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Construction Project Eschatology: Sustainable Project Decommissioning

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Although the Great Pyramid, the Parthenon, and the Roman Colosseum are all still standing after many centuries, most modern construction and mining projects are viewed as having a finite useful life. When that useful life is achieved (and sometimes sooner), there are social and environmental incentives to decommission the facilities. In many cases it makes sense to remove the facilities completely.

This decommissioning process can, however, be highly controversial, especially when it proves to be very expensive. In recent decades, some projects were constructed with budgets that prudently made financial allowances for future decommissioning. Many projects were built, however, without any budget for decommissioning costs. Moreover, plant decommissioning under contemporary standards often proves much more costly than what could reasonably be expected when the project was originally built.

Lawyers have important roles to play in negotiating and drafting contracts to anticipate costs and liabilities associated with decommissioning that will ultimately occur. Lawyers are also needed to coordinate the multiple risks and liabilities that will arise when the decommissioning process actually begins.

This article is intended to offer an introduction to the key legal issues, and its accompanying bibliography allows readers to find much more detail that should be helpful if they are called upon to participate in the decommissioning process.

In the accompanying live program, speakers will offer specific examples of decommissioning issues from various parts of the world.

DECOMMISSIONING CATEGORIES:

Plant decommissioning tends to achieve the most publicity when it is motivated by concerns of the environment or public safety.

Germany has been a recent focus of attention since its federal government adopted a policy that simultaneously moved to decommission all coal-burning and nuclear power plants. The phasing out of coal plants was motivated by a desire to cut carbon emissions, while the exit from nuclear power generation was largely a result of fears following the nuclear accidents at Chernobyl and Fukushima. This program of shutdowns was balanced by an increased reliance on importing natural gas from the Russian Federation, a decision that drew substantial criticism after Russia attacked the Ukraine in February 2022 and threatened to use natural gas as leverage against customers in the NATO alliance. This criticism has led to re-examination of the German policy and tentative decisions to prolong use of some facilities that were scheduled for shutdown. Meanwhile, the German experience has given rise to a substantial body of academic commentary that helps focus the issues relating to plant decommissioning.

One category of projects that obviously have a finite operating life is facilities for extracting natural resources from the ground. These facilities are obviously no longer needed when the natural resources are exhausted (or when the license for extracting them expires). Principal examples include:

a. Open pit and shaft mines
b. Land-based and offshore oil drilling platforms

In 2009, the World Bank and the Government of Norway launched a Petroleum and Governance Initiative entitled "*Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies*". The March 2010 edition of that Toolkit offers many practical details for decommissioning that can reasonably be adapted to other industries.

A second category of projects that has a fairly clear finite operating life is power generating plants. These facilities are typically licensed for a fixed period of time (often 50 years), after which the operators can expect that they will either have to decommission the facilities or apply for an extended license. Some plants (e.g., hydroelectric dams) have demonstrated that they can operate efficiently for longer periods, which has led to some license extensions. If power generating facilities are constructed on leased land, however, the applicable lease agreements are likely to require decommissioning and/or site restoration after the lease expires.

A third category of projects includes facilities that are not set up with fixed expiration dates but which become unsafe if they are not periodically rebuilt or replaced. Some of the many examples include:

a. Elevated bridges
b. Marine piers, jetties and sea walls
c. Factories and mills
d. Schools and office buildings
e. Power transmission towers
f. Long distance pipelines
g. Hydroelectric dams

The useful lives of such facilities will of course depend in part on the environmental conditions that impact them (e.g., storms, earthquakes, wars or civil unrest).

A fourth category is facilities that governments may decide to terminate, even though they have not yet functioned for their expected useful lives. Again, the German experience is a prominent example. By setting fixed timelines for shutting down coal-burning and nuclear plants, the German government required decommissioning at earlier dates than the operators reasonably anticipated, raising multiple legal issues.

A fifth category is facilities are often expected to continue indefinitely, assuming they are properly maintained. Examples might include:

a. Surface roads
b. Surface railway lines
c. Port facilities
d. Military bases

Of course, these facilities may also require decommissioning if leases expire or social priorities change.

FINANCING:

A key issue in plant decommissioning is deciding who should pay for it.

One approach is to require a deposit, bond or letter of credit for decommissioning costs when a new plant is first built. On public facilities, a government agency may accept responsibility for future decommissioning cost even if no funds are actually set aside for that purpose. In limited cases (e.g., when decommissioning accompanies clean-up after partial or complete plant destruction), insurance proceeds may play a part in funding.

Another approach is to establish a sinking fund that sets aside money from operating revenues to make sure money is available when the time for decommissioning arrives.

On certain types of facilities, the components or materials in a plant may have substantial recycling value, in which case that value can help pay costs of decommissioning.

In many cases, however, none of the foregoing steps have been taken, and the operator of an old facility may simply lack sufficient funds to cover decommissioning costs. This is particularly likely to occur where decommissioning includes substantial costs to handle and dispose of undesirable materials like spent nuclear fuels or oil-contaminated soils. In these situations, the taxpaying public often ends up paying a share of cost in exchange for removing an environmental hazard.

Even when some level of funding has been established in anticipation of decommissioning, issues can arise if clean-up costs far exceed what was predicted. If the operator has become financially insolvent, this may pose another obstacle.

If decommissioning is being required due to a change in government policy (as in Germany), there may also be legal challenges claiming denial of fundamental rights or wrongful expropriation of private property rights. These issues are addressed in articles listed in the accompanying bibliography.

METHODS OF DECOMMISSIONING:

One obvious method of decommissioning is to physically remove an existing plant and restore the site to its status quo ante. This level of complete restoration is not always practical or affordable, however, so there are other alternative approaches.

Another approach is to seal or encapsulate a decommissioned facility. In the case of a nuclear facility, spent nuclear fuels are typically transported to a secure storage location, although commentators debate the degree to which such locations can be truly secure over the long half-lives of nuclear materials.

Participants in a decommissioning process should commence their work only after satisfying themselves that a comprehensive insurance program is in place to protect against accidental personal injury or property damage.

There are also obvious hazards in demolishing large antiquated facilities, especially when this process is undertaken without accurate as-built information on the structures to be demolished. Decommissioning therefore may require a detailed engineering analysis, just as the original construction project also depended on engineering.

There is also a genuine question as to how far decommissioning should reasonably go. Is it enough to remove above-ground structures while leaving underground structures in place? Does demolition of an offshore oil drilling platform also require removal of all underwater pipelines connecting to the mainland? Is it enough to fill underground fuel tanks with sand, or do the tanks themselves need to be removed? The answers to these and similar questions can greatly affect the overall cost of decommissioning.

ADMINISTRATION:

In addition to the question of financing decommissioning, there are many issues relating to allocation of risk during the decommissioning process.

Operators are generally liable for personal injuries or property damage caused by a power generating facility, and this liability is likely to extend through the period of plant decommissioning. This provides added incentive for operators to take great care in dismantling plants and handling the transport and disposition of hazardous materials that are being removed or buried.

Since decommissioning may be tied to fixed dates (e.g., expiring leases or government-imposed mandates), it is important the contracts for the work have reasonable mechanisms to achieve those dates.

As mentioned above, it is also important to assure that proper insurance is in place before decommissioning begins at a project site.

In the United States, the Nuclear Regulatory Commission (NRC) publishes a list of regulatory activities that helps outline the scope of issues to be addressed:

> Decommissioning program activities include (1) developing regulations and guidance to assist staff and the regulated community; (2) conducting research to develop data, techniques, and models used to assess public exposure from the release of radioactive material resulting from site decommissioning; (3) reviewing and approving decommissioning plans (DPs) and license termination plans (LTPs); (4) reviewing and approving license amendment requests for decommissioning facilities; (5) inspecting licensed and non-licensed facilities undergoing decommissioning; (6) developing environmental assessments (EAs) and environmental impact statements (EISs) to support the NRC's reviews of decommissioning activities; (7) reviewing and approving final site status survey reports; and (8) conducting confirmatory surveys.[1]

With regard to military bases, the U.S. Department of Defense actually has a full-time process called Base Realignment and Closure (BRAC), which determines which facilities should best be closed. Members of Congress often fight against base closures in their home states, because those facilities tend to generate many jobs.

[1] https://www.nrc.gov/waste/decommissioning.html (downloaded on 6 Sep 2022)

SUSTAINABILITY:

Sustainability is a word that is frequently used today.

When designing and constructing a new facility with a fixed operating life, it is of course useful to consider how to minimize its consumption of non-renewable resources. It is also helpful to consider using materials in a way that may promote recycling at some future date when the plant is decommissioned.

Not everything, however, is sustainable or renewable. And many types of facilities do not contain enough valuable recyclables to cover the future cost of their decommissioning. For these and other reasons, it makes sense to provide in advance a budget that will cover the anticipated costs of future decommissioning. If governments adopt policies requiring plants to be shut down long before the ends of their planned operating lives, those governments should expect that they may have to offer compensation to the affected owners.

CONCLUSION:

The projects discussed in our bibliography and by our speakers in Miami offer a variety of approaches to plant decommissioning. They suggest advance planning when possible, and when decommissioning has not been anticipated, the resulting cost should be weighed against the public benefit of removing hazardous and unsightly facilities.

Lawyers can help parties plan for these liabilities in advance, and they can help negotiate equitable allocations of the related costs.

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