

# CANDU – A GLOBAL LEADER

**CANDU-6 has outperformed all competition since the year 2000 with a fleet average capacity factor of 88%, compared to 81% for the PWR/BWR global fleet and 87% for the US fleet\***

## AECL DELIVERY: ONLINE – ON TIME, ON BUDGET

- :: AECL's *delivery record* – six reactors completed in 3 countries within the last 8 years – leads the *international Nuclear Power industry*
- :: All reactors were ready for production *within original cost estimates and on or before scheduled dates*
- :: AECL's *pace setting track record* is achieved through advanced project management tools, modular open top construction techniques and strong relationships with world class partners like Hitachi and SNC-Lavalin
- :: Our *superior completion history* combined with strong Government backing allows AECL to offer unmatched project performance guarantees

## AECL SUPPORT: MANAGING THE COMPLETE LIFE CYCLE

- :: AECL's *innovative, full life cycle reactor support* is provided through our government backed national research centre at Chalk River, Ontario
- :: Our *long term vision* for nuclear power drives the evolution of AECL's products from the CANDU-6 through ACR to Generation IV designs
- :: *Utility partners are supported* by AECL's complete range of refurbishment, long term waste management and plant decommissioning technologies and services

\* Source: CANDU Owners Group (Nov/04)

## CANDU SAFETY: BEST IN THE WORLD

- ::  $5 \times 500 = 0$  (Five Countries  $\times$  Five Hundred Reactor Years = *ZERO accidental release of radioactivity*)
- :: *Unique design* means CANDU is the *only reactor* where failures of both primary and emergency cooling systems will *not result in a fuel melt*
- :: *Passive Safety* – CANDU reactors combine a moderator tank, calandria shield heat sinks and elevated water tanks
- :: *Dual Shutdown* – CANDU is the *only reactor* with two fast acting, independent shutdown systems
- :: *CANDU 6's Passive Safety + Dual Shutdown = Lower Accident Frequency* (Est. 3-6 events per million reactor years) Less than both operating BWR and PWR reactors

## CANDU PERFORMANCE: VERY EFFICIENT

- :: CANDU is the *only reactor* with *on-power fuelling capability* that allows *much longer run times*. Pickering Unit 7 holds the world record for continuous operation – 894 days
- :: ACR reactors can *run for up to three years* between maintenance outages - LWRs require mandatory refueling outages every 12- 24 months
- :: CANDU-6 *outperforms the competition* with an **88%** fleet average capacity factor compared to 81% for the PWR/BWR global fleet and 87% for the US fleet **SINCE 2000\***

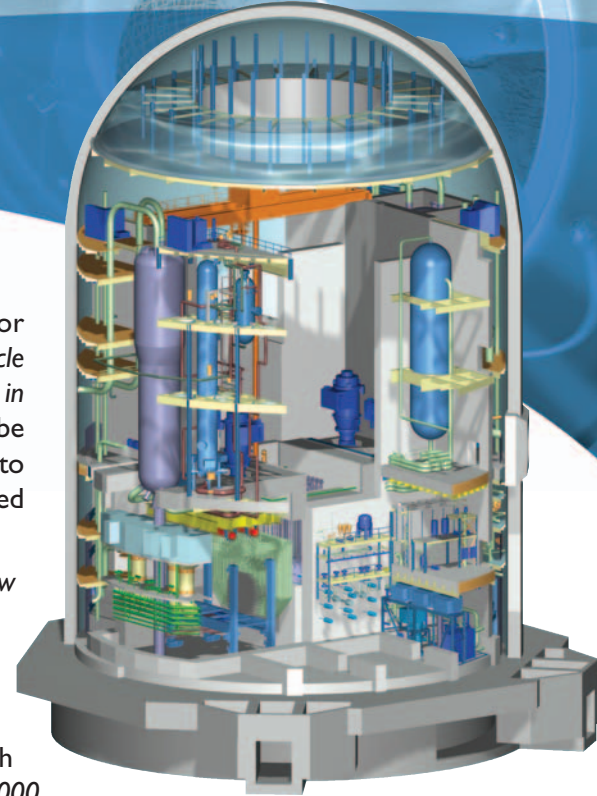
### NON-PROLIFERATION CONTROLS: MOST RIGOROUS

- :: *Importing countries* must be a signatory to the Non-Proliferation of Nuclear Weapons Treaty and Canada's Nuclear Cooperation Agreement which insures AECL technology is used *only for peaceful purposes*
- :: *Full scope safeguards* must be in place – IAEA inspections, 24-hour surveillance of fuel in reactor core and spent fuel bay, security seals on all fuel containers
- :: *CANDU/ACR fuel* has lower enrichment and is less attractive to diversion
- :: Each CANDU fuel bundle has a *unique identification number* and *all are accounted for* through 500 reactor years of operation in five countries
- :: 5 x 500 = 0 (Five Countries x five hundred reactor years = zero diverted fuel bundles)

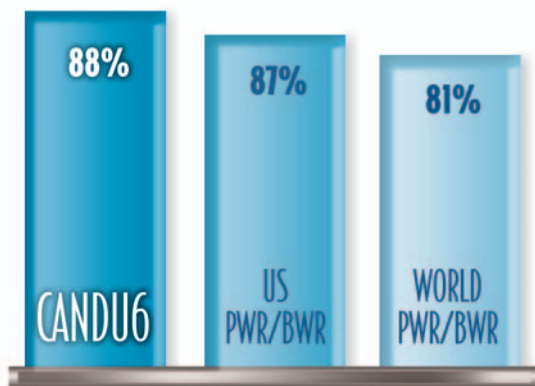
### CANDU VALUE: A CANADIAN SUCCESS

- :: Canada's nuclear industry is a \$5 billion per year industry; 21,000 direct jobs, 10,000 indirect jobs, 150 firms, \$1.2 billion in exports.
- :: Operation of a *common CANDU fleet in Ontario* would offer *dynamic economic benefits with reduced risk*

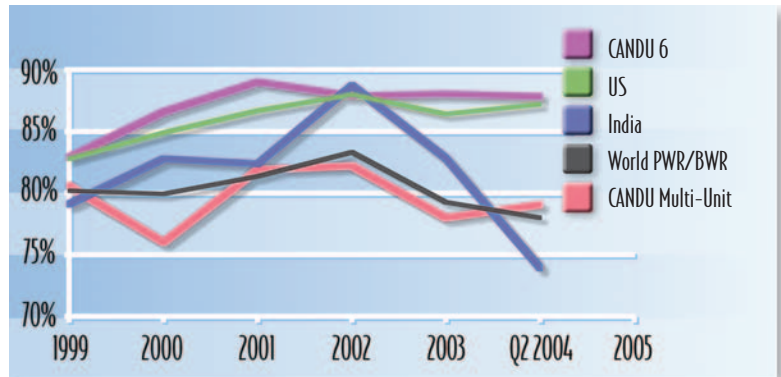
- :: Infrastructure for *CANDU full life cycle support* is *already in place* which would be extremely difficult to provide for imported reactors
- :: *Commissioning 10 new CANDU reactors* in Ontario over the next 20 years would create thousands of high tech jobs and lead to 200,000 person years of Canadian employment
- :: *Exporting 10 CANDU reactors* over 20 years would create another 50,000 person years of work
- :: Canada supplies two-thirds of the world's radioisotopes for nuclear medicine used in 12 million medical procedures a year and supplies 75% of the world's Cobalt 60 used to sterilize 40% of the world's medical supplies



**Advanced CANDU Reactor (ACR™)**



**Average Capacity Factor**



\* Source: CANDU Owners Group (Nov/04)

**Gross Capacity Factor**