporate Plan has been reassessed by AECL in light of both the Deficit Reduction Action Plan and AECL restructuring policy objectives. Priority has been afforded those capital projects that address critical regulatory, safety, security and environmental concerns; projects that represent a low risk of being adversely affected by AECL restructuring; and projects that are already under contract. The result is a cumulative reduction by \$103 million in the capital funding required over the 5-year planning period compared to the requirement in the 2011-12 Corporate Plan submission. The majority of the reductions are due to



- project deferrals and a pragmatic re-assessment of capital project execution schedules.
- Legacy and Historic Waste Programs, which AECL executes on behalf of other departments, are principally NRCan's Nuclear Legacy Liabilities Program (NLLP), the Low Level Radioactive Waste Management Office (LLRWMO), and the Port Hope Area Initiative (PHAI) that is entering the implementation phase.
 - Commercial activities represent an important revenue source and contribute approximately \$115 million a year of funding. Primary sources are from production of isotopes, commercial services to Candu Energy Inc., participation in the CANDU Owners Group (COG) and proceeds from the sale and leasing of Heavy Water.
 - The Wrap Up Office has a planned requirement of \$224 million in Government of Canada funding for 2012-13. The Wrap Up Office will focus primarily on the management of the sub-contracts with Candu Energy Inc. to complete the existing Life Extension Projects, and on the commercial and legal work required to settle outstanding and new claims relating to AECL commercial activities pre-closing.



2 MANDATE

The mandate for AECL flows from the powers given to the Minister of Natural Resources under the Nuclear Energy Act:

- to undertake research with respect to nuclear energy;
- to cause nuclear energy to be utilized; and
- to license, sell or otherwise dispose of discoveries and inventions relating to nuclear energy.

AECL's public policy role includes conducting nuclear research and development, producing medical isotopes, and the management of legacy and historic nuclear wastes.

All activities undertaken at the Nuclear Laboratories have been framed in a Program Activity Architecture (PAA) which provides the structure of the Corporate Plan

2.1 Impact of Restructuring on Mandate

As a result of the sale of AECL's Commercial Operations to SNC-Lavalin Group Inc., AECL no longer has a mandate for commercial activities related to the design, development, construction, servicing and refurbishment of nuclear reactors, but AECL retains a crucial role in supporting Candu Energy Inc. and the wider nuclear industry in maintaining and enhancing Canada's nuclear platform.

All liabilities and obligations relating to pre-closing operations of AECL's Commercial Operations, including those Life Extension Projects that are ongoing at Bruce Power, Point Lepreau and G2 have been retained by AECL. The new company, Candu Energy Inc. is sub-contracted to work on the on-going Life Extension Projects. Candu Energy Inc. will take full responsibility for all future commercial projects.

Changes, if any, to Nuclear Laboratories' mandate will be determined through the second phase of AECL restructuring, which the Government of Canada, through Natural Resources Canada, is leading.



2.2 CANDU Wrap Up Office

At closing of the sale of AECL's Commercial Operations, a "Wrap Up Office" has been created to manage the retained liabilities that were not part of the commercial sale. The responsibilities of the Wrap Up Office include management of the remaining Life Extension Projects that are now sub-contracted to Candu Energy Inc., management of the Government funding provided to complete reactor technology (EC6) development, and management of outstanding obligations, claims and litigation.

2.3 Nuclear Laboratories

The Corporate Plan has been prepared without making any assumptions as to the outcomes of the restructuring of the Nuclear Laboratories, and does not contemplate any changes to the existing mandate and activities. It provides a five year profile, with a focus on improvement opportunities in the first two years. This two year focus on improvements is intended to facilitate a smooth transition into the to-be-determined restructuring solution, while providing a direct response to the Government's near term policy priorities.



3 CORPORATE PROFILE

3.1 Introduction

AECL is an agent Crown Corporation of the Government of Canada, reporting to Parliament through the Minister of Natural Resources. The company is governed by a Board of Directors which provides strategic direction and advice to the President and Chief Executive Officer.

AECL's vision is to be *a global partner in nuclear innovation*.

The Strategic Outcome is *for Canadians and the world to receive energy, health, environmental and economic benefits from nuclear science and technology, with confidence that nuclear safety and security are assured*.

AECL, with a complement of 3200 full time employees (as at November 30, 2011), is a strategic element of Canada's national science and technology infrastructure and national innovation system. As Canada's premier nuclear science and technology organization, AECL provides crucial policy, program and innovation support to the Canadian Government, to the Canadian nuclear industry and to Canadian academia.

The Wrap Up Office will have 29 full time employees in 2012-13. It is anticipated that the Wrap Up Office will complete its mandate over a five year period.

3.1.1 Nuclear Laboratories (NL)

Through alignment with the Government of Canada's Science and Technology (S&T) strategy, *Mobilizing Science and Technology to Canada's Advantage*, NL leverages its unique capabilities that enable us to work with radioactive materials, under license from the federal regulator, to contribute to four principal "outcome areas"² for the Government:

- An innovative and knowledge-based economy;
- A clean and healthy environment;
- Healthy Canadians; and,
- A Safe and Secure Canada.

The Nuclear Laboratories today has three key aspects of its Value Proposition that have a national impact:

- As an advisor to, and agent of, the Government of Canada for public policy purposes;

² The 2008-2009 *Canada's Performance: Report of the President of the Treasury Board of Canada*



- As an enabler of business innovation and technology transfer; and,
- As a generator of highly qualified people.

Advisor to, and agent of, the Government of Canada for public policy purposes

Today the NL is relied upon for the provision of unbiased information related to nuclear science and technology, providing advice in support of Government in its various capacities: policy maker, regulator, operator, performer, customer and partner for science and technology in the public good. Further, the NL is an agent of the Government in several matters of public policy, including:

- provision of medical isotopes to Canadians. As one of the world's largest producer of radionuclides, the NRU reactor is a multi-purpose research reactor that is Canada's premier facility for nuclear power and materials research. The NRU produces a range of radioisotopes, including molybdenum-99, iodine 125 and 131, xenon 133 and cobalt-60 that are used for medical imaging, and cancer diagnostic and therapy. management and disposition of liabilities associated with legacy and historic wastes resulting from past development of nuclear technology and nuclear energy in Canada, and
- development of policies, practices and national capabilities to address nuclear safety and security, including strengthening of non-proliferation and counter-terrorism regimes.

Enabler of business innovation and technology transfer

The NL has had a strong record of positioning the Canadian nuclear industry, including its full value chain, for commercial success domestically and internationally. Going forward, NL will continue to engage with the best and brightest innovators and entrepreneurs from around the world, keeping home-grown talent in Canada, and stimulating innovation throughout the industry and its supply chain. Greater engagement with businesses will also result in greater revenues to offset the requirement for federal funding.

As a service provider of Candu Energy Inc. and the wider Canadian nuclear industry, NL plays a crucial role in assisting its partners to maintain and enhance performance of the existing CANDU fleet, to develop new technologies for a broad range of nuclear power and non-power applications, and to advance the next generation of reactors, fuels and next generation energy solutions.



Generator of Highly Qualified People

With the capability for knowledge generation, innovation and discovery, the Nuclear Laboratories supports an extensive network of stakeholders, clients and partners that contribute to and draw benefits from the knowledge and technological innovation delivered by the Laboratories with its partners.

AECL provides access to a unique environment needed to develop the advanced workforce required for a knowledge-based economy. Generations of Canadians along the nuclear science and technology value chain have benefited from access to its laboratories, its facilities and its highly trained staff. Indeed, an examination of the human capital resident in the Canadian nuclear S&T and industry communities reveals that a substantial fraction has had a deep and enduring connection to AECL.

As an important outcome of the AECL operation, Canada's next generation of world-class nuclear scientists, engineers, operators and entrepreneurs are being trained.

Looking ahead, there is the opportunity to demonstrate more transparently how AECL supports the development of Highly Qualified People for the public sector, private sector and academia, and how that role can be measured and managed. AECL will re-orient its activities towards those areas of Highly Qualified People development that are relevant to the priorities of the Government of Canada.

3.1.2 CANDU Wrap Up Office

The activities of the Wrap Up Office are funded by the Government of Canada on an annual basis, separately from the activities of the Nuclear Laboratories, according to an annual plan developed by the Wrap Up Office under joint oversight by AECL and Natural Resources Canada.

3.2 History

AECL was incorporated under powers granted to the then Minister of Energy, Mines and Resources under Section 10(2) of the Atomic Energy Control Act (RSC 1970, Chapter A-19). Formal incorporation under the Canada Corporations Act was granted by way of Letters Patent dated February 14, 1952. The Corporation applied for, and was granted, continuance under the Canada Business Corporations Act on July 8, 1977; amended July 15, 1982. AECL, through its Board of Directors, is part of the portfolio responsibility of the Minister, Natural Resources Canada.

In May 2009, after an extensive review of AECL, the Government of Canada concluded that AECL's mandate and structure limited the corporation's success and development, and that restructuring would help to maximize benefits for Canada. The review noted the distinct mandates, and resource and management needs of the two divisions of AECL: CANDU Reactor Division, the commercial arm, and the Nuclear Laboratories,



the latter of which includes Chalk River Labs (CRL) and its National Research Universal reactor (NRU) and the Whiteshell Labs (WL). The review also noted that CANDU Reactor Division was too small to establish a strong presence in the high growth markets that are a key to its success, and that the activities of the Nuclear Laboratories, while meeting essential public policy requirements, could be managed in a more focused manner and still provide for innovative approaches.

Subsequently, the Government made the decision to restructure AECL in two phases: the first phase was to determine how best to proceed with CANDU Reactor Division, the second phase is how best to proceed with the Nuclear Laboratories. The Government identified three policy objectives for AECL's future direction and structure as a result of restructuring:

1. Canada needs safe, reliable and economic alternatives to address its energy and environmental needs.
2. Cost to the Federal Government needs to be controlled and the return on its investment maximized.
3. Canada's nuclear industry needs to be positioned to seize domestic and global opportunities.

As outlined in Section 2.1 *Impact of Restructuring on Mandate*; AECL's mandate now excludes the commercial activities related to the design, development, construction, servicing and refurbishment of nuclear reactors.

AECL, currently positioned as a standalone S&T organization continues its commitment to fulfil its obligations under the remaining mandate.

3.3 AECL's Programs

To achieve AECL's Strategic Outcome, results are delivered through six core Program Activities:

- **Nuclear Industry Capability:** the Canadian nuclear sector remains safe and productive with access to S&T resources to address emergent technological challenges.
- **Nuclear Safety and Security:** Canada's nuclear safety and security is assured, based on high quality expertise and technology.
- **Clean, Safe Energy:** development of energy technologies that make a beneficial impact on Canada's use of clean energy.
- **Health, Isotopes and Radiation:** Canadians experience health benefits from nuclear Science and Technology.
- **Nuclear Environmental Stewardship:** nuclear sites are clean and healthy environments.



- **Nuclear Innovation Networks:** Canadian Science and Technology communities advance their innovation agendas through access to federal nuclear innovation infrastructure and expertise.

These activities along with the two supporting/enabling activities have been framed in the AECL Program Activity Architecture (PAA), which provides the structure of this Corporate Plan.

Table 3 summarizes the PAA for the Nuclear Laboratories and its alignment with the Government of Canada's Outcome Areas. The PAA is used to plan, execute and assess the multi-year activities conducted by the Nuclear Laboratories to deliver the outputs that contribute to its Strategic Outcome. This PAA will also help inform the restructuring analysis expected to occur during 2012-13.

In Section 5 of this Corporate Plan, each of the eight Program Activities (PA) are described in summary, highlighting its overall objectives and strategies and resources for the planning period. In support of the Corporate Plan, three-year rolling PA Plans are produced to support the detailed implementation and execution of each PA and its sub-activities. Section 6 of this document provides financial information including details of the various sources of funding required to execute these Program Activities.



Table 3: Nuclear Laboratories Program Activity Architecture

Federal Outcome Area	A Clean and Healthy Environment	Healthy Canadians	A Safe and Secure Canada	An Innovative and Knowledge-based Economy
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AECL Strategic Outcome	Strategic Outcome 1: Canadians and the world receive energy, health, environmental and economic benefits from nuclear science and technology, with confidence that nuclear safety and security are assured.
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DIRECT OUTPUTS	<p>PA 1.1 Nuclear Industry Capability (see Page 25)</p> <p>1.1.1 Candu Energy Inc. Support 1.1.2 CANDU Owners Group (COG) Support 1.1.3 Technology Development for the CANDU Industry</p>	<p>PA 1.2 Nuclear Safety and Security (see Page 27)</p> <p>1.2.1 Non-proliferation & Counter-terrorism 1.2.2 AECL Nuclear Security Response 1.2.3 Nuclear Materials Handling 1.2.4 Nuclear Oversight 1.2.5 Nuclear Safety Technology</p>	<p>PA 1.3 Clean, Safe Energy (see Page 29)</p> <p>1.3.1 Generation IV Technologies 1.3.2 Tritium and Fusion Technologies 1.3.3 Hydrogen Technologies 1.3.4 Sustainable Energy Technologies 1.3.5 Materials Science and Chemistry 1.3.6 Small Reactors</p>
	<p>PA 1.4 Health, Isotopes and Radiation (see Page 32)</p> <p>1.4.1 Isotope Production 1.4.2 Isotope Reliability 1.4.3 Isotope Legacy Obligations 1.4.4 Radiation Biology and Health</p>	<p>PA 1.5 Nuclear Environmental Stewardship (see Page 34)</p> <p>1.5.1 AECL Nuclear Legacy Liabilities 1.5.2 Whiteshell Decommissioning 1.5.3 Port Hope Area Initiative 1.5.4 Historic Wastes 1.5.5 Nuclear Environmental Technology 1.5.6 Nuclear Waste Services</p>	<p>PA 1.6 Nuclear Innovation Networks (see Page 37)</p> <p>1.6.1 NRC Canadian Neutron Beam Centre 1.6.2 Nuclear S&T Partnerships 1.6.3 Nuclear Workforce of the Future</p>



SUPPORTING / ENABLING	<p>PA 1.7 Mission-Ready Science & Technology Infrastructure (see Page 39)</p> <p>1.7.1 NRU Reactor Readiness 1.7.2 Nuclear Facilities Readiness 1.7.3 Nuclear Waste Management Readiness 1.7.4 Non-Nuclear Facility Readiness 1.7.5 Provision of Real Property & Municipal Services</p>	<p>PA 1.8 Internal Services (see Page 41)</p> <p>1.8.1 Business Services 1.8.2 Organization Change Agenda</p>
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3.4 Management Construct

To deliver results to Canadians the AECL Nuclear Laboratories are managed within the Management Construct shown in Figure 1. AECL receives financial resources through multiple mechanisms from the Federal Government and other clients and partners to deliver results. These results are realized through the activities executed under the AECL Program Activity Architecture, drawing on the capabilities built and sustained within the Organization (Figure 2), and through its partnerships and supply chain. Functional authorities that span the company ensure compliance with policy and regulatory requirements. The AECL Management Accountability Framework (MAF) provides the basis for assessment of the completeness and robustness of this management construct. AECL MAF implementation is assessed annually through AECL Internal Audit; results and management response are overseen by the AECL Board.

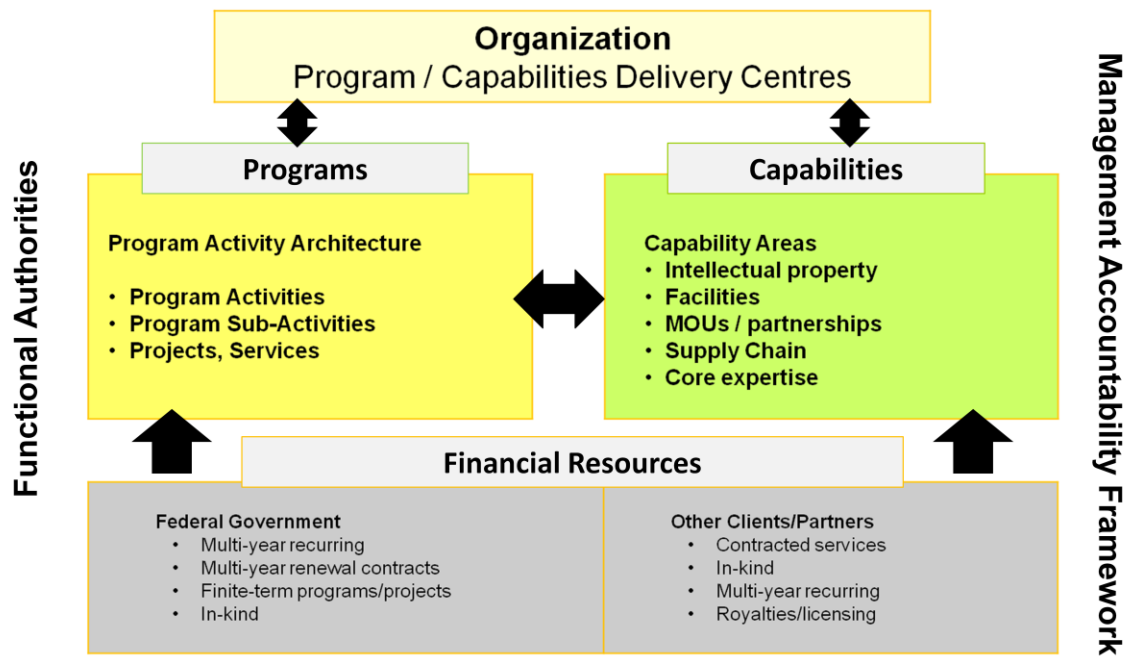


Figure 1: AECL Management Construct

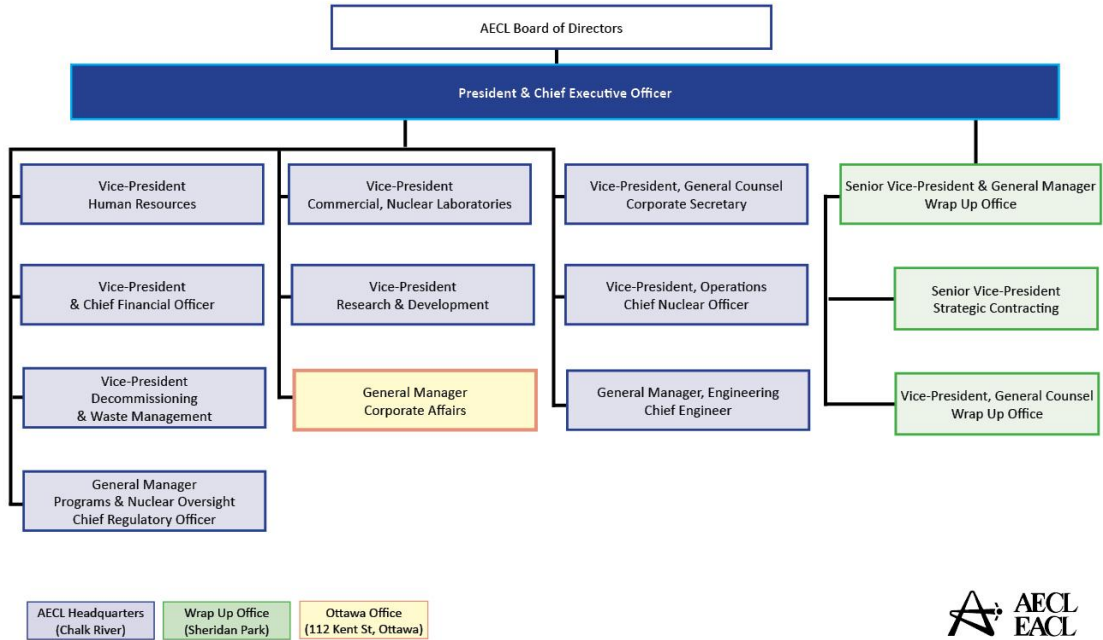


Figure 2: Organization Chart



4 Strategic Issues for the Planning Period

4.1 Strategic Direction

As noted earlier, AECL has three key aspects of its Value Proposition:

1. As an advisor to, and agent of, the Government of Canada for public policy purposes;
2. As an enabler of business innovation and technology transfer; and
3. As a generator of highly qualified people.

For the period covered by this Corporate Plan, AECL's strategic direction as determined by the AECL Board in consultation with its Shareholder will be to excel in delivering on its Value Proposition by meeting and exceeding its commitments as expressed in its Program Activity Plans, and by focusing on priorities set jointly with its Shareholder and stakeholders.

In light of the effects of the current volatility and uncertainty in the global economy, the Government of Canada has stated that it will continue with a balanced approach to managing the economy. The Next Phase of Canada's Economic Action Plan includes a clear goal to return to balanced budgets to keep Canada on a fiscally sustainable track. The Government's top priority is to focus on economic growth and jobs, while protecting the economy and finding savings within government operations, in order to eliminate the deficit in the medium term. To that end, and taking into account the ongoing NL restructuring, AECL will focus on three near-term Government policy priorities:

- Contribute to the Deficit Reduction Action Plan;
- Stimulate business innovation; and
- Enhance public safety and security.

Specific measures will be taken to improve in the following six Action Areas. These areas were identified as common challenges and opportunities after a thorough review of all of AECL's Program Activities and their second-tier Sub-Activities:

- Focus on AECL's S&T priorities;
- Implement a robust program governance;
- Enhance productivity;
- Stimulate business innovation;

- Leverage collaborations; and
- Improve multiyear management of infrastructure recapitalization.

4.1.1 Focus on AECL's S&T Priorities

AECL's S&T Priorities are aligned with AECL's Strategic Outcome, and translate federal and stakeholder S&T priorities to the necessary granularity for effective and efficient management of programs:

- **Understand, and address public perceptions of, the effects of radiation** – Through science and dialogue with the public, present the facts on the effects of radiation on living things.
- **Enable CANDU technology as a key contributor to Canada's energy superpower portfolio** – Work with CANDU owners, Candu Energy Inc. and the entire CANDU eco-system to improve CANDU's safety, economic performance, and fuel flexibility and ensure CANDU remains an attractive option both domestically and internationally.
- **Understand, prevent and mitigate risks associated with nuclear operations and activities** – Ensure that nuclear activities in Canada are carried out safely, and that capability exists to assess, mitigate and respond to nuclear incidents.
- **Advance the knowledge base for informed standards and regulation** – Using Canada's unique nuclear facilities and expertise, provide the basis for the development and application of scientifically-based regulations, standards and policies related to nuclear and radiological issues that support and advise national and international organizations and initiatives.
- **Enhance national and global nuclear security** – With government and industry as partners, develop detection technologies and response capabilities associated with illicit production, use and transportation of nuclear materials in support of non-proliferation, safeguards and counter-terrorism.
- **Secure options for future energy needs and sustainability through nuclear technology** – Promote regional development opportunities for nuclear (e.g., energy for the North; oil sands development) and other energy technologies that are synergistic with nuclear (e.g., hydrogen; fusion). Also, leverage advanced materials development for nuclear applications.
- **Develop and demonstrate the minimal impact of nuclear technologies on the environment** – Through science and public engagement, generate understanding of the behaviour and impact of radioactivity in the environment and develop and implement solutions that reduce life-cycle environmental impacts of nuclear technologies through materials selection, design and waste management initiatives.



4.1.2 Implement a Robust Program Governance

The effectiveness of many of AECL Program Activities will be improved by directly involving appropriate stakeholders from government, industry and academia in Program Activity governance, to set the direction, manage the execution, and realize the exploitation of the results of each Program Activity. Performance information, audits, evaluations and stakeholder feedback will be used to assess and determine overall effectiveness. These enhancements in program governance will help ensure that the Nuclear Laboratories continues to strengthen its “value for money”.

4.1.3 Enhance Productivity

In 2011, in preparation for the divestiture of the AECL CANDU Reactor Division and to establish itself as a standalone Science and Technology organization, AECL restructured its Program Activity Architecture (PAA). This was a first step on refocusing all activities to have a greater alignment to the government of Canada outcome areas. The establishment of the PAA is providing for a stronger focus on achieving overall efficiencies and effectiveness at all stages of program delivery, from planning to execution to exploitation. The PAA provides for the entrenchment of the use of a robust performance measurement system aligned with the Treasury Board’s Management Accountability Framework. AECL will accelerate its current efficiency initiative, launched in the Nuclear Laboratories in 2010-2011, to realize on-going, sustainable productivity improvements while continuing to meet its safety, security and regulatory commitments.

4.1.4 Stimulate Business Innovation

The Nuclear Laboratories has a long and successful experience in developing S&T programs for industry that are tailored to industry needs and funded by the industry partners who benefit. Growing the investment made by Canadian industry in S&T, and by consequence strengthening industry’s innovation capacity, remains a key federal priority. AECL will seek out opportunities to widen the use of this model for research that is fully funded by industry, consistent with the terms of the recent sale of AECL’s commercial operations. Through the course of executing various programs, AECL develops tools, codes and technologies that are by-products of the programs; these have the potential to benefit other industries or other nuclear facilities. Within the bounds of existing contracts, AECL will strengthen its partnering capabilities so that a service delivery model can be instituted to engage industry to exploit these kinds of opportunities and bring in an untapped revenue stream.

4.1.5 Leverage Collaborations

Much of the work within the six output Program Activities will be performed in collaboration with external parties in industry, academia and other government departments. Each collaboration has its own characteristics, each with its unique potential to improve program delivery by positioning commercial partners to exploit new technology and grow their business through co-development of innovative technology;



giving students from universities unique opportunities at AECL to grow their knowledge in fields that are relevant for industry; and co-funding S&T activities, with in-kind contributions of collaborators used to reduce the federal funding requirement for the Nuclear Laboratories.

4.1.6 Improve Multiyear Management of Infrastructure Recapitalization

AECL operates a stand-alone campus that is remotely located and is not supported by local municipal services. AECL maintains three distinct tiers of infrastructure that enable its programs to operate: site/municipal services, conventional facilities, and nuclear facilities. AECL has been making additions and improvements to this infrastructure through three federal programs: Nuclear Legacy Liability Program, Project New Lease, and Isotope Supply Reliability Program.

This unique infrastructure is part of what underlies AECL's Value Proposition. Going forward, capital infrastructure requirements will be revisited within the two parallel streams of activity of the AECL restructuring and AECL Corporate Planning. During the plan period the Corporation intends to pursue alternative financial approaches for its recapitalization needs including discussions with Government on the viability of options involving public-private Partnerships (P3), utilizing a capital lease model. The strategic direction will ensure overall maximization of capital investment in the Nuclear Laboratories within the direction of restructuring and the objectives of the Deficit Reduction Action Plan.

4.2 Highlights from 2011-12

The following is a brief list of achievements from the 2011-12 Fiscal Year:

- Met 98% of isotope commitments year to date, helping to ensure continued health of Canadians.
- Received the renewal of the Operating Licence for the Nuclear Laboratories' Chalk River site until October 2016.
- Completed the first planned extended outage of the NRU reactor since its return to service in August 2010.
- Became the first non-power nuclear reactor to achieve membership to the World Association of Nuclear Operators (WANO), an organization dedicated to helping members achieve the highest levels of operational safety and performance.
- Functioned as primary supplier to CANDU Owners Group (achieved 93% delivery).
- Generated 10 patent applications.
- Positioned Port Hope Area Initiative (PHAI) to enter the implementation phase by completing the Transition Phase milestones, including the resulting in designs of the



new waste management facilities, and the presentation of the application for a 10-year license to move forward with the Port Granby Project.

- Exercised leadership in two national emergency response exercises with Federal and local partners.
- Commenced execution of the second phase of the Nuclear Legacy Liabilities Program to reduce and eliminate federal nuclear liabilities on AECL sites generated prior to March 31, 2006.
- Advanced the environmental restoration of the CRL site by removing significant quantities of contaminated legacy bulk materials and liquids from temporary storage for off-site processing and treatment, thereby reducing the environmental/compliance risks at the site.
- Represented Canada in 61 IAEA committee meetings.
- Accepted 42 new partnership proposals for an annual total of over 100.
- Successfully established all corporate and related support activities necessary for a standalone company resulting in a smooth transition when the deal to sell AECL's commercial operations was closed.

4.3 Analysis of External Business Environment

4.3.1 Global Outlook

Nuclear Safety and Security

The events of Fukushima on March 11, 2011 confirmed the need for technical capability to predict and prevent conditions that could lead to nuclear incidents, and provide protection, mitigation, risk assessment tools and emergency response capability should they occur. It has also highlighted the need for a program in which response forces, regulators and other national and international government agencies have access to foundational technical expertise, so that decisions taken to protect Canadians are risk informed.

The fact that Canada has an established capability in nuclear S&T creates a key opportunity in the current national and international landscape where climate change, a drive for clean energy, and environmental concerns are all strong factors. That opportunity must be viewed in the context of global concerns with nuclear safety and security, the movement of nuclear materials and the challenges of non-proliferation.



Economic Climate

Recovery of the global economy has slowed, and uncertainty surrounding the short-term outlook has risen considerably. Although Canada's domestic economy is performing much better than in other advanced countries, Canada is not immune to the impact of these external developments.

The Government of Canada is maintaining its focus on the priorities set out in Canada's Economic Action Plan by investing in innovation, education and training; and preserving Canada's fiscal advantage. Productive and sustainable investments in these key areas will continue to help lay the foundation for long-term economic growth and prosperity for all Canadians.

AECL can play a part in this effort by contributing on one hand, to the Deficit Reduction Action Plan and on the other, by stimulating business innovation.

4.3.2 Medical Isotopes (Molybdenum-99)

The Federal Government has adopted three policy imperatives with respect to medical isotopes: (1) Ensuring security of supply to Canadians, (2) Minimizing the financial exposure of the Federal Government, and (3) Reducing global reliance on supply from NRU. There are now encouraging signs that the market is maintaining an appropriately diversified supply network.

4.3.3 Regulators and Oversight Bodies

Activities at all the nuclear sites managed by AECL are subject to the licences issued for those sites by the Canadian Nuclear Safety Commission. The Nuclear Laboratories' Chalk River site has successfully renewed its site licence for an additional 5 years to October 2016. A common element in new licences is the requirement for safety improvements that require investments or changes to operations; this has been considered as part of AECL's financial ask and Deficit Reduction measures for the planning period.

AECL will continue membership in the World Association of Nuclear Operators through this planning period. The Association provides valuable advice and support, based upon international best practice, for the safe and efficient operation of nuclear reactors to which the Nuclear Laboratories subscribes.

4.4 Assessment of Corporate Resources

The AECL Nuclear Laboratories has a diverse workforce with scientific, engineering and technical expertise in a large number of fields including physics, chemistry, life-sciences, engineering, materials science, instrumentation, computing and environmental science, as well as expertise in the operation and maintenance of specialized nuclear facilities.



The organization also has a wide range of science facilities and specialized manufacturing facilities, some of which are unique in Canada and provide for much collaboration between government departments and agencies, industry and academia.

The Nuclear Laboratories has unique capabilities of working with radioactive materials, under license from the federal regulator, that have application in fields important to federal policy and Canadians, including nuclear security, non-proliferation, nuclear medicine, environmental technology and technologies in support of the hydrogen economy.

Over its 60 years in operation, AECL has generated significant intellectual property assets. These assets are used extensively by both CANDU Reactor Division (now sold to SNC-Lavalin) for product and services sales, the Nuclear Laboratories for advancing science and technology, and for the safe operation of key nuclear facilities.

AECL also has a strong reputation internationally as an agent of the federal government, as demonstrated by AECL's membership in many prominent international committees, working groups, and expert groups, providing input to develop best practice standards and guidelines for the use and applications of nuclear technologies.

5 PROGRAM ACTIVITIES

The following sections outline each Program Activity (PA), it provides for an introduction of the PA, the expected result, a summary of the sub-activities, achievements made in 2011-12 (as of December 31, 2011), focused objectives for the nominal 3-year rolling plan from 2012 through 2015, and the financial profile for the PA.

5.1 Program Activity 1.1: Nuclear Industry Capability

Expected Result: The Canadian nuclear sector remains safe and productive with access to S&T resources to address emergent technological challenges. Canada is ensured a strong nuclear power sector.

As in other countries with a domestic nuclear industry and nuclear reactor platform, the presence of a federal nuclear laboratory to address public policy issues of safety as well as complex technological challenges from industry, helps ensure that Canada has a strong nuclear power sector, employing Canadians in a high-tech industry at the forefront of Canada's greenhouse gas reduction activities.

This Program Activity ensures a strong connection will continue between AECL – Nuclear Laboratories and the industry, in particular the newly privatized Candu Energy Inc. Through this PA, AECL provides expertise and facilities to industry and develops technology positioning Canada's nuclear industry to seize domestic and global opportunities. This PA is comprised of three sub-activities, described below:

- **Candu Energy Support** provides support to the newly formed Candu Energy Inc.
- **CANDU Owners Group (COG) R&D** is an industry sponsored and defined cost-shared activity undertaking research and development which further the safety, reliability and economic performance of CANDU.
- **Technology Development for the CANDU Industry** assists in maintaining a strong and vibrant Canadian Nuclear Industry by addressing high risk technology development issues associated with enhancing the safety and economic performance of CANDU reactors.

Achievements in 2011-12

Initiatives undertaken this year were related to improving the project management and delivery of Candu Energy Inc. and COG funded work. Significant achievements include:

- Development and approval of a Memorandum of Understanding with Candu Energy Inc. which provides clarity on how it and AECL will work together.
- Successful completion and delivery of the \$25 million research and development program contracted by COG to AECL.
- Completion of the COG Feeder Integrity Joint Project which will ensure adequate fitness-for-service guidelines exist for this critical CANDU component.



PA Objectives for 2012-15

This PA will continue to provide the Canadian nuclear industry with expertise to address high risk technology development issues. Key objectives over the next 2-3 years include:

- Completion of research activities as required by Candu Energy Inc. for its Enhanced CANDU-6 (EC6) development program.
- Completion of the COG Fuel Channel Life Management Joint Project to improve end-of-life criteria for CANDU pressure tubes.
- Development of improved CANDU inspection technologies and heavy water production technologies.

Table 4: Program Activity 1.1 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan				5 Year Total	
			2012-13	2013-14	2014-15	2015-16		2016-17
\$ Millions								
Direct Program Activity Expenditures								
PA 1.1 - Nuclear Industry Capability	40	31	28	26	25	25	25	129



5.2 Program Activity 1.2: Nuclear Safety and Security

Expected Result: Federal activities, regulations and policies, related to nuclear or radiological issues, are supported by the necessary expertise and facilities.

As the centre of federal expertise on nuclear and radiological issues, AECL maintains the safety and security of several federal nuclear sites, develops technology that is used to assure Canada's nuclear safety and security, and provides advice to other government departments and international nuclear bodies.

This PA provides fire, security, radiation safety and nuclear material transportation services to ensure the safety and security of the licensed sites operated by the Nuclear Laboratories across Canada. It develops technologies to lead and assist international efforts in non-proliferation of nuclear weapons and materials, and provides the technical basis for the safe operation of nuclear facilities and reactors in Canada, including tools to support regulatory risk assessment and emergency response to nuclear incidents. An oversight body provides education and assessment to promote a culture of safety and improved performance first within the Nuclear Laboratories and through collaborations, within other national and international organizations. This PA also develops expertise used to represent Canada in international forums on nuclear safety and radiological issues, and to advise and support the private and public sector on topics ranging from safe regulation of facilities, to methods for detection of nuclear materials. It is comprised of five sub-activities, described below:

- **Nuclear Non-Proliferation and Counterterrorism** supports collaborations with Canadian government agencies, the private sector and international organizations to reduce the threat of nuclear proliferation by providing innovation to prevent and detect illegal transport of nuclear materials.
- **Nuclear Security Response** ensures that AECL's nuclear sites present no threat to nuclear safety and security, and provides technical support as required to other nuclear sites in Canada.
- **Nuclear Materials Handling** ensures that nuclear materials are managed and transported such that there is no risk to nuclear workers or the Canadian public.
- **Nuclear Oversight** identifies performance gaps to improve safety and efficiency, and provides oversight for continuous improvement/learning initiatives, including audits of programs and facilities.
- **Nuclear Safety Technology** develops methods to enable the safe execution of nuclear activities in Canada based on sound scientific knowledge, and ensures that the regulator has access to this knowledge. It provides data, tools and measurements to support the safe regulation of nuclear facilities, and to validate and develop codes to perform nuclear safety analysis and define safety margins.

Achievements in 2011-12

Initiatives undertaken this year were related to improving alignment of the program to Federal Government priorities, and improving outreach. Significant achievements included:



- AECL was chosen to assist Defence Research and Development Canada (DRDC) in implementing a Nuclear Forensics program in Canada under the aegis of DRDC's Centre for Security Sciences.
- AECL filed a patent on an imaging and detection method for the Canadian muon tomography cargo inspection system. This technology for the detection of illicit trafficking of special nuclear material is being developed through collaboration with government agencies and industry.
- Site Licence renewal was achieved in October 2011, this provides for an operating site licence, including the NRU to November 2016.
- An emergency exercise was completed at the Whiteshell Laboratories (WL) involving AECL, RCMP, and DND. The exercise demonstrated the combined capabilities in a trained, rapid response to chemical, biological, radiological and nuclear threats due to terrorism or accidents.

PA Objectives for 2012-15

The delivery of technologies, methodologies and initiatives to promote a safe and secure Canada is a core theme of this activity. Related to this theme, key objectives for this PA over the next 2-3 years include:

- Demonstration of new technologies/methodologies to aid in detection and attribution of illicit nuclear materials, consistent with international nuclear safeguards policy objectives; and
- Development of “advanced safety analysis code” prototype releases for education and evaluation purposes.

In response to events at Fukushima, resources have been reallocated to objectives related to understanding and responding to severe accidents. These include:

- Completion of investigations to improve the understanding and mitigate the consequences of containment pressurization, and enhanced fission product releases during loss of power events; and,
- Improvements in the collaboration efforts between regional, provincial and federal agencies to enhance the emergency preparedness and response capabilities for the Nuclear Laboratories and surrounding areas and to provide the resultant lessons learned to the national and international emergency management communities.
- Finally, AECL along with industry partners, CNSC, and RCMP will focus on, and mitigate cyber threats to the company and its partners.

Table 5: Program Activity 1.2 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan				5 Year Total
			2012-13	2013-14	2014-15	2015-16	
\$ Millions							
Direct Program Activity Expenditures							
AP 1.2 - Nuclear Safety and Security	66	69	66	66	66	66	330



5.3 Program Activity 1.3: Clean, Safe Energy

Expected Result: The development of energy technologies that make a beneficial impact on Canada's use of clean energy.

AECL with its collaborators, develops, assesses and facilitates commercialization of innovative technologies to allow for increased energy generation, enhanced safety and efficiencies, and reduced greenhouse gas creation and dependence on fossil fuels.

This PA builds upon existing investments in nuclear energy technologies required to ensure that nuclear-related energy systems are safe, by developing the systems, materials and infrastructures required: for the next generation of nuclear reactors (Generation IV); for Canada to be a key partner in the development of closed cycle (non-proliferation) nuclear fuel cycles; for the application of hydrogen technologies to energy production and industrial applications; and for ensuring that Canadians stay abreast of, and benefit from, developments in fusion energy and small reactor technologies. It is comprised of six sub-activities, described below:

- **Generation IV Technologies** supports and delivers Canada's commitment to the Generation IV International Forum, with the goal of developing the design concept for a pressure tube supercritical water-cooled reactor (SCWR), a more efficient design than current Generation II and III reactors.
- **Tritium and Fusion Technologies** maintains Canada's credibility, presence and expertise in management and applications of tritium technology, including its application by the international fusion community. AECL's tritium technology, developed for safe management of tritium in nuclear fission plants, ensures Canada is well-positioned to apply this capability to other industrial applications.
- **The Hydrogen Technologies** utilizes AECL's expertise in heavy water and hydrogen technology, and its expertise in its patented wet-proofed catalyst technology for applications to electrolysis (electrolytic cells) and fuel cells; and provides the foundation for production and applications of hydrogen as an energy source, and as an industrial feedstock.
- **Sustainable Energy Technologies** focuses on advanced inspection technologies to ensure safe operation of nuclear energy systems, and on development of advanced nuclear fuels and fuel cycles for improved resource utilization, performance and proliferation resistance.
- **Materials Science and Chemistry** develops innovative applications of nuclear materials and chemistry technologies for industrial applications, and supports the development and operation of advanced energy systems through the application of advanced materials and chemistry required to retain structural integrity at high temperatures and over long operation times.



- **Small Reactors** ensures the sustained operation of Canada's fleet of university-based small reactors, and advances the research in small reactor technology as an alternative source of power for remote Canadian communities so that it is safer, cleaner and more cost-effective than diesel.

Achievements in 2011-12

- AECL fulfilled Canada's commitments to the Generation IV Forum (GIF) by submitting publications for SCWR to the GIF, and issued reports on thermal hydraulics, safety and reactor chemistry.
- Supported the Natural Sciences and Engineering Research Council (NSERC) and NRCan in establishing Phase II of the NSERC/NRCan/AECL Generation IV Energy Technologies Program for universities.
- Developed a Tritium compatible membrane-type electrolyser cell that has applications in future detritiation technologies.
- Established collaborative development of industrial-scale electrolyser components for hydrogen production.
- Issued a report on state-of-the-art welding techniques for nuclear fuel.
- Developed a strategy for future materials irradiations.
- Prepared a strategy with partners for the development and application of small reactor technology for Canada.

PA Objectives for 2012-15

- Further progress will be made in the conceptual design of the pressure tube SCWR by defining key thermalhydraulic factors, and any uncertainties arising from incomplete super-critical water data, reactor physics, fuel and scaling factors. The major milestones to be completed by 2015 are the results of preliminary safety analyses of key postulated accident scenarios, a balance of the plant design, a strategy for chemistry control, a physics core configuration and distributions of velocity and temperature inside the calandria vessel of the Canadian SCWR. In 2016 the conceptual design of the Canadian SCWR core is planned to be completed.
- Thermalhydraulics, safety and reactor chemistry reports will be submitted annually in fulfillment of Canada's GIF obligations, while providing supervision of Generation IV university activities on behalf of the NRCan Gen IV Portfolio Committee.
- A commercial-scale tritium-compatible electrolyser will be designed and built for detritiation applications, in partnership with Tyne Engineering. Tritium compatibility will be validated from tests through experimental work in the Tritium Facility.
- Advanced electrolysers for large-scale hydrogen production and catalysts for fuel cells and next generation passive recombiners to address hydrogen safety in hydrogen economy and nuclear applications, including Fukushima-related safety issues will be developed.
- Innovative approaches to inspection technologies to ensure safety of nuclear power plants and other high-energy systems over extended plant lifetimes (up to 80 years) will be demonstrated.
- Advanced techniques for characterizing nuclear materials and components to better predict behaviour under a variety of operating conditions will be developed and demonstrated by improving material performance through developing the capability



to characterize microstructures, establishing a mechanism to understand tubercle growth in buried service water piping and continuing to study the effects of neutron irradiation on the behaviour of nuclear reactor components.

Table 6: Program Activity 1.3 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan				5 Year Total
			2012-13	2013-14	2014-15	2015-16 2016-17	
\$ Millions							
Direct Program Activity Expenditures							
PA 1.3 - Clean, Safe Energy	11	29	28	28	28	28	140



5.4 Program Activity 1.4: Health, Isotopes and Radiation

Expected Result: Canadians experience health benefits from nuclear Science and Technology.

Nuclear medicine was pioneered by AECL in the mid 20th century, and now reaches across the healthcare system in many forms. As a relatively young area of S&T there is significant scope for new innovation to improve the quality of life for Canadians.

This PA provides a reliable supply of medical isotopes to Canada and the international community for diagnostic applications and cancer treatments. This PA also focuses on increasing our knowledge of the effects of radiation to humans which includes the evolving techniques and expertise required for ensuring a safe working environment for workers at nuclear installations.

The Program Activity consists of four sub-activities described briefly below:

- **Isotope Production** produces the medical isotopes that are eventually transported to hospitals around the world. Two Canadian companies integral to the world-wide isotope market are enabled by this activity.
- **The Isotope Supply Reliability Program** is a broad, multi-year portfolio of work that provides hardware and process improvements within AECL's facilities that make up the isotope-production stream. Making such improvements to the NRU reactor is an essential aspect of maintaining the Chalk River operating licence.
- **Isotope Legacy Obligations** manages isotope legacy obligations related to isotope production, including the ongoing monitoring and maintenance of the Dedicated Isotope Facilities.
- **Radiation Biology and Health** seeks to reduce the probability of radiation-induced health effects (including cancer) by improving monitoring and biodosimetry services for nuclear workers. These same services are available to be used more broadly in the event of a nuclear emergency domestically or internationally. The studies of the effects of radiation on human health, which are conducted in collaboration with universities and other research institutions, are required to inform regulation on the safe levels of radiation exposure.

Achievements in 2011-12

- AECL exceeded its target for providing isotopes to market, and has met 98% of planned deliveries year to date.
- An Integrated Safety Review (ISR) of the NRU reactor was completed, which represents the most comprehensive review ever of a research reactor. It was an



essential element for achieving a renewed site licence. The ISR concluded that NRU can continue to run safely over the next ten years by implementing an improvement plan that has been subsequently developed.

- A comprehensive assessment of the condition of all NRU systems was conducted. This review found no immediate safety concerns, and has helped define the inspections and equipment upgrades that make up part of the NRU improvement plan.
- The first planned 30-day outage of the NRU reactor was conducted. Included in the outage was an inspection of the repairs of the NRU vessel that were completed in 2010. No visible degradation of the repaired areas was detected.
- An AECL scientist who is a world expert on the health effects of radiation was invited by the International Atomic Energy Agency (IAEA) to be part of an international team that analysed the events at the Fukushima Nuclear Plant in Japan.

PA Objectives for 2012-15

- Tritiated light water from the NRU rod bay that stores used fuel rods will be completely replaced with fresh water. The tritiated water will be safely stored in a facility currently under construction.
- New methodologies will be introduced to substantially reduce contamination events and emissions that result from the production of medical isotopes.
- A new method will be introduced that will allow better control of uranium and iodine exposures to staff.
- A revision of the software that is used for calculating radiation dose following intakes of radionuclides will be released.
- Studies that describe how low-dose radiation affects cancer and non-cancer diseases will be published.
- Neutron irradiation facilities will operate with new calibration methods. This will make AECL, Canada’s principal centre for calibrating neutron instrumentation.
- Research with Canadian and international organizations will continue, with emphasis on partnerships that exploit the unique capabilities of AECL to undertake biological research with radionuclides in animals.

Table 7: Program Activity 1.4 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan				5 Year Total	
			2012-13	2013-14	2014-15	2015-16 2016-17		
\$ Millions								
Direct Program Activity Expenditures								
PA 1.4 - Health, Isotopes and Radiation	113	128	106	81	74	73	59	393



5.5 Program Activity 1.5: Nuclear Environmental Stewardship

Expected Result: Federal nuclear sites are clean and healthy environments.

To secure the social licence for the continued utilization of nuclear energy, the nuclear sector and the Federal Government must demonstrate responsible environmental stewardship.

This Program Activity addresses the government's commitment to a clean and healthy environment for Canadians by: ensuring Canada's federal nuclear sites, including legacy and historic sites, are clean and healthy environments, demonstrating the responsible deployment of nuclear S&T; managing environmental risks, demonstrating sound environmental stewardship; and providing technologies, expertise and/or facilities in support of the safe storage and long-term management of radioactive waste in Canada.

This program activity includes a number of environmentally-focused programs that AECL implements on behalf of the NRCan under its Radioactive Waste Management Program (NRCan's Sub-Activity 2.2.4 under the Program Activity "Ecosystem Risk Management"):

- **Nuclear Legacy Liabilities** executes the Nuclear Legacy Liabilities Program (NLLP) that is designed to safely and cost-effectively reduce legacy liabilities and associated risks at AECL sites (CRL and off-site locations), based on sound waste management and environmental principles, in the best interests of Canadians.
- **Whiteshell Decommissioning** executes the NLLP-funded program to fully decommission AECL's Whiteshell Laboratories (WL) located in Pinawa, MB, including decommissioning of the Underground Research laboratory (URL).
- **Port Hope Area Initiative (PHAI)** executes the program to clean up historic low-level radioactive waste situated in the Municipalities of Port Hope and Clarington arising from the historic operations of the former Crown Corporation Eldorado Nuclear Limited and its private sector predecessors.
- **Historic Wastes:** operates the Low Level Radioactive Waste Management Office (LLRWMO) to address and manage historic low-level waste at sites in Canada.
- **Nuclear Environmental Technology** conducts environmental activities for scientific, technical and compliance purposes that secure and demonstrate the environmental benefits of nuclear technology.
- **Nuclear Waste Services** seeks the application of innovative waste technologies for clients and stakeholders, and provides a national radioactive waste service to hospitals and laboratories.



Achievements in 2011-12

- Three NLLP program milestones have been completed, resulting in significant reduction of liability and risk at CRL and WL. The three milestones were: treatment of legacy loop decontamination waste at CRL; construction of the first Shielded Modular Above Ground Storage (SMAGS) facility at WL and CRL waste inventory consolidated and managed under change control.
- Positioned Port Hope Area Initiative (PHAI) to enter the implementation phase by completing the Transition Phase milestones, including the designs of the new waste management facilities, establishment of a robust Environmental Assessment follow-up program, and the application and receipt of a 10-year license to move forward with the project.
- Supported Canada's role in the Global Partnership Program and commitments made at the 2010 Nuclear Security Summit by progressing on projects to repatriate Highly Enriched Uranium (HEU)/fissile inventory.

PA Objectives for 2012-15

- Achieve key project milestones and deliverables for NLLP, including the operation of enabling facilities such as the Fuel Packaging & Storage facility at CRL and the Soil Storage Compound at WL; the production of an iteration of the Integrated Waste Plan suitable for public consultation; and the reconfiguration of site utilities at WL , that will help reduce operating costs by permitting the shutdown of the Central Heating Plant.
- Proceed with HEU repatriation projects through the return of Slowpoke fuel and partial return of historic NRX and NRU driver fuel, reducing liabilities and supporting Canada's international commitments on nuclear security (as identified under PA 1.2).
- Install a new Permeable Reactive Barrier to mitigate the risk of groundwater contamination in the outer area of CRL.
- Complete construction of civil infrastructure and water treatment plants to enable the completion of the new long-term waste management facilities in Port Hope and Port Granby, as part of the implementation of Phase II of the Port Hope Area Initiative.
- Reduce costs of waste storage through improved characterization methodologies and appropriate waste storage facilities for very low-level waste produced from site operations and decommissioning activities.
- Improve the management of environmental site data by deploying state-of-the-art data management tools and technology to more readily provide information to all stakeholders, including the public.



Table 8: Program Activity 1.5 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan				5 Year Total
			2012-13	2013-14	2014-15	2015-16 2016-17	
\$ Millions							
Direct Program Activity Expenditures							
PA 1.5 - Nuclear Environmental Stewardship	128	133	161	191	165	142 184	842



5.6 Program Activity 1.6: Nuclear Innovation Networks

Expected Result: Canadian Science and Technology communities advance their innovation agendas through access to federal nuclear innovation infrastructure and expertise.

AECL maintains a suite of critical national science facilities that support the diverse innovation needs within Canada's nuclear and radiation S&T community that comprises industries, universities, research hospitals, and government laboratories, including AECL Nuclear Laboratories. The Nuclear Innovation Networks Program connects the capabilities at the Nuclear Laboratories to members of this community to pursue a spectrum of scientific goals from clean energy to cancer research to nuclear security. The Program provides both a mechanism for increasing the return on investments that have been made in the scientific facilities, programs, and personnel at AECL; and a mechanism to enable AECL to access alternative funding streams, thereby leading to a reduced requirement for direct federal funding for AECL projects.

The Program Activity consists of three sub-activities described briefly below:

- **NRC Canadian Neutron Beam Centre (CNBC)** enables the NRC to operate the CNBC at Chalk River Laboratories by providing supporting infrastructure and programs. The CNBC operates a user access program enabling over 200 scientists, engineers, and students from universities, government labs, and industry to participate in research using the six neutron beam lines. The CNBC is unique in Canada and provides Canadian scientists with the ability to research the molecular structure of materials as diverse as metals, minerals, plastics and bio-materials.
- **Nuclear Innovation Partnerships** actively builds awareness and enables access to AECL's unique expertise and capabilities (beyond the NRC-CNBC), and provides a mechanism for external stakeholders to engage in collaborative research opportunities with AECL.
- **Nuclear Workforce of the Future**, a new activity that began during 2011-12, supports the development of Canada's highly qualified workforce through programs that provide training and experience to Canadians interested in entering the Nuclear Workforce.

Achievements in 2011-12

- During 2012-13 the NRC Canadian Neutron Beam Centre returned to full capacity operation following the interruption caused by the NRU outage. Through the NRC program, the NRU reactor supported 80 S&T projects with professors and students from universities across Canada.



- A comprehensive set of communication materials were developed and deployed in print and electronically that describes over 50 S&T facilities and related capabilities at AECL. This is the first time that this information has been made available to external organizations and will play a significant role to build awareness in potential new partners that could benefit from working with AECL.
- Two week-long education sessions, the ZED-2 Summer School, and the ZED-2 Winter School were delivered during the year.

PA Objectives for 2012-15

The three Sub-Activities within the program are at different stages of maturity and that is reflected in the expected progress each will make in 2012-15.

- During 2012-16 it is expected that NRC will continue to operate the Canadian Neutron Beam Centre at full capacity. NRC will play a more involved role in program governance that will enable the program to grow more responsive to customer needs.
- Communication activities will broaden to ensure that potential Canadian stakeholders who could benefit from access to the Nuclear Laboratories are aware of their options. A full information resource will be rolled out in print and on the web, then maintained from 2012-13 onwards. That resource will transparently show the available facilities and expertise at AECL that can be accessed by others. It will also support access mechanisms whereby external parties can propose partnership projects.
- Partnership activities will continue to grow and mature during the planning period. As the volume of visiting scientists grows, the capacity for AECL to support and enable their work will grow in parallel through the implementation of a formal partnership process that will include metrics to demonstrate the level and impact of partnership activities. No infrastructure changes are proposed for the coming year, but that possibility may arise in following years if needed to support larger numbers of visitors. AECL will expand the external science seminar series during the year that are expressly designed to promote partnerships.
- The Nuclear Workforce of the Future program will transition from conceptual, exploratory activities to establishing educational partnerships with Canadian academic and vocational institutions.

Table 9: Program Activity 1.6 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan					5 Year Total
			2012-13	2013-14	2014-15	2015-16	2016-17	
\$ Millions								
Direct Program Activity Expenditures								
PA 1.6 - Nuclear Innovation Networks	7	1	1	1	1	1	1	5



5.7 Program Activity 1.7: Mission-Ready Science and Technology Infrastructure

Expected Result: Scientists and engineers from AECL and its partner organizations have access to licensed facilities and services that enable nuclear innovation and production in a safe campus environment that is fully compliant with all legislation for conducting nuclear-related activities.

This Program Activity invests in people, plant and processes to achieve safe, reliable and efficient availability of AECL's science and technology infrastructure, while assuring the health and safety of employees, the local community and the environment. There are five sub-activities in this PA, described below:

- **NRU (National Research Universal) Reactor** Readiness ensures Canada's largest and most versatile research reactor is available and operated safely and compliantly in support of science and technology programs.
- **Nuclear Facilities Readiness** ensures all other nuclear facilities and laboratories are safe, operational and accessible to conduct science and technology programs. These facilities are categorized as follows: materials science, chemical science, biological science, radiation science, and equipment testing.
- **Nuclear Waste Management Readiness** provides integrated management of radioactive liquid and solid wastes resulting from execution of program activities.
- **Non-Nuclear Facility Readiness** represents variety of services to support the success of the NL such as supply chain, provision of maintenance, managing engineering changes, and executing major projects.
- **Provision of Real Property and Municipal Services** provides safe, reliable work environments through prudent investment and management of real property assets enabling all AECL PAA sub-activities to deliver their programs.

Accomplishments for 2011-12

- Through the combined efforts of the Nuclear Laboratory and Canadian Nuclear Safety Commission (CNSC) a five year license was granted to the Chalk River site in November 2011.
- Following the Fukushima event AECL provided support to the Government of Canada and the International Atomic Energy Association. Subsequently PA1.7 responded to the CNSC and World Association of Nuclear Operators (WANO) as part of an industry wide initiative involving a broad spectrum of international facilities and regulators to develop and share lessons learned from the event.
- The first annual planned NRU extended outage was successfully completed over 32 days in May and June 2011 to enhance the reliability of NRU and to fulfill AECL's commitment to the CNSC. It was a complex endeavour, consuming over 25,000 hours of planning and execution and involving 50 contract employees representing seven Canadian companies.



- The strategic sourcing initiative continued through 2011-12 aggregating commodity purchases into common categories of supplier expertise providing for a strong competitive pricing process resulting in over a million dollars in annual savings. Major project investment will increase facility availability by the return to service of the U1 loop in NRU and completion of Phase 1 of the Shielded Facility Refurbishment project. Also solid waste projects had strong performance with the completion of the second Shielded Modular Above Ground Storage building and the Bulk Material Landfill.

PA Objectives for 2012-15

- Increasing productivity is the biggest leverage area for PA1.7 therefore a transformation of asset management, work planning, and strategic sourcing programs will be undertaken to implement sustained productivity improvements.
- Continued work to bring the U2 loop in NRU on line will enable an additional facility that can be used by researchers internal and external to AECL.
- NRU effectiveness will be increased by completing the actions from the WANO peer review and focussed improvement in the execution of planned shutdowns.
- Several buildings need to be replaced to comply with today’s building codes or fire regulations, and to gain operational efficiencies. Expected accomplishments include: the renovation of the B137 Hydrogen Facility, and relocation of the hydrogen lab; the detailed design for the B215 Tritium Facility; and the detailed design for the new R&D laboratory Building B350.
- Construction of an additional Shielded Modular Above Ground System for storage of low- and intermediate-level radioactive waste will be completed.
- CRL Site environmental risks related to radioactive liquid management systems will be reduced through the implementation of a modern life-cycle asset management program, and improvements to, or replacement of, existing infrastructure.
- Shielded Facilities are essential for testing and analysis of radioactive materials and reactor fuel. Phase two of their refurbishment will commence in 2012-13 with the awarding of the construction contract for ventilation upgrades to the Universal Cells, and construction substantially complete by 2015.
- AECL has committed that it will upgrade facilities that do not meet current provincial and/or federal standards. The detailed design will be completed, and construction started for the Domestic Water System and Sanitary Sewage Treatment facility. The Class IV electrical upgrade design and legislated improvements to the underground fuel tanks will be completed.

Table 10: Program Activity 1.7 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan					5 Year Total
			2012-13	2013-14	2014-15	2015-16	2016-17	
\$ Millions								
Direct Program Activity Expenditures								
PA 1.7 - Mission Ready S&T Infrastructure	201	180	208	239	221	206	233	1,107



5.8 Program Activity 1.8: Internal Services

Expected Result: Provide the business and administrative support functions and infrastructure to enable the efficient and effective delivery of all program outputs .

The Internal Services program contains two Sub-Activities, one that accounts for the standard Internal Services functions (Business Services), and the other to capture the organizational change agenda which will be implemented during 2012-13.

The first Sub-Activity, Business Services comprises the suite of business support functions such as General Counsel, Finance, Information Technology, Human Resources, Communications, Business Planning, Business Development and Management & Oversight Services. These functions support all program areas and enable the efficient conduct of day-to-day business, compliance with applicable policies, regulations and legislation and the required interface, as a Crown Corporation, with the Government of Canada.

- **General Counsel** provides legal context and advice to all of the program activities and helps manage the associated legal risks. It also provides Intellectual Property management support. General Counsel also provides infrastructure and support to comply with the Public Servants Disclosure Protection Act, Access to Information Act and Privacy Act.
- **Information Technology** maintains the computing infrastructure and provides network, applications and desktop support services.
- **Finance** provides the financial operations, accounting and reporting services and business support and analysis to enable effective financial management of the programs.
- **Human Resources** provide the support functions and processes to enable program activities to manage their human resources in accordance with collective agreements, policies and legislation. Human Resources also provide the supporting programs to promote a safe work environment and healthy work force.
- **Communications and Government Relations** provide external and internal communications and information support. It also provides the interface between the Nuclear Laboratories management and senior elected officials and Government of Canada departments and agencies.
- **Business Development** provides the marketing, sales and contracting services to support both the developing and securing of business opportunities with external customers and partners.
- **Management and Oversight Services** provides the senior management oversight to ensure program alignment, planning and execution. The function also includes the oversight provided by Internal Audit services.



The relevance of Internal Services today and going forward is reflected in the need for Internal Services to permit a standalone Nuclear Laboratories organization.

The second Sub-Activity, the Organizational Change Agenda drives our key strategic initiatives which will be formed by the six Action Areas for Improvement as described in Section 4 and the support for the Nuclear Laboratories Restructuring.

- **The Six Action Areas for Improvement**, as outlined in AECL's strategic direction:
 - a. Focus on AECL's S&T Priorities;
 - b. Implement a Robust Program Governance;
 - c. Enhance Productivity;
 - d. Stimulate Business Innovation;
 - e. Leverage Collaborations; and,
 - f. Improve Multi-year Management of Infrastructure Recapitalization.

Support the Nuclear Laboratories Restructuring - Changes, if any, to Nuclear Laboratories' mandate through the second phase of restructuring, led by the Government of Canada, through Natural Resources Canada.

Achievements in 2011-12

The focus in 2011-12 for Internal Services was to respond to the consequences of Phase 1 of AECL restructuring. With the divestiture of AECL's commercial operations in October 2011, AECL undertook to re-establish the internal services functions previously delivered from its Sheridan Park location and to enable AECL's on-going operations as a standalone Nuclear Laboratories.

- Substantial investment in staff and infrastructure was made in Information Technology to provide the full complement of support services. In making the investment, the opportunity was taken to deploy modern and cost effective technology to enable performance at better or comparable to industry benchmarks.
 - data centre capacity was expanded to accommodate the increased requirements;
 - virtual servers (servers with software that allows multiple server instances within the same physical hardware) were employed thereby reducing server costs; and,
 - backup infrastructure purchased and a tiered storage approach will reduce reliance on tape media and annual operating costs.
- Finance Operations (Payroll, Accounts Payable, Cash & Banking) were established at Chalk River to enable day-to-day business. The Corporate Accounting & Reporting function was also established.



- External Communication and Government Relations responsibilities were transferred to the Nuclear Laboratories.
- Human Resources supported the collective bargaining unit negotiations aimed at ensuring cost containment.
- Nuclear Laboratories undertook to evolve its management construct to better suit a federal science and technology organization.

PA Objectives for 2012-15

Actions have and will be undertaken to enhance productivity and reduce costs over the next two years.

- Human Resources will support initiatives aimed to improve resource utilization and cost management, to enhance supervisory and management practices and to optimize shift scheduling to reduce overtime costs.
- Business Development will promote greater engagement with industry to enable business innovation and technology transfer and to secure commercial revenues to reduce government funding needs.
- Business Planning & Services will undertake to optimize the Company’s records management strategy to reduce storage costs; the opportunity to partner with other organizations to share library services will be explored to reduce costs.
- IT will collaborate with Protective Services and external firms to ensure AECL information assets are first and foremost adequately protected against cyber attacks. Software applications will be assessed with appropriate updates to ensure IT is fully leveraged in the delivery of services and program activities.
- Finance will undertake to streamline and standardize financial processes following divestiture of the commercial operations and to ensure greater alignment with the Treasury Board Management Accountability Framework as a standalone science and technology organization.
- To complete or progress the strategic initiatives outlined under the Organizational Change Agenda.

Table 11: Program Activity 1.8 Financial Projection

	Actuals 2010-11	Budget 2011-12	Plan					5 Year Total
			2012-13	2013-14	2014-15	2015-16	2016-17	
\$ Millions								
Direct Program Activity Expenditures								
PA 1.8 - Internal Services	28	37	38	38	38	38	38	190
PA 1.8 - Internal Services One Time Costs	-	9	6					6
Net Cash Flow	28	46	44	38	38	38	38	196



6 FINANCIAL STATEMENTS

6.1 Financial Framework

The consolidated results which include the Nuclear Laboratories, the Wrap Up Office from October 1, 2011 and the CANDU Reactor Division up to September 30, 2011 are included in Appendix 1. This section focuses on the financial statements for the Nuclear Laboratories. Expenditures will be required in future years for the Wrap Up Office but cannot be included in this Plan due to commercial sensitivities.

The Corporate Plan has a five year focus with the major emphasis being on the first two years in view of the pending restructuring of the Nuclear Laboratories. The 2011-12 Corporate Plan has been used as the baseline in developing the new plan.

- Compared to the operating funds provided to AECL by the Government in 2011-12, the requirement for non-escalated operating funds has been reduced by 7.5% in 2013-14, and further reduced to 13.4% by 2016-17. These reductions represent a cumulative savings over the 5-year planning period of \$119 million in non-escalated operating funds compared to 2011-12 funding, for an average annual reduction of 9.4%. These reductions will be realized principally through planned program wind down, productivity improvements and through the offset of Government funding by commercial revenues.
- The planned profile of capital funding as submitted via the 2011-12 Corporate Plan has been reassessed by AECL in light of both the Deficit Reduction Action Plan and AECL restructuring policy objectives. Priority has been afforded those capital projects that address critical regulatory, safety, security and environmental concerns; projects that represent a low risk of being adversely affected by the AECL restructuring; and projects that are already under contract. The result is a cumulative reduction by \$103 million in the capital funding required over the 5-year planning period compared to the requirement in the 2011-12 Corporate Plan submission. The majority of the reductions are due to project deferrals and a pragmatic re-assessment of capital project execution schedules.

Legacy and Historic Waste Programs, such as the Nuclear Legacy Liabilities Program, have not been subjected to the funding reductions outlined above.

An analysis of Revenue/Funding Sources is included in Section 6.3 following the Key Financial Assumptions presented in the next section.

6.2 Key Financial Assumptions

This section outlines the key financial assumptions that have been applied in the development of the Financials for the 2012-13 AECL Corporate Plan.

AECL has applied a 7.5% reduction in operating funding in an effort to align with other expenditure reduction initiatives underway in other areas of the federal government. A number of initiatives will be implemented to achieve these reductions, which will include:

- Improved productivity:
 - Harvest results from the existing efficiency initiative;
 - Develop consistent approach to grading nuclear vs. non-nuclear work;
 - Seek improvement through external vs. internal delivery management; and,
 - Drive down waste costs by aggressively applying the three Rs (recycle, reuse, reduce).
- Prioritization and rebalancing of efforts in output Program Activities:
 - Focus on NL S&T Priorities; and,
 - Enhance Governance with stakeholder engagement.
- Improved Asset Management:
 - Leverage tradespersons by streamlining the preventive maintenance program;
 - Reduce inventory of spare parts by improving control mechanisms; and,
 - Improve trade utilization through more efficient scheduling of work.

Heavy Water: The Plan assumes that AECL will continue to retain proceeds from Heavy Water sales to China to operate the Chalk River facilities. It is anticipated that a resolution of this issue will result from the restructuring of AECL.

Restructuring Outcomes: The Corporate Plan does not make any assumptions as to the possible outcomes of the Nuclear Laboratories restructuring. At the same time, the funding requirements of this Corporate Plan and the improvement initiatives to be undertaken are deemed to be aligned with the Government's policy objectives for AECL restructuring.

Port Hope Area Initiative: AECL has assumed that the funding submission for the Port Hope Area Initiative implementation phase will be approved by Government according to the current program plan. AECL support for this initiative is performed on a cost recovery basis.



Escalation: The plan assumes a 2% per year escalation effective in 2014-15. Inflationary pressures for the first two years of the plan will be managed through the productivity initiatives previously described.

6.3 Revenue/Funding Sources

Table 12: Revenue/Funding Sources

Nuclear Laboratories Revenue / Funding Sources								
\$ Millions	Actuals Budget (1)				Plan			5 Year Total
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
Government Funding (Table 13)	502	502	523	556	509	470	534	2,591
Commercial Activities	103	100	115	108	105	109	92	530
Total Budget (Govt. Funding + Comm. Activities)	605	602	638	664	614	579	626	3,121

Note 1 - As per 2011-12 Corporate Plan approved November 17, 2011 (PHAI amended to reflect current expectations)

Note: Minor differences are due to rounding.

The AECL Nuclear Laboratories, as shown in Table 12, currently operates through a variety of federal and commercial funding mechanisms which include:

Government Funding

- Operating Funding (including funding referred to as 'base', and components of the Isotope Supply Reliability Program (ISRP) and Project New Lease (PNL) programs that are ongoing in nature, i.e., recurring). Also included within Operating Funding are Operating Projects from PNL and ISRP. The Deficit Reduction Action Plan reduction objectives have been applied to the total Operating Funding component of Government Funding.
- The requirement for non-escalated operating funds has been reduced by 7.5% in 2013-14 compared to 2011-12 and a further 13.4% by 2016-17. Over the five year planning period this represents a reduction of \$119 million, for an average annual reduction of 9.4%. These reductions will be realized principally through planned program wind down, productivity improvements and through the offset of Government funding by commercial revenues.
- Other Government Funding (not subject to the Deficit Reduction Action Plan due to the nature of the expense as outlined in Section 6.1 and noted as Exception or Partial Exception in Table 13):
 - Non-recurring items which represent one-time costs.
 - Capital Funding which includes components of ISRP and PNL which are capital in nature. Both ISRP and PNL are driven by health, safety,



security, and environmental as required by the CNSC operating licence and other regulatory requirements.

- Isotope Legacy Obligations Dedicated Isotope Facilities (DIF) which represents legacy obligations related to medical isotopes.
 - Legacy and Historic Waste Programs where AECL executes on behalf of other departments, principally NRCan's Nuclear Legacy Liabilities Program (NLLP), Port Hope Area Initiative (PHAI) and Low Level Radioactive Waste Management Office (LLRWMO).
 - Government "B" Base Funding (Gen IV, CRTI) where AECL performs work on behalf of the departments on a project-by-project basis.
- While capital funding is projected to increase compared to 2011-12 it has been reduced by \$103 million (as noted in Table 2) cumulatively over the period 2012-13 to 2015-16 from the 2011-12 Corporate Plan.
 - Legacy and Historical Waste funding is projected to increase due to the assumption that the Port Hope Area Initiative (PHAI) Phase II of the program is approved which reflects a significant increase in activity – approximately \$27 million from 2011-12 to 2012-13. The NLLP program which AECL executes on behalf of NRCan is also expected to increase. Fiscal years 2012-13 and 2013-14 reflects the final two years of the three year program which was approved last year. The remaining years are based on a longer term projection.



Table 13: Government Funding

Nuclear Laboratories Government Funding		Actuals Budget (1) _____ Plan _____						5 Year
\$ Millions	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Government Ask								
Operating								
Base Funding - Recurring	175	146	141	141	141	141	141	705
ISRP Operating - Recurring	19	19	19	19	19	19	19	95
PNL Operating - Recurring	36	36	35	33	33	33	33	167
	<u>230</u>	<u>201</u>	<u>195</u>	<u>193</u>	<u>193</u>	<u>193</u>	<u>193</u>	<u>967</u>
ISRP Operating Projects	40	39	27	20	17	16	16	97
PNL Operating Projects	6	13	24	20	14	14	10	82
	<u>46</u>	<u>52</u>	<u>51</u>	<u>41</u>	<u>32</u>	<u>30</u>	<u>26</u>	<u>179</u>
Escalation (2% per year beginning 2014-15)					4	9	13	27
Total Operating - without escalation	<u>276</u>	<u>253</u>	<u>245</u>	<u>234</u>	<u>224</u>	<u>223</u>	<u>219</u>	<u>1,146</u>
Total Operating - with escalation	276	253	245	234	229	232	232	1,172
Non-Recurring (Exception)								
NRU Return to Service	27							
One Time Restructuring Costs		9						0
Voluntary Term Compensation			6					6
	<u>27</u>	<u>9</u>	<u>6</u>					<u>6</u>
Capital (Partial Exception)								
ISRP	2	23	14	13	13	13	6	60
PNL	21	39	61	96	80	60	87	384
Total Capital	<u>23</u>	<u>62</u>	<u>75</u>	<u>110</u>	<u>93</u>	<u>73</u>	<u>93</u>	<u>443</u>
Govt. Ask (Operating + Non-Recurring + Capital)	326	324	325	344	322	305	326	1,621
Legacy Obligations (DIF) (Exception)	34	25	18	1	1	1	2	23
Legacy and Historic Wastes (Exception)								
NLLP	126	139	138	172	150	126	168	754
PHAI	12	9	36	33	30	32	32	163
LLRWMO	2	3	4	4	4	4	4	20
	<u>140</u>	<u>151</u>	<u>178</u>	<u>209</u>	<u>184</u>	<u>162</u>	<u>204</u>	<u>937</u>
Government Ask	<u>500</u>	<u>500</u>	<u>521</u>	<u>554</u>	<u>507</u>	<u>468</u>	<u>532</u>	<u>2,581</u>
Government "B" Base Funding (GEN IV, CRTI)	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>10</u>
Total Government Funding (Govt Ask + "B" Base)	<u>502</u>	<u>502</u>	<u>523</u>	<u>556</u>	<u>509</u>	<u>470</u>	<u>534</u>	<u>2,591</u>

Note 1 - As per 2011-12 Corporate Plan approved November 17, 2011 (PHAI amended to reflect current expectations)

Note: Minor differences are due to rounding.



Commercial Funding/Revenue

Commercial Funding is comprised of:

- Heavy Water proceeds;
- Isotope production;
- CANDU Owners' Group comprising of research & development services;
- Candu Energy Inc. Support; and,
- Other (Miscellaneous waste disposal revenue).

Commercial activities represent an important revenue source and contribute approximately \$115 million a year of funding.

An initiative in 2012-13 will be to increase revenue from In-Kind contribution. In-Kind contribution refers to the value of the effort expended by a collaborator on an AECL project. Although there is no transfer of funding, this contribution allows AECL and the contributor to leverage each other's investment in the project undertaken.

Heavy Water proceeds are projected to increase due to proceeds from additional lease or sales to the external market.



6.4 Financial Summary by Program Activity

Table 14: Financial Summary

	Actuals 2010-11	Budget 2011-12	Plan					5 Year Total
			2012-13	2013-14	2014-15	2015-16	2016-17	
\$ Millions								
Revenue/Funding								
Government Ask	500	500	521	554	507	468	532	2,581
Government "B" Base Funding (GEN IV, CRTI)	2	2	2	2	2	2	2	10
Commercial Activities	103	100	115	108	105	109	92	530
	605	602	638	664	614	579	626	3,121
Direct Program Activity Expenditures								
PA 1.1 - Nuclear Industry Capability	40	31	28	26	25	25	25	129
PA 1.2 - Nuclear Safety and Security	66	69	66	66	66	66	66	330
PA 1.3 - Clean, Safe Energy	11	29	28	28	28	28	28	140
PA 1.4 - Health, Isotopes and Radiation	113	128	106	81	74	73	59	393
PA 1.5 - Nuclear Environmental Stewardship	128	133	161	191	165	142	184	842
PA 1.6 - Nuclear Innovation Networks	7	1	1	1	1	1	1	5
PA 1.7 - Mission Ready S&T Infrastructure	201	180	208	239	221	206	233	1,107
PA 1.8 - Internal Services	28	46	44	38	38	38	38	196
	594	617	641	671	618	579	634	3,142
Funding Surplus (Deficit)								
Working Capital Requirements	(11)	15	3	7	4	(1)	8	21
Net Cash Flow	-	-	-	-	-	-	-	-

Note: Minor differences are due to rounding.

Government Funding-Operating

The decrease in operating funding in the plan reflects initiatives to reduce in accordance with the Deficit Reduction Action Plan.

Health, Isotopes and Radiation

Expenses are projected to decrease over the plan period due to a reduction in the projected costs for the legacy obligations and a reduction in the Isotope Supply Reliability Program.

Nuclear Environmental Stewardship

This PA includes two major initiatives. The NLLP program is based on the three year plan that was approved last year with 2012-13 representing the second year of the plan. The projected spending in 2012-13 is \$138 million compared to the 2011-12 budget of \$139 million. The remaining years are based on the plan which had been presented to NRCAN as part of the approval process of the three year plan. The PHAI is based on their Phase II submission which has been submitted and is pending approval which projects an increase to \$36 million in 2012-13 compared to the forecast spend in 2011-12 of \$9 million.



Mission Ready S&T Infrastructure

The increase is due to increase in capital spending compared to 2011-12. In evaluating capital projects the focus was on projects that address critical safety, security and environmental concerns and represented a low risk of being adversely affected by AECL restructuring.

6.5 Risks and Mitigating Strategies

Table 15 provides a list of key commercial risks and operating risks that AECL has identified, and is taking steps to mitigate.

Table 15: Risks and Mitigating Strategies

	Risk	Mitigation
Commercial Risks	Candu Energy Inc.: New relationships being developed, current projections assume level of demand will continue.	<ul style="list-style-type: none"> - Costs are primarily labour. Reduced demand would be managed by redeployment of resources to other projects. Any lost margin would be accommodated through the productivity initiatives. - Development of MOU to foster mutual business growth opportunities.
	CANDU Owner’s Group: Membership, R&D Projects.	<ul style="list-style-type: none"> - Costs are primarily labour. Reduced demand would be managed by redeployment of resources to other projects.
Operating Risks	Regulatory compliance issues: <ul style="list-style-type: none"> - Monitoring of performance against site license conditions. - Regulatory compliance issues following site relicensing. 	Change control process established.
	Inflationary pressures: <ul style="list-style-type: none"> - Utilities - Labour Expenses 	Productivity improvements.
	Asset Reliability/ Safety System Failure	Increased preventative maintenance through PNL. Integrated Implementation Plan.



APPENDIX 1. 2012-13 CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Funding

AECL								
Revenue / Funding Sources								
\$ Millions	Actuals	Budget	Plan					5 Year Total
			2010-11	2011-12	2012-13	2013-14	2014-15	
Nuclear Laboratories								
Government Funding (Table 13)	502	502	523	556	509	470	534	2,591
Commercial Activities	103	100	115	108	105	109	92	530
Total Nuclear Laboratories	605	602	638	664	614	579	626	3,121
Wrap Up Office		258	224					224
CANDU Reactor Division	452	193						-
Consolidated Budget	1,057	1,053	862	664	614	579	626	3,345

Note: Minor differences are due to rounding.



Consolidated Income Statement

\$Millions	Actuals		Budget					5 Year Total
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
Nuclear Laboratories								
Revenue	78	73	85	78	75	79	62	380
Cost of Sales	49	45	47	45	40	40	33	205
Contribution	57	52	38	33	35	39	29	175
Funding	467	433	442	446	416	397	440	2,142
Period Expenses	506	491	506	516	485	466	508	2,480
EBIT	18	(6)	(26)	(37)	(34)	(29)	(38)	(164)
Accretion	263	927	4	(25)	(3)	21	(21)	(24)
Interest Income	3		2	2	2	2	2	10
Net Income (Loss) from Continuing Operations	(242)	(933)	(28)	(10)	(29)	(48)	(15)	(130)
Discontinued Operations	210	190	145					145
Net Income (Loss) after Discontinued Operations	(32)	(743)	117	(10)	(29)	(48)	(15)	15
CANDU Reactor Division								
2010-11 Restated CANDU Reactor Division as Discontinued Operations. 2011-12 to Sept. Details below.								
	Actuals	Budget						
	2010-11	2011-12						
Revenue	473	175						
Cost of Sales	553	206						
Contribution	(80)	(30)						
Funding	654	193						
Period Expenses	364	146						
EBIT	210	17						
2011-12 Oct to March Wrap Up Office								
		Budget						
		2011-12	2012-13	2013-14	2014-15	2015-16		
Funding / Commercial Revenue		381	350					
Expenses		208	205					
EBIT		173	145					
Total Discontinued Operations	210	190	145					

Note: Minor differences are due to rounding.



Consolidated Balance Sheet

Consolidated AECL Balance Sheet						
\$ Millions	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Assets						
Cash	19	19	19	19	19	19
Accounts Receivable	23	13	13	13	13	13
Long Term Receivables	177	147	118	88	59	29
NWMO Trust Fund	38	41	45	49	53	57
Heavy Water Inventory	291	291	291	291	291	291
Inventory	27	27	27	27	27	27
Prepaid Expenses	2	2	2	2	2	2
Fixed Assets (Net)	262	332	429	513	575	668
Total Assets	839	872	944	1,001	1,039	1,106
Liabilities						
AP & Accrued Liabilities	105	100	95	89	86	86
Deferred Waste Funding	147	176	206	236	265	305
Employee Future Benefits	55	49	49	49	49	49
Customer Advances / Provisions	293	178	12	1	65	65
Deferred Revenue	27	19	13	7	3	3
Deferred Capital Funding	207	292	386	472	544	637
Long Term Payables	7	-	-	-	-	-
Decommissioning & Site Remediation	5,092	5,061	5,135	5,145	5,123	5,136
Total Liabilities	5,933	5,875	5,897	5,999	6,135	6,281
Equity						
Capital Stock	15	15	15	15	15	15
Contributed Capital	348	323	298	273	248	223
Deficit	(5,457)	(5,341)	(5,266)	(5,286)	(5,359)	(5,413)
Total Equity	(5,094)	(5,003)	(4,953)	(4,998)	(5,096)	(5,175)
Total Equity and Liabilities	839	872	944	1,001	1,039	1,106

Note: Minor differences are due to rounding.

Management's assessment is that a balance of at least \$20 million or approximately one-month of estimated payroll should be the minimum cash balance.

The Trust Fund represents the accumulated contributions 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 high-level nuclear fuel waste in Canada (plus accrued interest).

Accounts receivable represents outstanding invoices to customers, plus any work in progress. A planning assumption of the Corporate Plan is that collection rates are maintained so that 90% of receivables are current and collected within 40 days.

Long-term receivables primarily relate to the China Heavy Water sale, which is payable to AECL and drawn down over a period of 15 years.

AECL will, consistent with past practice, continue to utilize heavy water proceeds received throughout the plan period to fund operations and to report the proceeds as



deferred decommissioning funding. To fund current operations, AECL must borrow from Heavy Water proceeds and the waste management funds set aside for new waste generated, for which funding has not been appropriated.

Accounts payable and accrued liabilities represent amounts or obligations owing to suppliers, salaries payable to employees, and outstanding vacation liability. Aging of accounts payable are expected to be slightly greater than accounts receivable. Decreases in the level of accounts payable over the plan period is mainly driven by the winding down of the mandate of the Wrap Up Office. Customer advances are the liabilities created as a result of cash received from customers for future work not yet performed, primarily down-payments on major projects. These amounts are drawn as the work is performed and decrease as the work of the Wrap Up Office is completed.

The Waste Management and Decommissioning and Site Remediation provision represents the future obligation to address waste management and decommissioning liabilities, both legacy and new operational waste. That liability is expressed in terms of the present value of future expenditures required to discharge the obligation. AECL's decommissioning and waste management provision is adjusted annually to reflect progress to date, new estimates as they become available and new waste liabilities arising from ongoing operations. These new liabilities are not currently funded. As such, it is assumed that these new waste liabilities will be funded in the future period in which the work is undertaken to disposition those liabilities. The year-over-year growth in this account represents the incremental costs to discharge the liability in the future. The adoption of International Financial Reporting Standards (IFRS) requires that the liability be revalued quarterly using the spot interest rate at that time. This has resulted in significant increases in the value of the liability but does not represent a current cash flow requirement from government. The future impact that interest rate changes will have on the liability cannot be determined.

Deferred revenue is the unearned interest portion of the long-term receivable pertaining to the Heavy Water sale, as noted above. Long-term payable represents a deferred payment arrangement for isotope target material and other supplies associated with the DIF. Deferred capital funding is the amount of past federal funding for capital items that have yet to be amortized.



Consolidated Cash Flow

Cash Flow by Division \$ Millions	Actuals	Budget						5 Year Total
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
Nuclear Laboratories								
Net Cash Flow Before Revenue & Funding	(655)	(602)	(638)	(664)	(614)	(580)	(626)	(3,121)
Commercial Revenue	78	100	115	108	105	109	92	530
Government Funding	527	502	523	556	509	470	534	2,591
	(50)	-	-	-	-	-	-	-
Discontinued Operations - CANDU Reactor Division								
Net Cash Flow Before Funding	(431)	(193)						-
Government Funding	452	193						-
	21	-	-	-	-	-	-	-
Discontinued Operations - Wrap Up Office								
Net Cash Flow Before Funding		(258)	(224)					-
Government Funding		258	224					-
		-	-	-	-	-	-	-
Net Cash Flow	(29)	-	-	-	-	-	-	-

NOTE: Numbers in table above are presented on a cash flow basis.

Note: Minor differences are due to rounding.



APPENDIX 2. 2012-13 OPERATING BUDGET

The following financial statements reflect the activities of AECL’s Nuclear Laboratories, CANDU Reactor Division, and the Wrap Up Office.

Revenue and Net Income

Nuclear Laboratories has considerable operating costs associated with deteriorating facilities and increasing CNSC health and safety requirements. Based upon projected funding Nuclear Laboratories is projecting an operating loss of \$28 million in 2012-13.

Expenditures in 2012-13 pertaining to the (ramp down, Isotope Legacy Obligation - DIF) are estimated to be \$11 million.

The incremental accretion expense for the net present value calculation of the long-term legacy liability is \$927 million in 2011-12 which is primarily due to the movement to IFRS and the requirement to revalue the liability using the spot interest rate at year end. The impact that spot rate changes will have on the liability in 2012-13 cannot be determined at this time.

Income Statement by Division		
\$ Millions	Budget 2011-12	Plan 2012-13
Nuclear Laboratories		
Revenue	73	85
Funding	433	442
Expenses	536	553
	<u>(30)</u>	<u>(26)</u>
Accretion	927	4
Net Income after Accretion	(957)	(30)
Interest Income	-	2
Net Income	(957)	(28)
Discontinued Operations - CANDU Reactor Division		
Total Revenue & Interest	175	
Earnings/(loss) before Development and Funding	(176)	
Funding	193	
Product Development		
Net Income	17	
Discontinued Operations - Wrap Up Office		
Funding / Commercial Revenue	381	350
Expenses	208	205
Net Income	173	145
Total Net Income	(767)	117

Note: Minor differences are due to rounding.



Government Support

AECL's Nuclear Laboratories reflects \$523 million in funding for 2012-13 (including Government "B" Base Funding), for research and facilities and to meet safety and regulatory requirements. This includes \$138 million for NLLP. The Wrap Up Office has projected funding of \$224 million.

Funding by Division		
\$ Millions	Budget 2011-12	Plan 2012-13
Nuclear Laboratories		
Operating		
Base Funding - Recurring	146	141
ISRP Operating - Recurring	19	19
PNL Operating - Recurring	36	35
ISRP Operating Projects	39	27
PNL Operating Projects	13	24
Total Operating	253	245
Non-Recurring	9	6
Capital		
ISRP	23	14
PNL	39	61
	62	75
Legacy Obligations (DIF)	25	18
Legacy and Historic Wastes		
NLLP	139	138
PHAI	9	36
LLRWMO	3	4
	151	178
Total Government Funding	500	521
Government "B" Base Funding (GEN IV, CRTI)	2	2
Discontinued Operations - CANDU Reactor Division		
Product Development	30	
Life Extension Projects	132	
Other	31	
	193	
Discontinued Operations - Wrap Up Office	258	224
Total Funding	953	747

Note: Minor differences are due to rounding.



Cash Flow

The cash flow reflects an increase in government funding for Nuclear Laboratories from \$500 million in 2011-12 to a projected funding requirement of \$521 million in 2012-13. The increased funding is primarily due to increased capital spending and the implementation of the Phase II stage of the Port Hope Area Initiative.

Cash Flow by Division		
	Budget	Plan
<u>\$ Millions</u>	<u>2011-12</u>	<u>2012-13</u>
Nuclear Laboratories		
Net Cash Flow Before Revenue & Funding	(602)	(638)
Commercial Revenue	100	115
Government "B"Base Funding (GEN IV, CRTI)	2	2
Government Funding	500	521
	-	-
Discontinued Operations - CANDU Reactor Division		
Net Cash Flow Before Funding	(193)	-
Government Funding	193	-
	-	-
Discontinued Operations - Wrap Up Office		
Net Cash Flow Before Funding	(258)	(224)
Government Funding	258	224
	-	-
Net Cash Flow	-	-

Note: Minor differences are due to rounding.



Balance Sheet

The overall cash position at the end of March 2011 is \$19 million.

The long-term receivables and the deferred revenue represent the long-term Heavy Water lease and associated interest income, which are reduced as payments are received.

Customer advances will decline as major delivery milestones are met.

Consolidated AECL Balance Sheet		
\$ Millions	Budget 2011-12	Plan 2012-13
Assets		
Cash	19	19
Accounts Receivable	23	13
Long Term Receivables	177	147
NWMO Trust Fund	38	41
Heavy Water Inventory	291	291
Inventory	27	27
Prepaid Expenses	2	2
Fixed Assets (Net)	262	332
Total Assets	839	872
Liabilities		
AP & Accrued Liabilities	105	100
Deferred Waste Funding	147	176
Employee Future Benefits	55	49
Customer Advances / Provisions	293	178
Deferred Revenue	27	19
Deferred Capital Funding	207	292
Long Term Payables	7	-
Decommissioning & Site Remediation	5,092	5,061
Total Liabilities	5,933	5,875
Equity		
Capital Stock	15	15
Contributed Capital	348	323
Deficit	(5,457)	(5,341)
Total Equity	(5,094)	(5,003)
Total Equity and Liabilities	839	872

Note: Minor differences are due to rounding.



APPENDIX 3. WRAP UP OFFICE

On October 2, 2011, AECL and the Government of Canada completed the sale of AECL's CANDU Reactor Division to Candu Energy Inc., a subsidiary of SNC-Lavalin. As a condition of the sale, AECL remains responsible for all pre-closing liabilities related to the CANDU Reactor Division business.

Due to the nature of the transaction, a WUO was established in October 2011 in order to segregate these liabilities and obligations from AECL's remaining entity, Nuclear Laboratories, and to manage them.

The management activities include the administering of and funding for the existing life extension projects (LEPs); management of outstanding claims and litigation; completion of the right-sizing of the corporation resulting from the transaction; and management of the financial support for reactor technology (EC6) development.

Given the work remaining, the WUO requires certain skills and abilities to discharge all of the remaining obligations and responsibilities of the former CANDU Reactor Division arising from the transaction. The WUO will focus primarily on the management of the subcontracts with Candu Energy Inc., to complete the existing life extension projects, and the commercial and legal work required to settle outstanding and new claims relating to CANDU Reactor Division's work pre-closing. This effort will be supported by general office staff, engineers, accountants, lawyers, managers, and other specialized staff. A small complement of AECL employees will be retained for these purposes.

The WUO is expected to be wound down within five years, following the completion of the Gentilly-2 LEP, which is currently anticipated to be completed by 2015-16. The initial contract costs are high, but this reflects not only setup in the first year but also legal and other contract costs associated with Gentilly-2 and Point Lepreau LEP issues. A strategy will be developed to deal with any residual or unresolved claims, litigation or warranty obligations beyond the projected close of the WUO. NRCAN will propose options for consideration in anticipation of the WUO closure.



APPENDIX 4. ACRONYMS

Abbreviation	Description
ACR-1000	Advanced CANDU Reactor
AECL	Atomic Energy of Canada Limited
CANDU	CANada Deuterium Uranium
CBRNE	Chemical, Biological, Radiological-Nuclear, and Explosives
CBSA	Canada Border Services Agency
CNSC	Canadian Nuclear Safety Commission
CRL	Chalk River Laboratories
CRTI	CBRNE Research and Technology Initiative
DFAIT	Department of Foreign Affairs and International Trade
DIF	Dedicated Isotope Facilities
DND	Department of National Defence
DRDC	Defence Research and Development Canada
EC6	Enhanced CANDU 6
EmP	Emergency Preparedness
GIF	Generation IV International Forum
HEU	Highly-Enriched Uranium
HSSE	Health, Safety, Security and the Environment
IAEA	International Atomic Energy Agency
IFRS	International Financial Reporting Standards
INPRO	International Project on Innovative Nuclear Reactors and Fuel Cycles
IRSN	Institut de Radioprotection et de Sûreté Nucléaire
ISO	International Standards Organization
ISR	Integrated Safety Review
ISRP	Isotope Supply Reliability Program
ITER	International Thermonuclear Experimental Reactor
LLRWMO	Low-Level Radioactive Waste Management Office
LEP	Life Extension Projects
LMU	Liability Management Unit
LWDF	Light Water Detritiation Facility
MAPLE	Multi-purpose Applied Physics Lattice Experiment
Mo-99	Molybdenum-99
MPF	Moly Processing Facility
MRRS	Management Resources and Results Structure
NL	Nuclear Laboratories
NLLP	Nuclear Legacy Liabilities Program



Abbreviation	Description
NPD	Nuclear Power Demonstration
NRC	National Research Council
NRCan	Natural Resources Canada
NRU	National Research Universal
NSERC	Natural Sciences and Engineering Research Council
NWMO	Nuclear Waste Management Organization
OECD	Organisation for Economic Co-operation and Development
OPG	Ontario Power Generation
P3	Public-Private Partnership
PA	Program Activity
PAA	Program Activity Architecture
PHAI	Port Hope Area Initiative
PNL	Project New Lease
PNO	Programs and Nuclear Oversight
R&D	Research and Development
RTO	Research and Technology Operations
S&T	Science and Technology
SCWR	Super-Critical Water Cooled Reactor
UNENE	University Network of Excellence in Nuclear Engineering
UOIT	University Ontario Institute of Technology
WM&D	Waste Management and Decommissioning
WANO	World Association of Nuclear Operators.
WL	Whiteshell Laboratories
WUO	Wrap Up Office