

Annex 11

LIST OF ABBREVIATIONS, UNITS AND GLOSSARY OF TERMS

AGR

British Advanced Gas-Cooled Reactor.

ATR

Japanese Advanced Thermal Reactor.

Back-end (of the fuel cycle)

Those nuclear fuel cycle processes and activities concerned with the treatment of spent fuel discharged from reactors including disposal of radioactive wastes.

BNFL

British Nuclear Fuels plc.

Burn-up

The total energy released per unit mass of a nuclear fuel; it is commonly expressed in mega- or gigawatt-days per tonne (MWd/t or GWd/t).

BWR

Boiling Water Reactor.

CANDU

Canadian Deuterium Uranium Reactor; a type of heavy water reactor.

CLAB

Swedish Intermediate Storage Facility.

Cladding

An external layer of material applied directly to nuclear fuel or other material that provides protection from a chemically reactive environment and containment of radioactive products produced during the irradiation of the composite. It may also provide structural support.

COGEMA

Compagnie Générale des Matières Nucléaires (France).

Conversion

The operation of altering the chemical form of a nuclear material to a form suitable for its end use.

Decommissioning

The work required for the planned permanent retirement of a plant from active service.

Direct disposal

Fuel cycle in which fuel goes through the reactor once; no spent fuel reprocessing is foreseen.

DM

German Mark.

DOE

US Department of Energy.

Discounting

A procedure used to convert the value of money earned or spent in the future to a present value.

ECU

European Currency Unit.

Encapsulation

Processes associated with preparation of spent fuel for disposal.

Enrichment

- i) The fraction of atoms of a specified isotope in a mixture of isotopes of the same element when this fraction exceeds that in the naturally occurring mixture;
- ii) Any process by which the content of a specified isotope (uranium-235, etc.) in an element is increased.

Fabrication

The process of preparing nuclear fuel pellets, and cladding them to make fuel elements and the incorporation of elements into assemblies ready for the reactor.

Fission

The physical process whereby the nucleus of a heavy atom is split into two (or, rarely, more) nuclei with masses of equal order of magnitude whose total mass is less than that of the original nucleus.

Fission products

Nuclides produced either by fission or by the subsequent radioactive decay of the nuclides thus formed.

Front-end (of the fuel cycle)

Those nuclear fuel cycle processes and activities concerned with the production of fuel for a reactor.

Fuel (nuclear)

Material containing fissile nuclides which, when placed in a reactor, enables a self-sustaining nuclear chain to be achieved.

Fuel cycle

The sequence of processing, manufacturing and transportation steps involved in producing fuel for a reactor, and in processing fuel discharged from the reactor including disposal of radioactive wastes.

g

Gram.

GWe

Gigawatt electric.

Half-life (radioactive)

For a single radioactive decay process, the time required for the activity to decrease to half its value by that process.

HLW

High Level Waste.

HM

Heavy Metal (uranium, plutonium and other actinides in spent fuel).

IAEA

International Atomic Energy Agency.

IEA

International Energy Agency.

ILW

Intermediate Level Waste.

Indifference value (of plutonium)

This is the value that plutonium would have in order to produce MOX fuel and equivalent uranium oxide fuel at equal cost.

Isotopes

Nuclides having the same atomic number (i.e. identical chemical element) but different mass numbers.

kg

Kilogram.

kWh

Kilowatt hour.

l

Litre.

lb

Pound.

Levelised cost

Levelised cost spreads total fuel cycle cost over total output to arrive at a figure which, if charged for each kWh, would exactly balance costs and income.

LLW

Low Level Waste.

Load factor

A ratio of the energy that is produced by a facility during the period considered to the energy that it could have produced at maximum capacity under continuous operation during the whole of that period.

LWR

Light Water Reactor.

m

Meter.

M

Million.

MOX fuel

Mixed Oxide (uranium dioxide and plutonium dioxide) fuel.

mv

Money value.

MWd/t

Megawatt-day per tonne.

MWe

Megawatt electric.

MWt

Megawatt thermal.

NEA

OECD Nuclear Energy Agency.

NEA/NDC

Committee for Technical and Economic Studies on Nuclear Energy Development and the Fuel Cycle of the Nuclear Energy Agency.

OECD

Organisation for Economic Co-Operation and Development.

p.a.

Per annum.

PNC
Power Reactor and Nuclear Fuel Development Corporation (Japan).

Pu
Plutonium.

Puf
Plutonium fissile.

Pu(t)
All isotopes of plutonium, not only fissile.

PWR
Pressurised Water Reactor.

R & D
Research and Development.

Reprocessing
A generic term for the chemical and mechanical processes applied to fuel elements discharged from a nuclear reactor. The purpose is to remove fission products and recover fissile (e.g. uranium-235, plutonium-239), fertile (e.g. uranium-238) and other valuable material.

SKr
Swedish Krone.

S.F.
Spent Fuel.

SKB
Swedish Nuclear Fuel and Waste Management Company.

Spent fuel
Nuclear fuel removed from a reactor following irradiation.

SWU
Separative Work Units, a measure of the effort required to enrich a material in a given isotope.

t
Tonne.

THORP
Thermal Oxide Reprocessing Plant (UK).

U
Uranium.

Waste management

All activities that are involved in the handling, treatment, conditioning, transportation, storage and disposal of waste.

WREBUS

Water Reactor Extended Burn-up Study (IAEA).

US mill

A unit of currency. One tenth of a US cent (US\$0.001).

VHLW

Vitrified High Level Waste.

Waste repository

Prepared geological site suitable for permanent disposal of radioactive waste.

y

Year.