

Introducing Nuclear Power

The Role of National Leadership

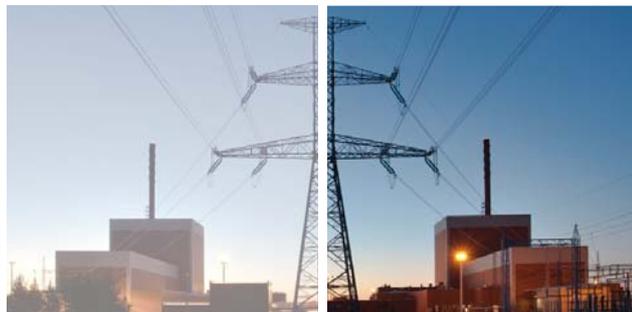
“Why nuclear power?”
National leaders must
present a credible answer



Nuclear power is a long term
national commitment that
requires strong leadership



Nuclear power's
characteristics require
special attention



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60 Years

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Many countries are considering introducing nuclear power to ensure reliable energy supplies and curb greenhouse gas emissions. For such countries, the IAEA has developed the ‘Milestones Approach’ based on lessons learned by countries that either have or are starting nuclear power programmes. The first step comprises the necessary analysis, consultation and preparation prior to making a national decision whether to introduce nuclear power. This brochure highlights issues that recent experience has shown need particular attention from national leaders.



National leaders must present a credible answer to the question, “Why nuclear power?”

A credible answer requires analyzing the pros and cons of all energy alternatives, weighing the results in light of national priorities and detailing why nuclear power is needed.

Nuclear power can be a clean, reliable, affordable and modern energy source. The case for nuclear power is stronger in countries with growing energy needs, expensive or unpredictable alternatives, suitable sites and strong concerns about climate change and air pollution.

National leaders must present the case for nuclear power to the public, industry and those in government who will be essential for success. They should explain the advantages of nuclear power and how the government will ensure safety, security and non-proliferation.

Communicating the case for nuclear power is a continuing responsibility. Leaders should be prepared to deal with unexpected developments such as price reductions of alternatives like natural gas or renewable energy, changes in the political environment or a nuclear accident elsewhere.

When confronted by critics or crises, a nuclear power programme is vulnerable to failure unless its rationale is clear and is championed by national leaders.

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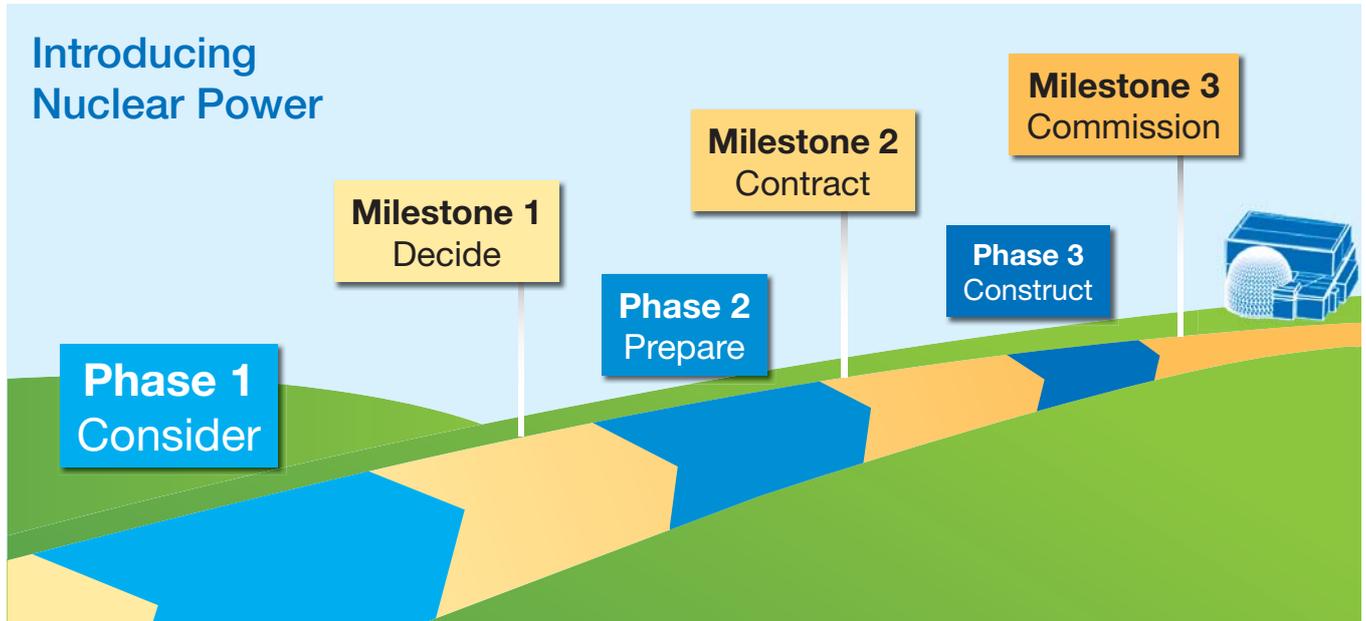
A successful nuclear power programme requires a national commitment of at least 100 years. Creating the infrastructure and building the first nuclear power plant will take at least 10–15 years. This requires strong national leadership to ensure coordination and broad political and popular support. The penalties of interruptions and restarts are significant.

The government investment to develop the necessary infrastructure is modest relative to the cost of the first nuclear power plant, but is still of the order of hundreds of millions of dollars. This investment needs to be made well before any revenues or electricity can flow from the power plant.

Leadership and commitment are important to ensure both the required funds and the coordinated effort needed for success.



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Nuclear power's characteristics require special attention

Using nuclear material brings potential risks. Nuclear safety, nuclear security and non-proliferation have to be ensured and seen to be ensured. The highest standards of safety, security and safeguards must be applied. This includes implementing international legal instruments, including those adopted under IAEA auspices, enacting a comprehensive nuclear law and establishing a regulatory framework.

While the IAEA and other organizations, including those from experienced nuclear countries, can and do provide support, the country remains responsible for the safe, secure, peaceful and efficient use of nuclear power. This requires the country to have an owner/operator with prime responsibility for safety, and a competent independent regulatory body to oversee the programme. A nuclear power programme cannot simply be bought.

Nuclear power plants have long lifetimes, relatively low running costs but high capital costs. This results in financing characteristics that are different from other major projects. Developing successful financing and contracting is a major challenge and requires significant government involvement.

Decommissioning and the management of radioactive waste will require resources after the power plant is retired. Arrangements need to be in place to accumulate adequate funds.

Assistance from the IAEA and Other Partners

It is the sovereign decision of every country whether to launch a nuclear power programme. The IAEA does not influence that decision, but when a country decides to go that route, the IAEA is here to help.

To support Member States implementing the Milestones Approach, the IAEA has prepared guidance documents and provides training and expert advice, as well as peer review services.

A country should also obtain advice from experienced regulators, operators, vendors and consulting companies. However, the country's own commitment to understand the requirements associated with nuclear power programmes and develop the necessary human resources, skills and competences is essential.

One of the most requested review services by countries introducing nuclear power is the Integrated Nuclear Infrastructure Review (INIR) Mission. IAEA and international experts review the status of all aspects of a country's nuclear infrastructure — both 'hard' infrastructure, such as electrical grid and sites, and



'soft' infrastructure, such as nuclear law, regulations, and human resource development. Other IAEA review services look in detail at specific aspects of nuclear infrastructure.



The IAEA can help countries systematically address gaps in their nuclear infrastructure through the development of an integrated work plan. The IAEA's Nuclear Infrastructure Development Section ensures effective coordination of all IAEA efforts related to the introduction of nuclear power.



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