The Enhanced CANDU 6TM Reactor - Generation III CANDU Medium Size Global Reactor

S. Azeez, P. Dick and J. Hopwood

Atomic Energy of Canada Limited, Canada
azeezs@aecl.ca

Abstract. The Enhanced CANDU 6™ (EC6™) is a 740 MWe class heavy water moderated pressure tube reactor, designed to provide safe, reliable, nuclear power. The EC6™ has evolved from the proven eleven (11) CANDU 6 plants licensed and operating in five countries (four continents) with over 150 reactor years of safe operation around the world. In recent years, this global CANDU 6 fleet has ranked in the world's top performing reactors. The EC6 reactor builds on this success of the CANDU 6 fleet by using the operation, experience and project feedback to upgrade the design and incorporate design improvements to meet current safety standards.The key characteristics of the highly successful CANDU 6 reactor design include:

- Powered by natural Uranium;
- Ease of installation with modular, horizontal fuel channel core;
- Separate low-temperature, low-pressure moderator providing inherently passive heat sinks; Reactor vault filled with light water surrounding the core;
- Two independent safety shutdown systems;
- On-power fuelling;
- The CANDU 6 plant has a highly automated control system, with plant control computers that adjust and maintain the reactor power for plant stability (which is particularly beneficial in less developed power grids-where fluctuations occur regularly and capacities are limited).

The major improvements incorporated in the EC6 design include:

More robust containment and increased passive features e.g., thicker walls, steel liner;

Enhanced severe accident management with additional emergency heat removal systems;

Improved shutdown performance for improved Large LOCA margins;

Upgraded fire protection systems to meet current Canadian and International standards;

Additional design features to improve environmental protection for workers and public– ALARA principle;

Automated and unitized back-up standby power and water systems;

Other improvements to meet higher safety goals consistent with Canadian and International standards based onPSA studies;

Additional reactor trip coverage, based on refurbishment projects experience, to meet current Canadian Regulations.

Both CANDU 6 and EC6 offer flexible fuel cycle options including use of slightly enriched uranium from reprocessed LWR spent fuel, high burnup MOX fuel, thorium, etc., in a more efficient 43 element fuel bundle carrier called CANFLEXTM

A target life up to 60 years with one mid-life refurbishment of critical equipment such as fuel channels and feeders.

Project elements have been optimized through feedback from past construction projects, to arrive at an EC6 "in-service" schedule of 57 months from first concrete. Open-top construction method using a very-heavy-lift crane,

concurrent construction, modularization and prefabrication and use of advanced computer technologies to minimize interferences are the key contributing elements for achieving this schedule.

State-of-the-art electronic tools for engineering, safety, licensing, procurement, drafting and project management are integrated to provide complete document control during all phases of the project, including construction and commissioning. This information, in electronic format, will be turned over to the Owner for operational and configuration management needs during plant life. Advanced MACSTORTM design for efficient dry spent fuel storage with optimized space usage.

Fig. 1. Two-Unit Enhanced CANDU 6 Plant

1. OVERVIEW OF CANDU 6 FEATURES AND PERFORMANCE

There are 11 CANDU 6 Reactors operating in five countries around the world, yielding an excellent average capacity factor of over 88% for the full fleet. Three of the Wolsong units in Korea were among the top 10 reactors in the world over the last decade. This performance has been achieved while maintaining an excellent safety record.

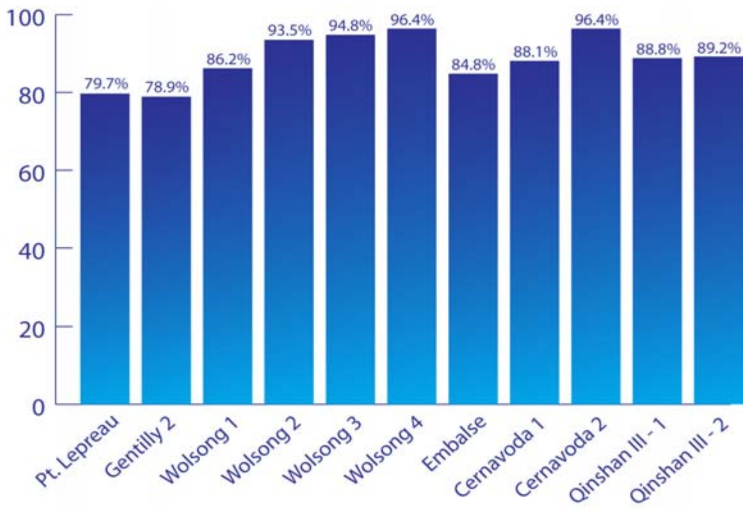

Fig. 2. CANDU 6 Lifetime Capacity Factors 2008[1]

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[1] CANDU Owners Group Inc, Dec-31-08

The EC6 design benefits from the proven principles and characteristics of the CANDU design and the extensive knowledge base of CANDU technology gained over many decades of operation.

Proven CANDU strengths include:

- Modular, horizontal fuel channel core
- Separate low temperature and pressure moderator
- Reactor vault filled with light water which surrounds the core
- On-power refuelling
- Two independent passive, safety shutdown systems
- Reactor building access for on-power maintenance

AECL has factored new regulatory requirements from the Canadian Nuclear Safety Commission (CNSC) and expected requirements from overseas regulators, new codes and standards, feedback from exiting customers, in-house studies and lessons-learned from previous projects into the design process. This has resulted in the Enhanced CANDU 6™ (EC6)™, which is a 740 MWe class pressure tube reactor, designed to meet the industry and public expectations for safe, reliable, environmentally friendly, nuclear power generation. The EC6 is thus a proven design, which offers reliability, flexibility in operation to load follow and the ability to be connected to most grids.

2. MAIN FEATURES OF ENHANCED CANDU 6 REACTOR

The EC6 reactor offers a combination of proven and state-of-the-art technology. The EC6 has set new objectives to further improve the CANDU 6 by raising its power output, simplifying operations and maintenance thereby reducing operator's workload, dealing with obsolescence issues and streamlining the design. The target operating life of the EC6 will be up to 60 years. A two-Unit EC6 station offers significant cost advantages, flexibility in operation and ability to be connected to any grid size. With a projected capacity factor of 90% and AECL's ability to maximize localization and commitment to transfer technology, the EC6 is indeed well suited to meet the energy needs of the 21st century.

2.1. Improved Plant Power Output

AECL's latest CANDU 6 plants built at Qinshan site in China deliver a gross output of 720 MWe per unit and the Wolsong 2/3/4 plants in Korea deliver up to 735 MWe. Advancements done by AECL to improve the plant ouput up to 740 MWe gross include:

- Installation of an Ultrasonic Flow Meter (UFM) to improve the accuracy of feedwater flow measurement
- Improvements to the Moisture Separator Reheater (MSR)
- Reduction of steam losses across the CSDV's and ASDV's
- Optimization of the BOP thermal cycle

Reduction of the thermal house loads will be achieved by the utilization of more efficient equipment such as improved feed water heaters, more efficient pump motors, lowered pressure drop across various equipment, more efficient station transformers, and optimization of station lighting, etc.

The increased output is realised without disturbing the licensed limits for fuel and other primary side parameters.

2.2. 60 Year Plant Life

The EC6 design offers a target life of up to 60 years with replacement of certain critical equipment such as the fuel channels around mid-life. This objective will be achieved by elongating the fuel channel bearings, thickening the pressure tube slightly, increasing the feeder wall thickness, using improved equipment and materials, better plant chemistry, and more active monitoring of critical plant parameters. All life-limiting factors have been evaluated and addressed, supported by extensive R&D. By essentially doubling the useful life of the reactor, the plant owners are assured of a long-term supply of their electricity needs with an improved return of assets.

2.3. Simple Plant Operability and Maintainability

AECL has an active feedback monitoring system process that continually captures feedback from operating plants and incorporates it into the design of CANDU reactors. Based on this feedback, AECL is modifying a number of systems to simplify maintenance and reduce operator workload.

As an example, the cooling water systems design has been improved to have dual trains that enable interconnections of these trains during maintenance or plant upset conditions. Also, automated safety system testing will be incorporated. This not only will reduce the testing workload but will also eliminate human errors that can cause inadvertent reactor trips. In addition, AECL has developed a number of health monitors that will be incorporated in new plants or added as retrofits to existing plants.

2.4. Reduced Project Schedule

The EC6 overall project schedule is aimed at 57 months from first concrete to in-service, with a second unit to follow 6 months later. These targets will be achieved by the use of additional modularization, open top construction using a Very-Heavy-Lift (VHL) crane, pre-ordering of some long delivery items, and standardization of various pieces of equipment such as valves, tanks, piping etc.

2.5. Robust Plant Security

The EC6 offers improvements to the plant's security by including protection against aircraft strikes and external events. The containment civil structure will be thickened and more reinforcing steel will be added to meet such objectives.

Further hardening of the safety systems and improvements to the spatial separation of essential safety systems will be built into the design. Group 2 safety systems, which offer a redundant path to shutdown the plant safely, will be rearranged to be protected from the impact of an aircraft strike.

Depending on the location of the plant, the EC6 can also be designed to meet tornado protection. AECL implements ALARA principles in all of its safety design work.

2.6. Optimized Plant Maintenance Outages

As part of improving the capacity factor of the EC6, AECL undertook a detailed assessment of the requirements for maintenance outages. Periodic short duration maintenance outages of less than a month once every eigtheen months will be a key target of the EC6 reactor. This objective will be achieved by automating a number of tasks such as shutdown systems testing. The majority of these activities can be undertaken with the reactor at power.

In addition, extensive use of Reliability Centered Maintenance (RCM) techniques will be employed in lieu of the equipment maintenance schedules specified by the equipment suppliers (after expiration of the warranty period). An array of health monitoring equipment will be installed to foretell impending equipment problems, which can be acted upon, avoiding complications that could result in forced shutdowns.

2.7. Modern Computers and Control Systems

The EC6 has a number of features that modernize the plant and address equipment obsolescence. These features simplify plant displays, reduce the amount of wiring runs and save considerable construction effort and costs.

The Digital Control Computers (DCC's) will be replaced with more modern and state-of-the-art Distributed Control System (DCS) which will control and monitor various systems such as reactor operation, power generation equipment, fuel handling and auxiliary systems. The DCS supports both, group and device control, thus reducing the need for individual group controllers.

In addition, a Plant Display System (PDS) to manage operator interactions with the DCS will be included. The DCS/PDS also will include the functionality required to manage plant annunciation and support on-line procedures.

The EC6 plant will incorporate the above features in a modern Advanced Control Room. Safety system operation is retained as a hardwired function. Computerized testing and displays have been added to ease the operator's workload.

2.8. Improved Severe Accident Response

To further improve plant safety, the EC6 design will incorporate features to mitigate core degradation and contain the consequences from severe accidents. Such features will include provisions for additional heat sinks as well as a cooling system to manage the containment temperature and pressure. The number of penetrations will be reduced and the steel lined containment structure will be strengthened to meet a higher design pressure. All radionuclide releases following the severe accident will be confined within containment or released in a controlled manner.

AECL has been enhancing the performance for CANDU 6 reactors under postulated severe accident conditions that go considerably beyond the normal design basis for nuclear power plants. The heavy water moderator surrounding the fuel channels in the Calandria vessel effectively mitigates the consequences of postulated severe accidents. In addition, the moderator is surrounded by a shield tank, which can also absorb decay heat should moderator cooling fail. These features assure that the CANDU fuel does not melt even if both, normal and emergency cooling systems, become unavailable. The EC6 will further build on these inherent passive safety features to improve the dousing tank to supply cooling water by gravity to various systems in case of a severe accident. Severe core damage accidents would progress very slowly giving ample time for accident management and implementing necessary counter measures.

2.9. Flexible Fuel Cycle Options

The natural uranium fuel cycle offers simplicity of fuel design, ease of fabrication, and ready availability of natural uranium. These strategic features help to localize the technology. However, for those clients who desire to take advantage of alternative fuel cycles, the EC6 offers a number of options:

- The easiest first step in CANDU fuel-cycle evolution will be the use of slightly enriched uranium (SEU), including recovered uranium from reprocessed Light Water Reactors (LWRs) spent fuel. Relatively low enrichment (up to 1.2%) will result in a two - to three-fold reduction in the quantity of spent fuel per unit energy production, reductions in fuel-cycle costs, and greater flexibility in plant operations

- A high burnup CANDU MOX fuel design could utilize plutonium from conventional reprocessing or more advanced reprocessing options (such as co-processing).
- DUPIC (Direct Use of Spent PWR Fuel In CANDU) represents a recycle option that has a higher degree of proliferation resistance than does conventional reprocessing, since it uses only dry processes for converting spent PWR fuel into CANDU fuel, without separating the plutonium.
- Long-term energy security can be assured either through the thorium cycle or through a CANDU FBR (Fast Breeder Reactor) system, in which the FBR would be operated as a "fuel factory," providing the fissile material to power a number of lower-cost, high-efficiency CANDU reactors. The 43-element CANFLEX (CANDU Flexible) fuel bundle developed by AECL would be the optimal fuel carrier. When operated at current bundle powers, peak linear element ratings are reduced by 15-20%. Depending on burnup and fuel temperatures the fission-gas release within the fuel element will be reduced. Critical heat flux and critical channel power will be also increased, due to optimized heat removal characteristics of the bundle, which can be used to increase margins in operating reactors.

2.10. Improved Fire Protection System

The EC6 will have an improved fire protection system which includes:

- Upgraded firewalls and penetrations compared to previous designs to meet new codes and standards
- A new solid-state multiplex system will be used in place of the hard wired system
- Individually addressable detectors will also be used as required.

AECL will perform a fire hazard assessment (FHA) to address potential fires and consequences in all areas of the plant, to demonstrate that safe shutdown can be achieved and maintained following all postulate fires.

2.11. Advanced MACSTOR Design for Dry Spent Fuel Storage

AECL's spent fuel dry storage technology evolved from the concrete canister system, which was successfully deployed at the Wolsong 1 and Point Lepreau CANDU 6 plants. The capacity of this generation of concrete canisters is 540 bundles (10 MgU approximately). This was followed by the development and successful use of the MACSTOR-200™ modules to store spent fuel at the Gentilly 2 and Cernavoda stations.

To minimize space requirements and lower capital costs, the MACSTOR design was optimized to address larger fuel throughputs. An Advanced MACSTOR design has been jointly developed with Korea Hydro and Nuclear Power (KHNP). The selected configuration is a 4-row MACSTOR module with a capacity of 24,000 bundles stored in 400 baskets, each holding 60 spent fuel bundles. The module is termed MACSTOR/KN-400 and increases storage density by a factor of approximately 3. Compared to the MACSTOR-200 module, the Advanced MACSTOR module requires about 30% less space.

2.13. Enhanced Heavy Water Management Systems

The EC6 will utilize AECL's Combined Electrolysis and Catalytic Exchange (CECE) D_2O upgrader technology that has several advantages over the distillation process (DW) used by the currently operating plants. The CECE equipment is much smaller with lower capital costs, and the amount of steam, cooling water and chilled water required is also much smaller. CECE upgraders have much lower emissions of D_2O and tritium and lead to lower C14 from the off-gas system. This process offers several benefits including:

- A simpler, smaller layout which is more efficiently erected, resulting in a maximum of 34 months start-up after Contract Effective Date (CED), compared with 48 months start-up after CED for the DW plant
- The CECE design has approximately 40% higher tritium hold-up and a lower D_2O liquid holdup of about 16%.
- The projected CECE tritium emissions are 500 times lower than DW emissions
- CECE technology can also be used for detritiation (removal of tritium) of heavy water.

3. GENERATION III CRITERIA

AECL has undertaken an assessment to demonstrate the ability of the EC6 reactor to satisfy Generation III criteria. The key elements of this review are described below.

3.1. Simplification

Simplification opportunities should be pursued with high priority and assigned greater importance in design decisions than has been done in previous operating plants. Simplification should be assessed primarily from the standpoint of the plant operator. One way to simplify the operation is to reduce the burden on the operators by improved control room and information processing systems.

The CANDU 6 design basis does not require any operator intervention for at least 15 minutes following an abnormal condition. The CANDU 6 system relies on computer control through two redundant on-line computers that, in addition to control function, also manages information and alarms.

The design of the control room and the control systems, including testing, has been significantly enhanced in the EC6 compared to the previous generation of CANDU 6 reactors. This improvement reduces the burden on the operator and contributes to EC6 simplification. The control room and operations environment have been redesigned to offer greater flexibility and simplification of presentation of information such as alarms (hierarchy, priority, etc) to the operator. The general principle is to provide requisite information without overload, but with access on-demand to other layers of information.

3.2. Design Margin

Similar to simplification, design margin is considered to be of fundamental importance and should be pursued with very high priority. It should be assigned greater importance in design decisions than has been done in operating plants. Design margins that go beyond regulatory requirements should not be traded off or eroded for licensing purposes.

Design margins have been reviewed in the EC6 and increased wherever practical. For example, the containment design includes a higher design pressure and lower test acceptance leakage rate. In the event of hydrogen release into containment following a postulated accident, hydrogen mitigation is accomplished through the use of igniters and Passive Autocatalytic Recombiners (PARs). The containment has also been made thicker and more reinforcing steel added to protect against external threats, such as deliberate aircraft strike. These features provide additional margin in design.

Also, in the moderator cooling system, modifications to nozzle orientation are used to improve moderator circulation and to give significant increase in subcooling margin. In the event of a loss of the Emergency Core Cooling system, the moderator system's ability to maintain fuel cooling and fuel channel structural integrity has been considerably enhanced through this feature.

The traditional CANDU 6 design includes 2 independent and fully capable shutdown systems. That is, either system acting alone has the capability to detect and respond to an event and brings the reactor to a safe shutdown state. These systems are being upgraded by adding new engineered features to increase safety margins following postulated accidents including LOCA's.

3.3. Human Factors

Human factors considerations should be incorporated into every step of the design process. Significant improvements should be made in the main control room design.

The EC6 design is largely based on an existing, well established and proven design, which complies with good human factors practices in accordance to CNSC Regulatory Policy P119. Over the years since the first CANDU 6 plant went into commercial operation in 1983, improvements have continuously been made to improve operability and maintainability in response to operation feedback.

Design changes to be implemented that affect operations, testing and maintenance will be carried following NUREG-0700 (Human-Systems Interface Design Review Guideline) and IEEE Standard 1023 (Guide for the Application of Human Factors Engineering to Systems, Equipment and Facilities of Nuclear Power Generating Stations). AECL also has procedures for incorporation of the Human Factors into the design.

As described earlier, significant improvements have been made to the control room and operations environment. Other changes have been made to improve maintenance and accessibility. Still others have been made to field controls and offline systems for improved operability. Human factors considerations have been implemented into every step of the design change process in the evolution of the EC6.

3.4. Safety

The advanced reactor design should achieve excellence in safety for protection of the public, on-site personnel safety, and investment protection. The primary emphasis should be on accident prevention as well as significant additional emphasis on mitigation.

The following safety features contribute to the overall safety of the EC6 design:

- The EC6 design continues to utilize the passive safety feature of the traditional CANDU. The EC6 containment design is significantly improved and enhanced, compared to the traditional CANDU 6 design.
- Addition of Passive Autocatalytic Recombiners (PARs) for long-term hydrogen control (in addition to igniters).
- In the EC6 design, the Calandria inlet nozzle/outlet port configuration is reconfigured to improve flow distribution inside the Calandria to increase moderator subcooling. This change will further ensure fuel cooling and channel integrity for beyond design basis accidents
- EC6 feeder design, including choice of material, has been changed to improve their fitness for service.
- Addition of low flow dousing system for operation in case of severe accidents.
- The EC6 structures are designed to protect against external threats, such as deliberate aircraft strike.
- Changes to the Instrumentation and Control functions of the EC6 include the addition of an Emergency Control Centre (EmCC) and of an expanded Safety Parameter Display System (SPDS) so that it is also available in Secondary Control Area (SCA) and EmCC,
- The EC6 design incorporates an Emergency Heat Removal System, to provide heat sink capability, including automated EPS start-up.

3.5. Design Basis vs. Safety margin

The advanced reactor design should include both safety design and safety margin requirements. Safety design requirements are necessary to meet the regulatory requirements with conservative, licensing-based methods. Safety margin requirements are plant owner-initiated features, which address investment protection and severe accident prevention and mitigation on a best estimate basis.

The EC6 design is intended to comply with applicable CNSC regulations for licensing in Canada. In addition, the EC6 design incorporates features intended to reduce the likelihood of an occurrence of a beyond design basis event (including severe accidents) leading to core degradation, as well as mitigating the consequences of such an unlikely event, should it occur. The EC6 design incorporates safety margin on containment design and containment cooling systems to mitigate severe accidents.

3.6. Regulatory Stabilization

Advanced reactor licensability should be assured by resolving open licensing issues, appropriately updating regulatory requirements, establishing acceptable severe accident provisions, and achieving a design consistent with regulatory requirements.

Design improvements will incorporate all open licensing issues, generally identified by the CNSC Action Items, which have been addressed by suitable design changes.

The EC6 design meets today’s rigorous licensing requirements. In addition, anticipated future licensing requirements will be factored into design.

3.7. Standardization

Advanced reactor requirements should form the technical foundation that leads the way to standardized, certified plant designs.

Throughout the CANDU 6 design process, standardization of systems and components has continuously been taking place to reduce the number of types of components, thus simplifying spare part requirements and maintenance. In addition, following the Qinshan design, a major review has been underway to further reduce the number of different components, for example standardizing on a few sizes for valves. This leads to further reduction in maintenance efforts.

The EC6, building on the CANDU 6 basis, is a generic design where the only modifications needed are for site-specific conditions or for specific client requirements.

3.8. Proven Technology

Proven technology should be employed throughout the advanced reactor design in order to minimize investment risk to the plant owner, control costs, take advantage of existing operating experience, and assure that plant prototype is not required; proven technology is that which has successfully and clearly been demonstrated in existing reactors and applicable industries such as fossil power and process industries.

The CANDU 6 reactor design offers a combination of proven and state-of-the-art technology. EC6 design is based on the well-known CANDU 6 design, which continues to operate successfully around the world. The design incorporates this proven technology with a track record for efficient and reliable operation.

A number of design changes are introduced in EC6. AECL takes a staged approach in handling these design changes by applying proven technologies and design practices. Thus the fundamental core design of CANDU is retained, i.e a heavy water moderated, heavy water cooled, pressure tube reactor using natural uranium fuel with changes to further enhance safety and performance.

A similar approach addresses equipment obsolescence issues by applying a rigorous and systematic program for searching and selecting the replacement equipment.

3.9. Maintainability

The advanced reactors should be designed for ease of maintenance to reduce operations and maintenance costs, reduce occupational exposure, and to facilitate repair and replacement of equipment.

The EC6 design allows for extended operation between maintenance outages and shorter outage durations during the maintenance interval, compared to the operating CANDU 6 designs. The EC6 design provides for ease of maintenance to reduce operations and maintenance costs, reduced occupational exposure, and facilitates repair and replacement of equipment. All these features result in a significant improvement of the overall capacity factor of the plant.

During this design process, consideration is given to operate the reactors at higher capacity factors and improve maintenance and operations. Consideration is also given to using only proven equipment, increased automation, increased diagnostics, improved component design, addressing single-point vulnerabilities and the features of the plant control and monitoring system and human system interface.

3.10. Constructability

The advanced reactor construction schedule should be substantially improved over existing plants and must provide a basis for investor confidence.

The EC6 construction is based on the proven construction methodology used at Qinshan, which resulted in a very successful project that was ahead of schedule and under budget. The main elements of the EC6 construction strategy are: Open-top construction method using a very-heavy-lift crane; concurrent construction; modularization and prefabrication; and the use of advanced technologies to minimize interferences. Also, reductions in piping, cabling (due to the use of Distributed Control), and in the number of valves in EC6 will contribute to reducing the construction time. The EC6 is targeted to achieve a construction schedule of 57 months.

3.11. Quality Assurance

The responsibility for high quality design and construction work rests with the line management and personnel of the Plant Design and Plant Constructor organization.

AECL is a certified nuclear reactor vendor that applies QA programs to continually enhance quality, attending to client requirements (via a design feedback program), and incorporating experience and lessons learned into its product. The Overall QA Program of AECL satisfies the requirements of Canadian Standard CSA-N286.0, Management System Requirements for Nuclear Power Plants as well as the requirements of the International Standard ISO 9001.

The EC6 design will meet the high quality assurance standards as set by the most recent editions of the following CSA Standards:

- CSA-N286.0, Management System Requirements for Nuclear Power Plants
- CSA Standard N286.3, Construction Quality Assurance for Nuclear Power Plants
- CSA Standard N286.2, Design Quality Assurance for Nuclear Power Plants

3.12. Economics

The advanced nuclear power plants should be designed to have projected costs that provide sufficient cost advantage over the competing baseload electricity generation technologies to offset higher capital investment risks associated with nuclear power plants.

The EC6 is cost competitive with other baseline power plants for electricity generation, such as coal, oil and gas. EC6 has achieved this by a careful review of the design to target reducing capital cost, operating costs, house loads, and increasing power output and capacity factor. This has resulted in a lower Levelized Unit Energy Cost.

The schedule is optimised by executing, prior to a project contract, a series of activities to ensure design readiness and a seamless transition to the procurement and construction phases

3.13. Sabotage Protection

The advanced reactor design should provide inherent resistance to sabotage and additional sabotage protection through plant security provisions and integration of plant arrangements and system configuration.

The EC6 design features will protect the plant against design basis threats, both internal and external. The design features include strengthened buildings, equipment separation and redundancy and other measures to protect customer assets.

Improvements dictated by new fire codes to further enhance the design are also introduced.

3.14. Good Neighbour

The advanced reactor should be designed to be a good neighbour to its surrounding environment and population by minimizing radioactive and chemical releases.

The operation of CANDU 6 units showed no events with dose limits violation or environmental impact. This gives assurance that EC6 will have similar or better performance. EC6 essentially builds on these features and is expected to yield similar or better performance in terms of releases, etc. For EC6, AECL has redesigned systems to lower emissions.

4. CONCLUSION

Capitalizing on the proven features of CANDU technology, AECL has designed the EC6 to be cost competitive with all forms of energy, including nuclear, while achieving high safety and performance standards consistent with customer expectations.

5. SUMMARY

Capitalizing on the proven features of CANDU technology, AECL has designed the EC6 to be competitive with all forms of energy, including nuclear, while achieving high safety and performance standards.