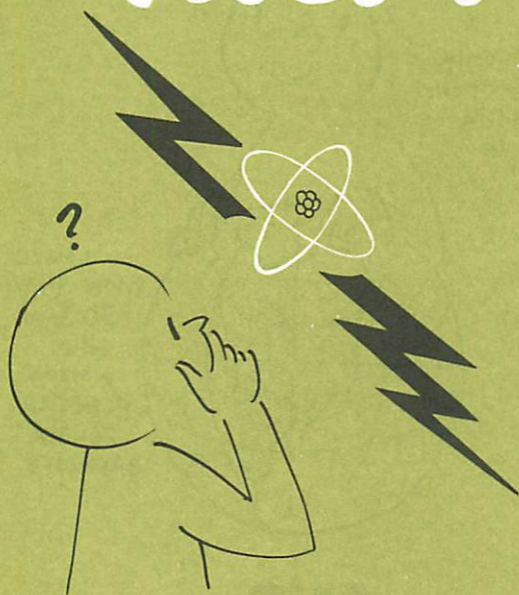
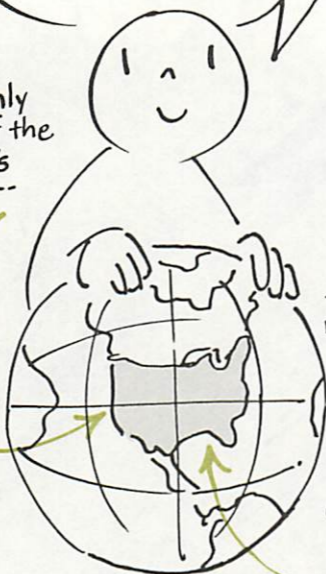


The ABC's of
ELECTRIC POWER
from the
ATOM



IN AMERICA,
our way of life and
our standard of living
depend on
**ELECTRIC
POWER!**

With only
5% of the
world's
people--



--we have
more than
30% of
the
world's
**ELECTRIC
POWER
CAPACITY**

AND--

the demand for electric power is
DOUBLING about every 10 years.

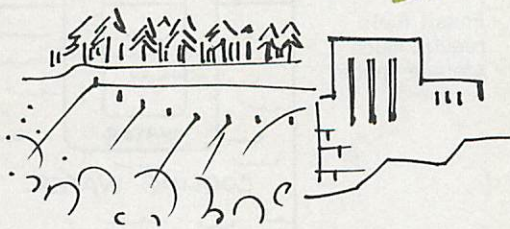
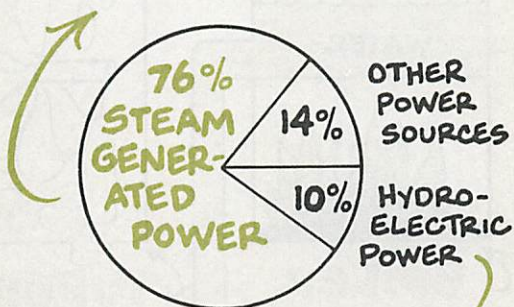
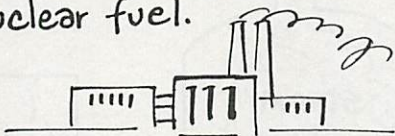
So we have the challenge of producing
the power we need and at the same
time protecting our environment.

TODAY--

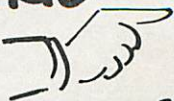
most of our electric power is produced by

HEAT

from coal, oil, gas or nuclear fuel.



-- converting fuels to electricity is the job of **ELECTRIC POWER PLANTS**

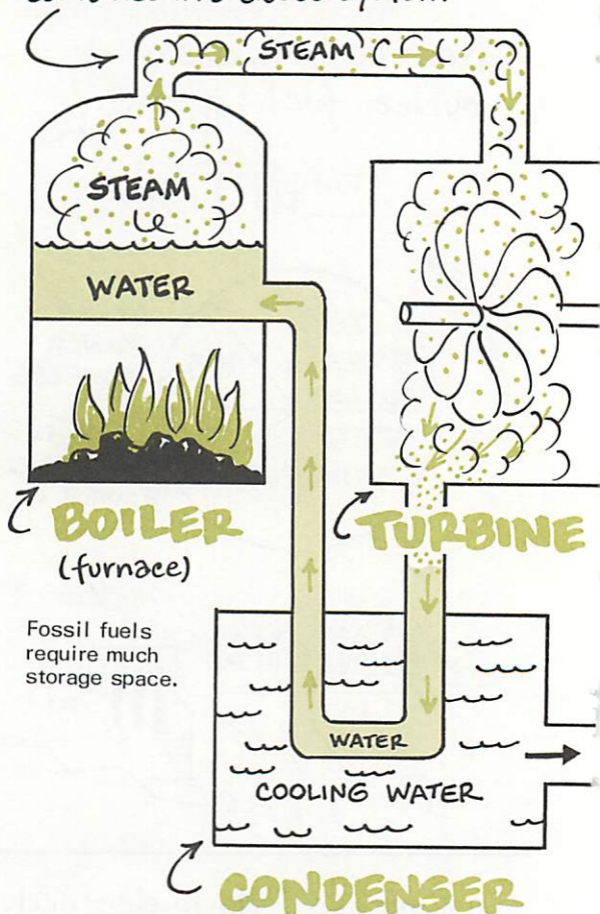




How **HEAT** is used

make **ELE**
from "FOS"

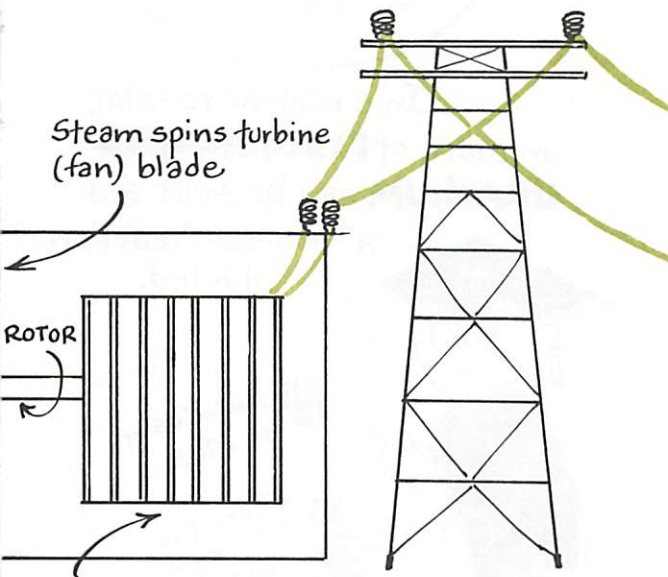
Chemically pure **WATER** is
contained in a closed system



Fossil fuels
require much
storage space.

Collects spent steam
and converts it back into
WATER for another cycle.

to
ELECTRICITY
"Fossil FUELS" (i.e., coal, oil, gas)

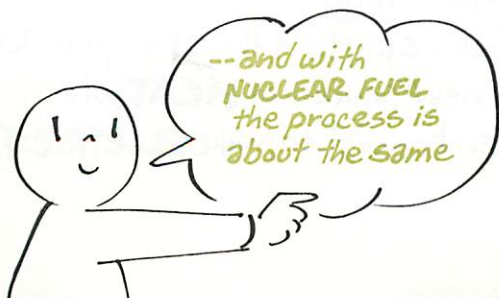


GENERATOR ELECTRICITY

Basically, like the generator in your car -- a magnet spinning inside a coil of wire.

The INSTANT it is made it must be DELIVERED to customers. It can't be stored.

→ WATER that cools condenser is returned to river or source →




What do
you mean by
"NUCLEAR
FUEL"?

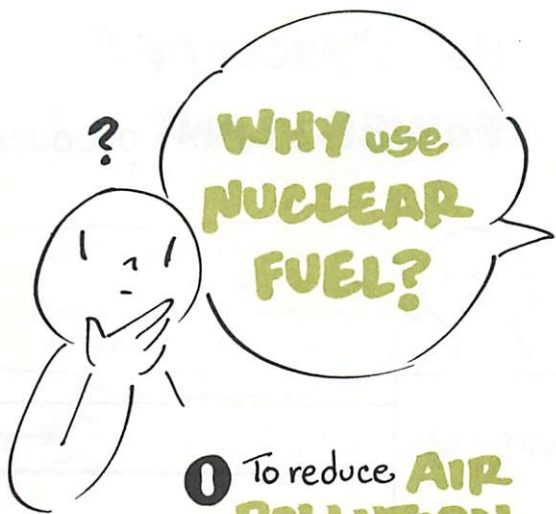
In a nuclear reactor,
an atom of **FISSIONABLE
URANIUM** can be split and
a "nuclear" reaction
started.



 **NUCLEUS** of
an **ATOM**

 When it is
split by a
neutron,
energy is
released plus
more neutrons, which
split other atoms
and a "chain" reaction
results.

This energy
from splitting the atom provides
a new source of **HEAT** which
can be used to make **ELECTRICITY**.



1 To reduce **AIR POLLUTION.**

2 To produce more electric **POWER** at a potentially lesser cost.

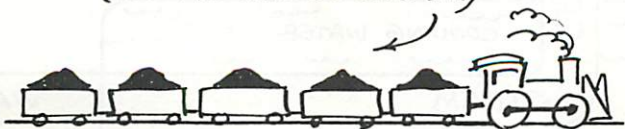
3 To conserve coal, oil and gas reserves for **OTHER USES.**

1 POUND OF URANIUM about the size of a golf ball



has the SAME POTENTIAL ENERGY as

3 MILLION POUNDS of COAL (about 25 railroad cars full)



How a "NUCLEAR" POWER PLANT produces



A NUCLEAR POWER PLANT may produce electricity in much the same way as a fossil fuel plant EXCEPT the "boiler" is called a REACTOR and the "fuel" is URANIUM.

TURBINES



- 1 FUEL**
-- uranium, used to produce heat by fission.
 - 2 MODERATOR**
-- used to slow down the neutrons for efficiency.
 - 3 CONTROL RODS**
-- soak up neutrons and slow or stop reactor when raised or lowered between fuel assembly.
 - 4 REACTOR VESSEL**
-- contains nuclear fuel core.
 - 5 SHIELD** -- to protect operators from radiation. COMPLETELY encloses the reactor.
 - 6 COOLING WATER**
-- a separate flow of water used to cool steam that is returned from turbines.
- together they make up the "fuel assembly"

COOLING WATER

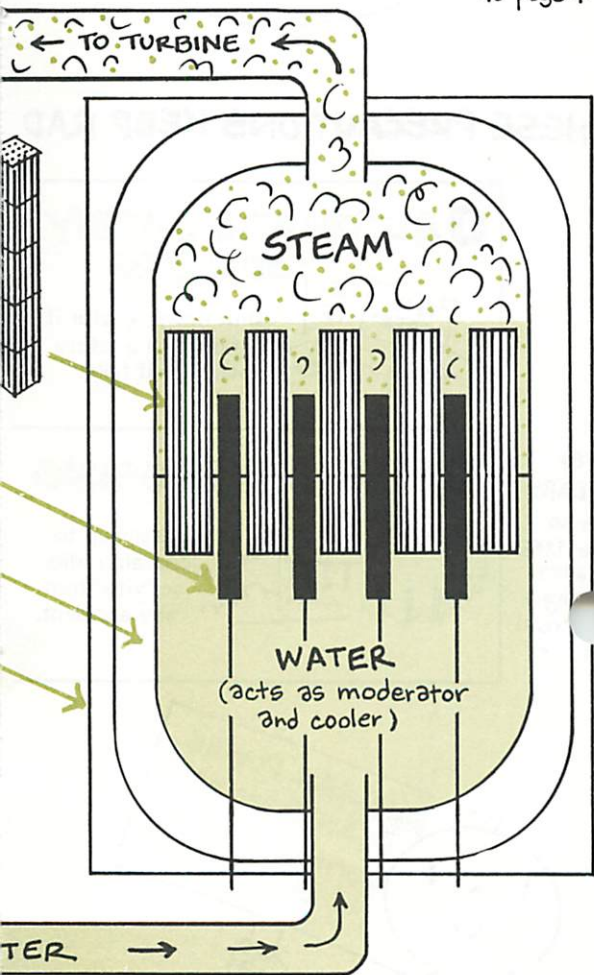
STEAM

WA

ELECTRICITY

BOILING WATER REACTOR

Compare to page 4



But--



THESE PRECAUTIONS KEEP RAD

1 AUTOMATIC SAFETY DEVICES



shut down reactor if it fails or if a safety device itself fails.

2 REACTOR HOUSING



is designed to contain radioactivity from any accident.

Over
20 YEARS
with no
LOSS OF LIFE
OR INJURY
involving a
commercial
reactor.



YES...it is impossible to have a bomb-like explosion because of type of fuel and design of reactor.

ATION LEVELS EXTRA SAFE

2 FUEL "CLADDING"



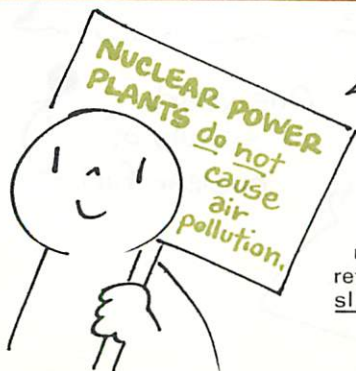
-- a protective metal barrier against fission products escaping.

Waste remains in reactor until removed.

4 LICENSING and MONITORING



by the Nuclear Regulatory Commission assure highest safety standards.



Water used for cooling NEVER comes in contact with radioactive materials. It returns to its source slightly warmed.

Is Nuclear Power



ECONOMICAL?

Nuclear plants cost

MORE to



construct
than fossil
fuel
plants.

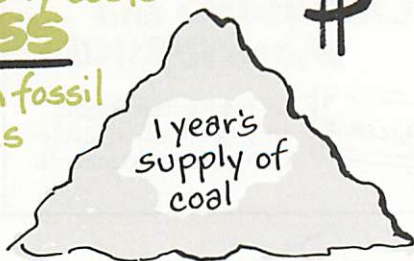


BUT--

Nuclear fuel
usually costs

LESS

than fossil
fuels

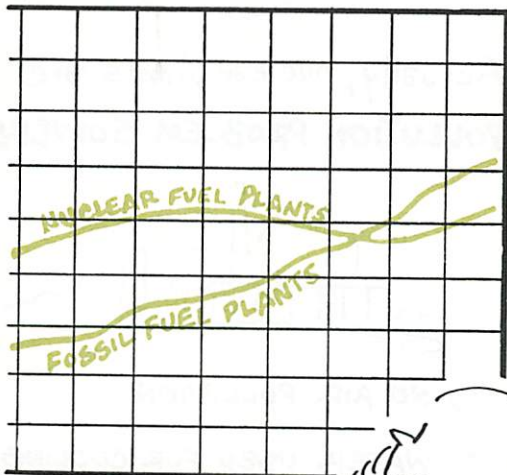


One year's
supply of
nuclear fuel



This means--
the larger the output,
the lower the cost of
nuclear fuel.

\$ DOLLARS



KILOWATT
CAPACITY

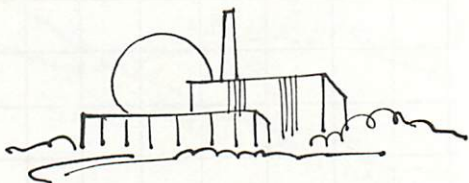


**SOO--THE
COST PER
KILOWATT HOUR PRO-
DUCED BY NUCLEAR FUEL
CAN BE LOWER THAN
THE COST OF USING
CONVENTIONAL FUELS.**



Well,
what about
POLLUTION
?

Actually, nuclear plants are
POLLUTION PROBLEM SOLVERS



① NO AIR POLLUTION

② WATER USED FOR COOLING
IS A SEPARATE FLOW AND
DOESN'T COME IN CONTACT
WITH RADIOACTIVE FUEL.

and ③ THE TOTAL PLANT ENVIRONMENT
IS MONITORED.

RADIOACTIVE MONITORING



of employees
of the plant site
of the air
of the water used
of waste

ECOLOGICAL MONITORING



of water temperature
of animal life
of plant life
of soil
of fish

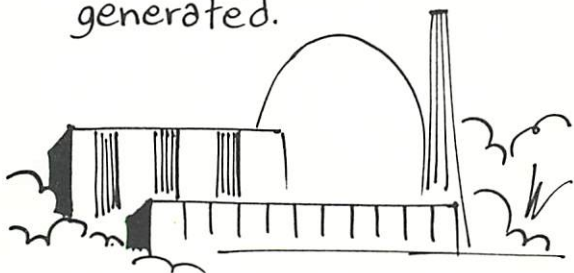
TODAY --

Nuclear fuel now supplies about 11.8% of America's electric power

TOMORROW?

--more to come...

By 1990, it is estimated nuclear fuel will supply about 27% of the total electric power generated.



ELECTRIC POWER
via **NUCLEAR FUEL**
is the **ENERGY**
OF THE FUTURE

for a cleaner environment
and quality standard
of living!