In 2007, the Government of Canada selected Adaptive Phased Management (APM) as Canada’s plan for the safe, long-term management of its used nuclear fuel. APM emerged from a three-year dialogue with Canadians, and reflects their preferences and priorities. In these conversations, citizens shared a strong sense of responsibility. They made it clear that our generation has an ethical responsibility to put in place a long-term management approach for the used nuclear fuel we have produced and not leave it as a legacy for future generations.

Who will pay for the safe, long-term storage of used nuclear fuel?

The development and implementation of Canada’s long-term plan for used nuclear fuel is funded by the major owners of used nuclear fuel in Canada: Ontario Power Generation, NB Power, Hydro-Québec and Atomic Energy of Canada Limited.

The Nuclear Fuel Waste Act (NFWA) requires each of these four companies to establish independently managed trust funds and make annual deposits to ensure the money to fund this project will be available when needed. Effectively, this means the consumers who benefit from the electricity will, over time, fund the long-term management of the waste that is generated.

The NWMO’s pre-construction operating costs are also funded by the waste owners based on a cost-sharing formula.

How much will it cost?

There are several variable factors, including the number of fuel bundles to be managed, that will contribute to the eventual total cost of the project.

Other factors that can change the cost include the location of the facility, the nature of the surrounding infrastructure, the rock type and characteristics, the design of the repository and the length of time allocated to monitoring the site following fuel placement.

The following figure shows how estimated costs might differ depending on the amount of used nuclear fuel to be managed. Based on the latest projection, at the end of the planned operation of Canada’s existing nuclear reactors, the number of used nuclear fuel bundles could total up to 5.4 million, which would result in an estimated cost of approximately $23.6 billion (2015 $).
Estimated costs based on volume of fuel to be managed

<table>
<thead>
<tr>
<th>Fuel Bundles</th>
<th>Estimated Cost (2015 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7\textsuperscript{1} million fuel bundles</td>
<td>$16.3 billion</td>
</tr>
<tr>
<td>3.6 million fuel bundles</td>
<td>$18.3 billion</td>
</tr>
<tr>
<td>5.4\textsuperscript{2} million fuel bundles</td>
<td>$23.6 billion</td>
</tr>
<tr>
<td>7.2 million fuel bundles</td>
<td>$28.4 billion</td>
</tr>
</tbody>
</table>

\textsuperscript{1}Existing volume as of June 2016
\textsuperscript{2}Latest projected inventory

Is this expensive relative to the cost of electricity?

Paying for the long-term management of used nuclear fuel is a relatively small portion of the cost of electricity.

The cost of the APM Project is only about 0.1 cents per KWh of electricity produced.

How much funding is already in place?

In accordance with the NFWA, waste owners have been making annual deposits to trust funds since 2002. These funds will be used for activities from the start of the construction phase forward. As of the end of 2016, the cumulative balance of the trust funds is $4 billion. Taking into account the time value of money and interest to be earned on trust fund balances, it is expected that this will fully cover the cost of managing the used fuel bundles already produced. This means that the post-licencing cost of implementing APM is fully funded for 2.7 million bundles.

Under the funding formula, annual trust fund contributions will continue as long as used fuel bundles are being produced.
How long will the project take to implement?

Based on our latest plans, we expect to be in a position to identify a preferred site by about 2023. After that, detailed site characterization and licensing activities could take about eight years. Construction is expected to take about 10 years. In this scenario, it is assumed that operations could begin between 2040 and 2045.

Operations are expected to last for about 40 years, depending on the volume of used fuel to be managed. After that, the repository will be monitored for an extended period of time – we have assumed 70 years for planning purposes.

How can the public be sure that funding is in place?

There is a strong legislative framework in place to ensure funding will be available when needed to implement the APM Project:

» The NFWA addresses funding of the APM Project, and assigns roles and responsibilities.

» Waste owners must fund the APM Project through annual deposits to trust funds at levels set by the NWMO.

» The Minister of Natural Resources approved the APM funding formula in 2009.

» Waste owners are also required under the Nuclear Safety and Control Act to provide to the Canadian Nuclear Safety Commission financial guarantees dedicated to nuclear waste management and decommissioning.

Trust funds are in place with regular contributions being made to meet project implementation costs:

» Trust fund balances at the end of 2016 are $4 billion.

» Waste owners are required to continue annual contributions to trust funds, ensuring the funds necessary for the complete construction costs of the facility will be available by the time construction begins.

Some companies produce more waste than others. How does the funding formula work?

Each waste owner’s deposit is calculated based on the number of fuel bundles it has produced to date. It is made up of amounts to cover estimated fixed costs for the NWMO to construct and operate a deep geological repository, as well as variable costs associated with managing each fuel bundle.

The Minister of Natural Resources approved the funding formula in April 2009, and the NWMO has the responsibility for maintaining it.
How much are the waste owners contributing in 2017?

In 2017, the four waste owners are required to make a total trust fund deposit of $54 million. This deposit represents the 2017 contribution toward the cost of the long-term management of the 2.7 million fuel bundles produced up to June 2016, as specified in the APM funding formula.

How can I stay up to date on long-term funding provisions for the APM Project?

You can follow the growth in trust funds over time. As required by the NFWA, the NWMO makes public the audited financial statements of the trust funds when they are provided by the financial institutions annually. They are posted at www.nwmo.ca/trustfunds. In addition, in each Annual Report, the NWMO is required under the NFWA to provide a range of financial information. NWMO Annual Reports are posted online at www.nwmo.ca.