

SONGS is located next to San Onofre State Beach, which adjoins the Camp Pendleton U.S. Marine Corps Base in San Diego County. Units 2 and 3 are currently in use and are capable of producing enough power to serve the needs of 2.75 million households (that is, 2,254 megawatts of power). When both SONGS units are operating, they have the potential of saving the equivalent of 188 billion cubic feet of natural gas each year. Unit 1 was retired in 1992 after 25 years of service.



Contractors:

Combustion Engineering, Inc., based in Windsor, Conn., supplied the nuclear reactors and associated equipment for Units 2 and 3. The electric generator was supplied by GEC Turbine Generators, Limited, of Rugby, England. Bechtel Power Corporation of San Francisco was the architectural, engineering and construction contractor for both units.

Ownership

The Owners of SONGS are:

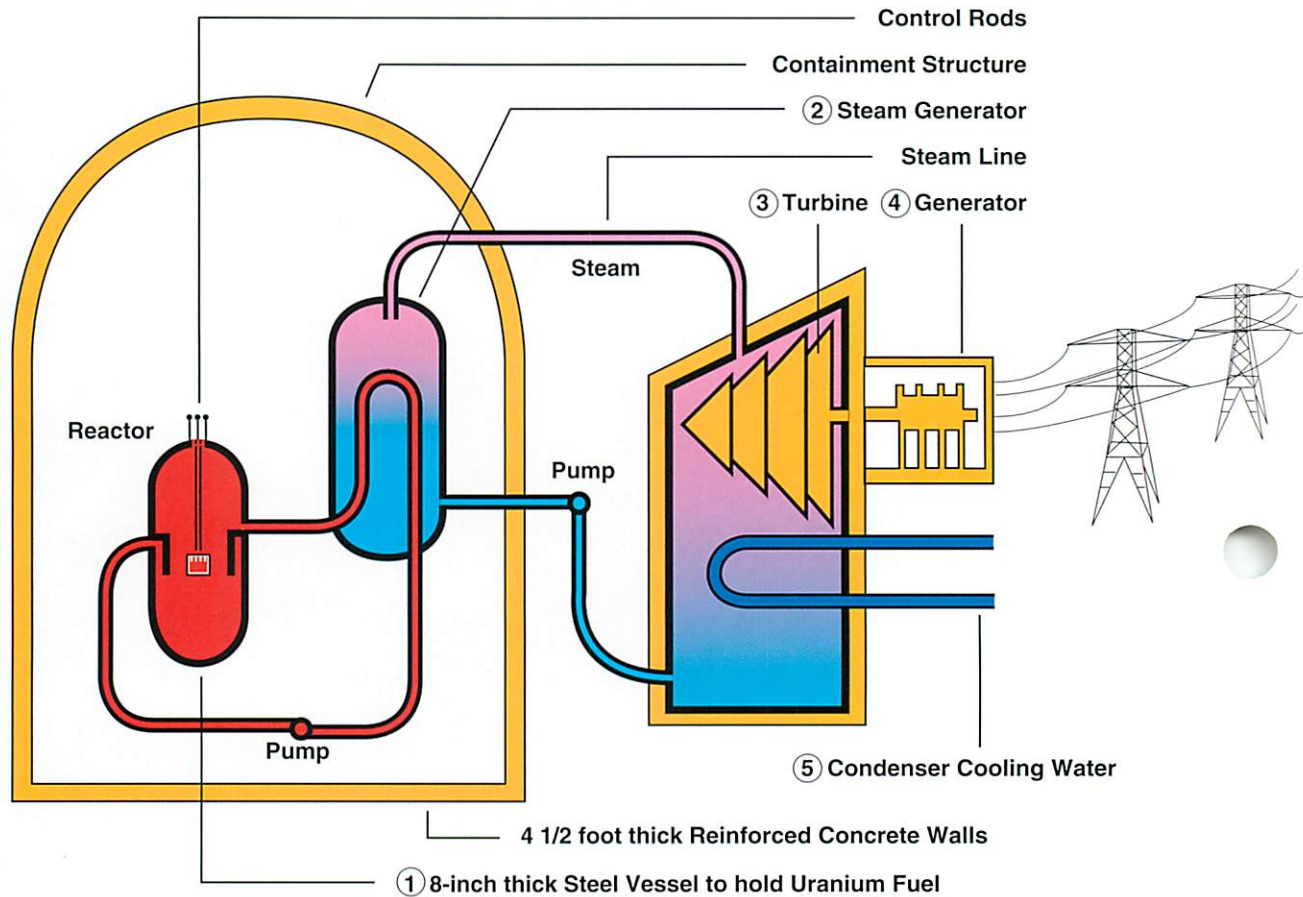
- SONGS 2 and 3
- SCE, operating manager, 75.05%
- SDG&E, 20%
- City of Anaheim, 3.16%
- City of Riverside, 1.79%



HOW WE GENERATE ELECTRICITY: (Refer to the diagram below)

The process of generating electricity at our nuclear plant begins when heat is generated from the splitting of atoms (nuclear fission). This heat warms water, located inside the self-contained, pressurized water reactor and associated piping (1). As the hot water flows inside tubes in the steam generator (2), heat is transferred to the fresh water surrounding those tubes to produce steam. The steam flows over turbine blades (3) causing the turbine and a connected electrical generator to spin, thereby generating electrical power. The used steam condenses back into water by contacting the outside of condenser tubes (5) cooled by sea water. The water in each of the three loops is self-contained and isolated from its neighboring loop.

How A Nuclear Plant Works



Unit 1 Milestones:

- 1/1/68 Commercial operation
- 11/30/92 Retired from service
- 11/30/92 377 Days-Record run

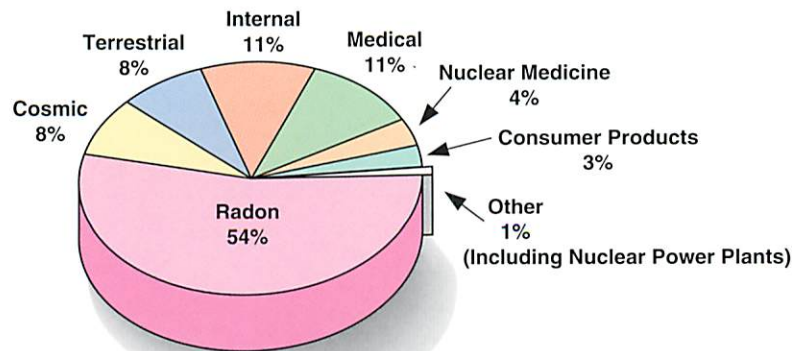
Unit 2 Milestones:

- 8/18/83 Commercial operation
- 8/8/93 552 Days-Record run

Unit 3 Milestones:

- 4/1/84 Commercial operation
- 4/2/94 476 Days-Record run

Sources of Radiation Exposure



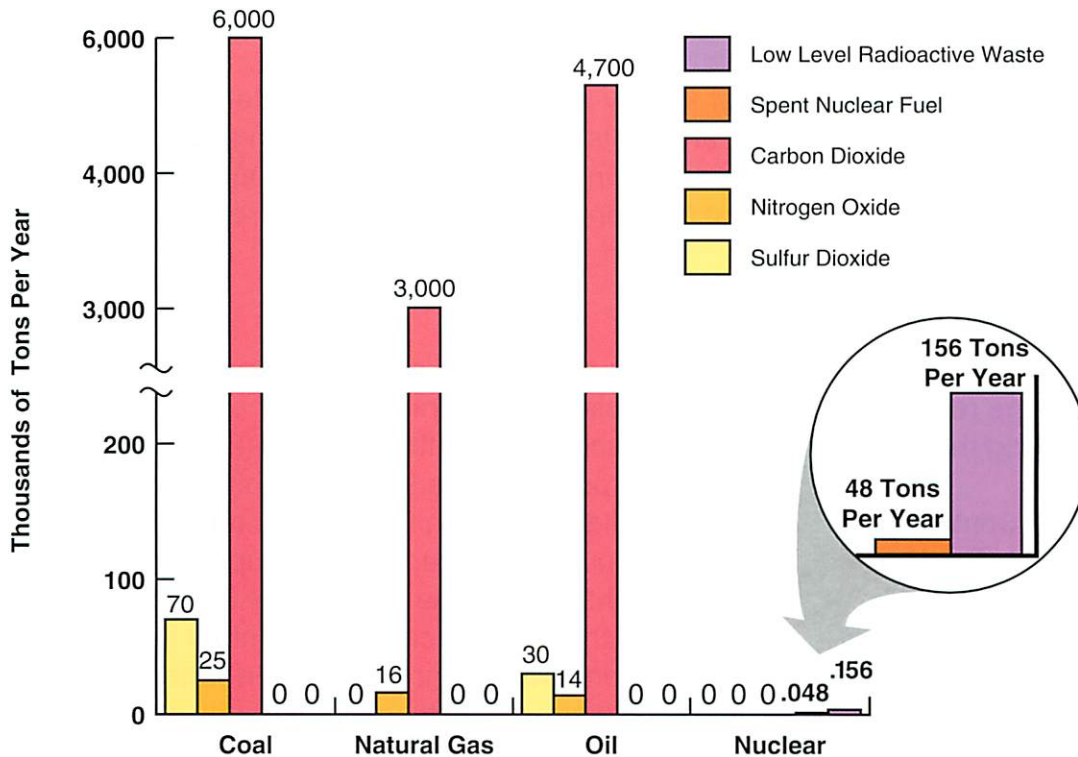
Clean Air:

Generating electricity from any source has environmental consequences. Conventional plants that burn oil, coal or natural gas produce millions of tons of air pollutants each year. Nuclear plants produce NO air pollutants. Renewable energy sources (examples include solar and wind), while causing a reduced environmental impact, currently are much more costly than conventional methods of generating electricity.

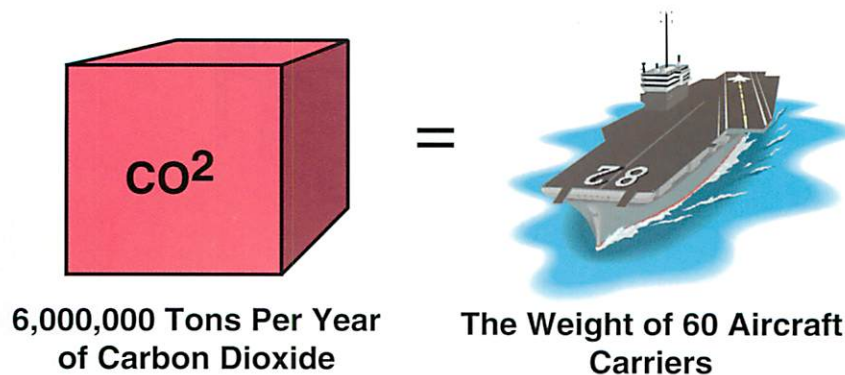
San Onofre, without polluting the air, produces 22% of all the power generated for Southern California Edison customers and 20% of the power used by San Diego Gas & Electric customers. Since San Onofre does not burn fossil fuel such as coal, gas or oil, it does not foul the air with sulfur dioxide (a cause of acid rain), nitrogen oxide (a contributor to photochemical smog), carbon dioxide (a 'green house gas'), or particulates. Without San Onofre, electric utility emissions into the air of Southern California would be about 20% higher.

By the end of 1995, San Onofre had produced over 230 billion kilowatthours of clean, safe electricity.

Typical Wastes From A 1,000MW Power Plant

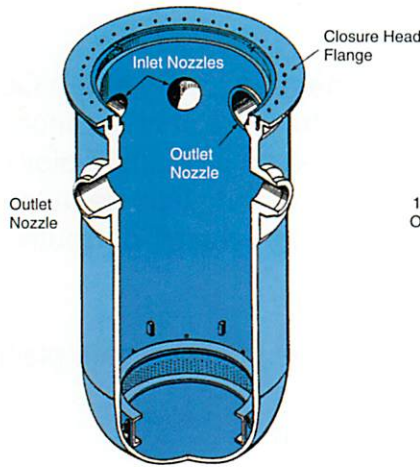


How much carbon dioxide is released into the atmosphere by one 1,000 MW coal powered generating station?

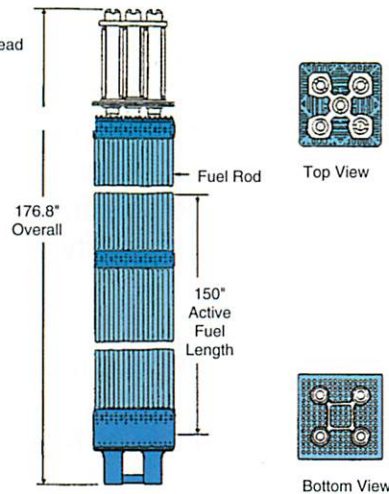


Nuclear Fuel:

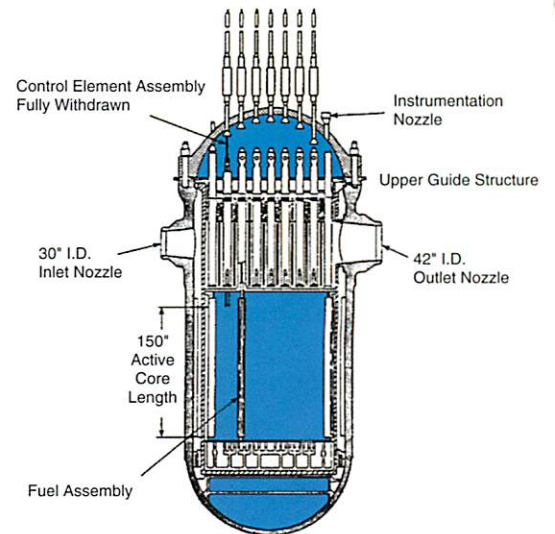
Reactor Vessel



Fuel Assembly



Reactor Vessel Arrangement



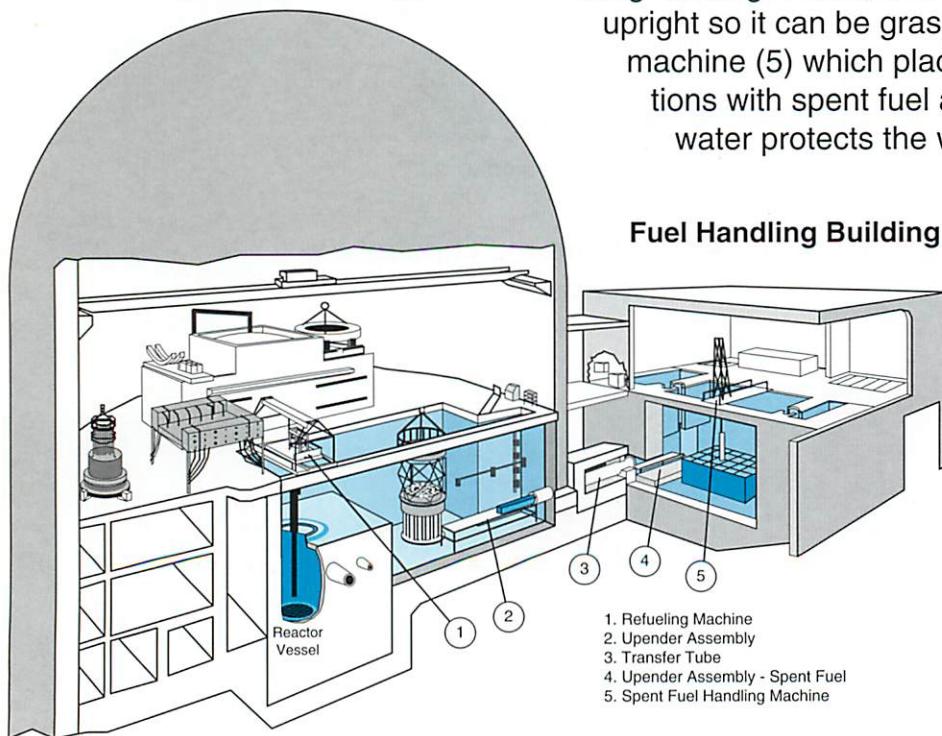
Units 2 and 3 contain about 112 tons of slightly enriched uranium dioxide. The uranium dioxide pellets, about one-third of an inch in diameter, are contained in fuel rods (tubes) about 12 feet long. The fuel rods, in turn, are assembled into clusters known as "fuel assemblies." One fuel loading of 217 "fuel assemblies" is equivalent in heat output to approximately 43 million barrels of fuel oil or 243 billion cubic feet of natural gas.

Refueling:

Approximately every two years, one half of the nuclear fuel assemblies are removed from the reactor vessel. This is done remotely using special tools. The diagram below shows how the refueling takes place. The refueling machine (1) moves the assembly into the upender (2) which places the fuel in a horizontal position. The fuel assembly moves out of the containment building through the transfer tube (3) and into the fuel handling building. There, a second upender (4) stands the fuel upright so it can be grasped by the spent fuel handling machine (5) which places it into a storage rack. All operations with spent fuel are performed under water. The water protects the workers by providing shielding from radiation. New fuel is loaded into the reactor vessel from the fuel handling building in a similar manner.

Unit 2/3 Containment (Reactor Building)

Fuel Handling Building



1. Refueling Machine
2. Upender Assembly
3. Transfer Tube
4. Upender Assembly - Spent Fuel
5. Spent Fuel Handling Machine