

Project Reviews for Capital Asset Projects (DOE G 413.3-9A) - Part 3

In the final part of our three-part series on the purpose, and scope of the various types of reviews and assessments performed on Department of Energy (DOE) projects, we examine the remainder of these reviews and assessments. As a reminder, they are defined through the aperture of DOE G 413.3-9A "Project Reviews for Capital Asset Projects" Guide.

Project Definition Rating Index (PDRI) Assessment

What: The PDRI assessment for capital asset projects (both nuclear and non-nuclear) is a project management tool designed to increase the likelihood of project success by evaluating the maturity of project documentation.

The PDRI assessment tool provides a numerical score to indicate a capital asset project's planning and development progress. It serves as a gauge by which project teams and executives can mark the project's progress and decide on its readiness to proceed to the next phase.

The score has less importance than the learning process that generates the score. The gap list produced by the assessment helps the team identify, assign, track and monitor action items that when closed would improve the project's score, signifying a greater readiness for the next critical decision milestone.

Why: As outlined in DOE O 413.3B, projects with a TPC of \$100M or greater conduct a PDRI analysis. While not mandated for projects with a TPC less than \$100M, the assessment is still recommended to measure planning and design maturity. The Construction Industry Institute has versions of the PDRI appropriate for lower cost projects.

When: The PDRI assessment benefits projects during front-end planning which encompasses all activities during conceptual through preliminary design. DOE O 413.3B requires a PDRI assessment prior to CD-2 for projects with a TPC of \$100M or greater. PM will review the PDRI assessment as part of the EIR.

Who: Project Team - The FPD is responsible for overseeing the PDRI assessment process with input from the project team.

Where: PDRI assessments could be conducted at the project site or other locations as determined by the project team.

For additional information refer to:

[DOE G 413.3-12, Project Definition Rating Index Guide for Traditional Nuclear and Non-Nuclear Construction Projects Guide](#)

[Construction Industry Institute \(CII\) Front-end Planning](#)

Project Reviews for Capital Asset Projects

Continued from previous page

Project Management Risk Committee (PMRC) Review

What: The PMRC provides expert advice to the Secretary, CE, PME, and ESAAB on technical, schedule, and cost issues experienced by projects with a TPC of \$100M or more. Upon request of the CE, PME, or ESAAB, the PMRC also addresses projects with a TPC less than \$100M at risk of not meeting their PBs.

In accordance with requirements outlined in DOE O 413.3B, the PMRC reviews the following:

- CD proposals and the maturity of the associated project prior to the CE, PME, or ESAAB considering the CD request for approval;
- BCPs prior to their presentation to the CE, PME, or ESAAB;
- PPR plans, to confirm a focus on pressing issues and an appropriate composition, results, and corrective actions;
- Under Secretary-level project assessment outcomes to advise the CE, PME, ESAAB and other program officials on project performance;
- The need for independent assessments to advise the CE, PME or ESAAB accordingly;
- DOE Order 413.3B requirement exemption requests presented by programs; and,
- Other topics selected by the Secretary or CE.

Why: The PMRC supports DOE's strategic objective of excellence in project management by supporting the CE, PMEs, and ESAAB in their project management decision making. PMRC reviews also enable routine sharing of best practices and lessons learned.

When: PMRC reviews are event-driven as described above. The PMRC meets biweekly or as often as the

Chair deems necessary. A project requiring a PMRC review will coordinate scheduling the review through its program office who will make arrangements with the PMRC executive secretariat.

Who: PMRC - The FPD will prepare the necessary briefings and presentations for the PMRC. The executive secretariat will work with the program office to schedule a presentation or discussion.

Where: PMRC meetings occur at DOE headquarters. The FPD and the project team may participate by teleconference.

For additional information, refer to:

[PM PMRC Website](#)

[PM's Project Management Risk Committee \(PMRC\) Standard Operating Procedures \(SOP\) for Planning and Conducting PMRC Meetings](#)

Project Peer Review (PPR)

What: PPRs are part assessment and part assistance. They are conducted to determine whether the following are valid and credible: the scope of programs, projects, or activities; the underlying assumptions regarding supporting technology; the cost and schedule estimates; the contingency provisions; and the management approach. They also facilitate cross feed of best practices

THE PRACTITIONER

Published monthly for the EFCOG's Project Delivery Working Group by:

Craig Hewitt

(writer/editor)
(509) 308-2277

Craig_T_Hewitt@rl.gov

Adam Russell

(writer/publisher)
(509) 376-5742

Adam_Russell@rl.gov

Tony Spillman

(managing editor)
(509) 372-9986

Anthony_W_Spillman@rl.gov

For questions, comments, story ideas or other correspondence, call or e-mail Craig Hewitt at the contact information above.

Continues on next page

Project Reviews for Capital Asset Projects

Continued from previous page

and lessons learned between projects, contributing to improvement for the projects being reviewed and the projects from which the reviewers come.

The objectives of the PPR may include but are not limited to:

- Determining how well the project will meet the mission need;
- Evaluating technical approach and technology readiness level (TRL);
- Evaluating the readiness of the project to proceed to the next CD;
- Determining whether the acquisition strategy represents a technically valid, cost-effective, realistic means of accomplishing its stated objectives;
- Assessing the potential for meeting schedule and cost baseline targets;
- Evaluating and managing project risks, issues, and challenges;
- Assessing the status of the project;
- Providing constructive recommendations for alternatives or improvements;
- Reviewing corrective action items from previous reviews;
- Assessing the management organization's staffing, work assignment and management processes, project management control systems, risk management, quality management, and environment, safety and health (ES&H) policy compliance; and
- Analyzing compliance with federal labor and employment statutes and regulations, including the Davis-Bacon Act, the Service Contract Act, and the Fair Labor Standards Act.

Why: DOE O 413.3B requires PPRs in order to assist the field in successfully completing the project, as well as identifying areas where programs need to apply additional resources.

The United States Government Accountability Office (GAO) has recognized PPRs as best business practices that are valuable in assessing the status of projects.

When: For projects \$100M and above, a PPR occurs between CD-0 and CD-1, annually between CD-1 and CD-2, and at least annually between CD-2 and CD-4. Also for the most complex projects, those experiencing performance challenges, or as directed by the program office, PPRs occur more frequently.

Who: Program Office - The program office or PME requests the review, establishes the review scope and schedules and selects a team leader as well as the makeup of the review team members. The teams consist of senior-level technical personnel and subject matter experts from the project as well as outside experts, as appropriate.

Where: PPRs normally occur at the project site. However, they could be performed at an offsite location, if sufficient information and personnel to support the review process are available.

For additional information, refer to:

Quarterly Project Review (QPR)

What: QPRs provide a snapshot of project performance and progress made as compared to the established PB for the benefit of the PME. They should cover project performance and progress to include the project's scope, cost, schedule, risk, environmental, safety and health (ES&H), and other project issues. If the project has not been baselined, performance should be measured against the preliminary project execution plan

Continues on next page

Project Reviews for Capital Asset Projects

Continued from previous page

including its milestones. The QPR consolidates or expands upon information in project monthly status reports and is specifically intended to inform the PME of the details of the project status and issues of concern.

The results of a Quarterly Project Review are documented in meeting minutes and action tracking sheets along with a suspense for corrective action prepared by the reviewing office. Any extant action item should be discussed at the next quarterly project review to verify the corrective actions taken or progress made to resolve the issue.

Why: Quarterly reviews are necessary for the PME to monitor performance and progress. These reviews provide a forum to communicate status and garner continued support from senior executives within the Department.

When: These reviews are performed at the discretion of the PME, at least quarterly throughout the project lifecycle, or more frequently (such as monthly) when the project complexity, cost, or risks warrant such reviews. After approval of CD-0, begin holding QPRs and continue them through approval of CD-4 for projects with a TPC of \$50M and greater.

Who: Program Office and PMEs conduct QPRs. The FPD is responsible for preparing the presentation. The Deputy Secretary may delegate quarterly reviews for MSPs to the Under Secretaries. Under Secretaries may delegate quarterly reviews to the PSO for projects for which they are the PME. Other PMEs may delegate QPRs as appropriate prior to CD-2, however they may not delegate QPRs for more than two consecutive quarters after CD-2.

Where: QPRs can be held at the project site or at a location determined by the PME and program office.

Technical Independent Project Review (TIPR)

What: TIPRs assess technical risk and uncertainty for projects acquiring or improving Hazard Category 1, 2, and 3 nuclear facilities. A TIPR is not required for non-nuclear facilities.

A TIPR will evaluate safety documentation to assess whether assumptions are reasonably conservative and appropriately bounded and whether administrative controls can be considered reliable as the project proceeds. DOE-STD-1189 was developed to provide the Department's expectations for incorporating safety early into the design process for new or major modifications to DOE Hazard Category 1, 2, and 3 nuclear facilities.

A TIPR ensures that safety aspects of the design will be thoroughly investigated. It also evaluates whether or not the IPT includes personnel appropriately qualified to execute nuclear safety responsibilities and whether those team members have the necessary availability.

A technical review is also useful when a process technology or unique equipment developed or adapted for the project is untried, or unproven, and no standards exist against which judgments regarding viability can be made. In such a case, an in-depth review by appropriately trained and knowledgeable peers is encouraged. Other areas covered by the TIPR can include:

- Alternative Systems
- Constructability
- Functions and Requirements
- Project Definition (Scope) Assessment

Continued on next page

Project Reviews for Capital Asset Projects

Continued from previous page

- Design (at all stages of design status)
- Technology Readiness Assessment (TRA)
- System Verification (as part of System Engineering)
- Physical Configuration
- Test Readiness
- Safety and Security
- Functional Configuration
- Operability and Reliability, Availability, and Maintainability

Why: TIPRs ensure the timely resolution of engineering, system integration, technology readiness assessments, design, quality assurance, operations, maintenance, and nuclear safety issues. Technical reviews are necessary when uncertainty exists concerning the outcome of a key project decision. Reducing technical risks increases the probability of a successful implementation of the technical scope. DOE O 413.3B requires that a TIPR be conducted for all Hazard Category 1, 2, and 3 nuclear facilities prior to CD-2.

When: Conduct a TIPR at or near the completion of the preliminary design prior to CD-2 and prior to the start of any subsequent reviews (e.g. EIR). Identifying the review requirements in a charge memorandum shortly after CD-1 gives the appropriate SMEs time to plan and conduct the review. A TIPR completed as soon as possible after preliminary design maximizes time to make needed corrections.

Who: The program office and FPD jointly request the review, establish the review scope and schedule, and select a team leader. The team leader appointed by the program office approves the TIPR review plan and the final review report. Qualified technical personnel external to the project execute TIPRs.

Where: TIPRs should be conducted at the project site. However, they could be performed at an offsite location, if sufficient information and personnel to support the review process are available.

For additional information refer to:

[DOE Office of Science, Independent Review Handbook](#)

[DOE-STD-1189, Integration of Safety into the Design Process](#)

Technology Readiness Assessment (TRA)

What: A TRA examines the maturity of technologies and their readiness for insertion into the project design and execution schedule. This assessment applies to MSPs or first of a kind projects.

Through its use, projects may reduce technical risk and technology-driven schedule delays and cost increases. Through a methodology adapted from a NASA scale developed in the 1980s, a TRA assigns a technology readiness level (TRL) from 1, basic principles observed, through 9, total system used successfully in project operations.

The project team tracks for resolution the findings and recommendations from TRAs. The review process should follow the systems engineering approach to assess proper integration of systems with new technologies into the project.

Why: DOE O 413.3B requires that CTEs associated with MSPs or first-of-a-kind engineering endeavors attain TRL-4 prior to CD-1 and TRL-7 prior to CD-2.

Concludes on next page

Project Reviews for Capital Asset Projects

Concluded from previous page

When: Conduct TRAs for MSPs or first of a kind projects during conceptual design through preliminary design, at least 90 days prior to CD milestones. For MSPs where a significant technology element modification occurs subsequent to CD-2, conduct another TRA as appropriate prior to CD-3.

Who: Program Office - The program office and FPD jointly request the review, establish the review scope and schedule and select a team leader. The teams consist of senior-level technical personnel and subject matter experts from the project as well as outside experts, as appropriate.

Where: Conduct TRAs at the project site. However, they could be performed at an offsite location, if sufficient information and personnel to support the review process are available.

For additional information refer to:

[DOE G 413.3-4A, Technology Readiness Assessment Guide](#)

[GAO-16-410G: GAO Technology Readiness Assessment Guide: Best Practices for Evaluating the Readiness of Technology for Use in Acquisition Programs and Projects – Exposure Draft](#)

[GAO-16-89G, GAO Schedule Assessment Guide: Best Practices for Project Schedules](#)

Registration opens soon! Make your hotel reservation now.

2023 DOE Project Management Workshop

April 11-12, 2023* Washington DC

***Plus: Optional Project Controls Session—April 13, 2023**

The PM Workshop overlaps with the National Cherry Blossom Festival (March 20-April 16, 2023) so book your hotel early and enjoy Washington DC in the Spring!

Click the link below to reserve your room.

[2023 DOE Project Management Workshop Room Block—Hilton Washington DC National Mall](#)

Check out the latest DOE Project Management newsletter!

(Click on the banner below)

Or have it delivered directly to your inbox every month!



1. Click [HERE](#) and a new email will open.
2. Paste the following text into the Subject line:
Just press SEND -- Do not edit anything
3. In the e-mail body, paste the following text:
subscribe doe-pm-news
4. Click the provided link in the confirmation email you receive.
(An unsubscribe link is provided in each newsletter email.)

It Is Not One World

Ten of the World's Biggest Construction Projects of 2022 — Part 3

The world is building state-of-the-art infrastructure at a breakneck speed and a booming construction industry across the globe brings some incredible construction projects into the spotlight. In the second installment of this three-part series, we take you through last 3 of the 10 largest construction projects that were started, ongoing, or nearing completion in 2022.

Plant Vogtle – Units 3 & 4

Estimated Cost: \$30 Billion (USD)

Location: Waynesboro, Ga.

Phase: Active Construction



With the addition of units 3 and 4, Plant Vogtle, located in Waynesboro, Georgia will become the largest nuclear plant in the United States. Georgia's massive power plant is actively building two new units which are the first nuclear power units to be built in more than three decades in the United States. Vogtle 3 and Vogtle 4 are both AP1000 nuclear power plant designs and will represent two of the six AP1000 builds worldwide.

With more than 7,000 workers on site, and more than 800 permanent jobs available once the units begin operating, Vogtle 3 & 4 is currently the largest construction project (jobs-producing) in the state of Georgia. The project has also been a major economic development driver for the region during construction.

Why is nuclear power important and why now? Well, with a growing population and an increase in technological development and usage, the world is consuming power at unprecedented rates. Nuclear power offers a zero-emission energy source, does not take a ton of space to build, and produces minimal waste, which aligns with many countries' shift to cleaner energy alternatives. Onlookers should anticipate that Plant Vogtle will not be the only nuclear power-related build on the horizon.

Once operating, the two new units at Plant Vogtle will be able to power more than 500,000 homes and businesses. Vogtle 3 and Vogtle 4 will each generate a gross capacity of 1250Mwe, with the first reactor (Vogtle 3) finishing in the third quarter of 2022.

Dubailand

Estimated Cost: \$76 Billion (USD)

Location: Dubai (United Arab Emirates)

Phase: Active Construction

Dubailand... is that like Disneyland? Yes, but MUCH bigger. Let us break down just how big Dubailand will be, once fully completed.

- 51 Disneylands = 1 Disneyworld (43 square miles of land)
- 3 Disneyworlds = 1 Dubailand (129 square miles of land)

Concludes on next page

World's Biggest Construction Projects

Concluded from previous page

Dubailand is considered a “theme park,” but really is the development of an entire entertainment city, like the experience offered at Disneyworld in Orlando, Florida but at a much greater scale. Dubai is notorious for “one-upping” western countries with innovative builds and construction. If the most exciting architecture and buildings are not already in Dubai, you can be sure it is on the radar.



Plans for Dubailand consist of hotels, theme parks (Universal Studios Dubailand, Six Flags Dubailand, etc.), restaurants, zoos, gardens, and about anything you could think of that would attract tourists from across the globe.

Here is the catch...

Dubailand has been in construction since 2003 and has a turbulent history of fundraising and construction efforts. This has resulted in a snail-like pace building the alternative-like universe. In 2013 \$55 Billion in capital was raised to continue construction, but onlookers feel uncertain that the original plans will pan out.

The good news, in the past 2-3 years the land carved out for Dubailand has launched major attractions like “Legoland Dubai” and the famous Dubai butterfly garden. Rumors have it that construction will continue in 2022 as the oil-rich country continues to thrive with oil prices hitting record highs.

With this most recent cash injection and the total projected budget for Dubailand, it is certainly one of the largest construction projects the world has ever seen. So... what could be bigger?

California High Speed Rail

Estimated Cost: \$98 Billion (USD)

Location: California

Phase: Active Construction

The California High Speed Rail (HSR) has been hotly contested and even protested by many Californians. The original proposal for the HSR was to connect major city centers from San Diego all the way north to areas like San Francisco. The idea behind a large transportation build in California has floated around for decades but in 2008 voters narrowly voted in favor of the rail and \$10 Billion in funding was secured (SF Chronicle, 2019).

The California HSR is still in motion, and construction continues to move forward. However, the original blueprints for the rail are not going to come to life any time soon. Much of the project has been halted, and a project that was once projected to cost \$33 Billion dollars is now prediction to cost just over \$98 Billion. In addition, construction is expected to take 13 years longer than pitched in 2008 – now targeted for completion in 2033.

It is safe to say that the 2033 deadline will not be met if portions of the rail continue to be stopped. For now, construction on the rail will continue between Merced and Bakersfield.

Upon completion, this project will undoubtedly be one of the biggest construction projects ever completed and unlike any other transportation system in the world. But Californians beg to question “at what cost?” as the goalposts on the project budget continue to move further billions of dollars at a time.



Just for Fun: January's Notable Events and Famous Birthdays

1 — The Julian calendar took effect (45 B.C.), patriot Paul Revere was born (1735), and the ball was first dropped at Times Square in New York City (1908)

2 — Georgia became a state (1788)

3 — King Tut's tomb was discovered (1924), the March of Dimes was founded (1938), actor Mel Gibson was born (1956), Alaska became a state (1959), and quarterback Eli Manning was born (1981)

4 — Sir Isaac Newton was born (1643), Utah became a state (1896), and the euro made its debut (1999)

5 — The Yankees purchased Babe Ruth from the Red Sox (1920), construction on the Golden Gate Bridge began (1933), and the space shuttle program was authorized (1972)

6 — Joan of Arc was born (1412), Samuel Morse demonstrated the telegraph (1838), New Mexico became a state (1912), Wheel of Fortune debuted on TV (1975), and quarterback Jameis Winston was born (1994)

7 — The first U.S. presidential elections were held (1789), TV personality Katie Couric (1957), and actors Nicolas Cage (1964) and Jeremy Renner (1971) were born, and President Clinton's impeachment trial began (1999)

8 — Singers Elvis Presley (1935) and David Bowie (1947) were born

9 — President Richard Nixon was born (1913), and **Apple launched iTunes** (2001) and the iPhone (2007)

10 — The world's first subway system opened in London (1863), singer Rod Stewart (1945) was born, the United Nations met for the first time (1946), and boxer George Foreman was born (1949)

11 — The Grand Canyon was declared a national monument (1908), American League baseball adopted the "designated hitter" rule (1973)

12 — Amazon founder Jeff Bezos was born (1964), Batman debuted on television (1966), and a magnitude 7.0 earthquake struck Haiti (2010)

14 — The Treaty of Paris officially ended the American Revolutionary War (1784), rapper LL Cool J (1968) and actor Jason Bateman (1969) were born, the Miami Dolphins completed the only undefeated season in NFL history (1973), and basketball legend Michael Jordan retired (1999)

15 — Civil Rights activist Dr. Martin Luther King Jr. was born (1929) and the first Super Bowl was played (1967)

16 — The PGA was formed (1916), **Prohibition went into effect** (1919), the Chevy Corvette was first unveiled (1953), and Operation Desert Storm began (1991)

17 — Statesman Benjamin Franklin was born (1706), Americans overthrew the Hawaiian monarchy (1893), and boxer Muhammad Ali (1942) and former first-lady

Michelle Obama (1964) were born

18 — Actor Kevin Costner was born (1955)

19 — Writer Edgar Allan Poe (1809) and singer Dolly Parton (1936) were born

20 — The "British Invasion" began when the Beatles released their first album in the U.S. (1964), the Iran Hostage Crisis ended (1981), and quarterback Nick Foles was born (1989)

21 — The Kiwanis Club was formed (1915), **golfer Jack Nicklaus was born** (1930), and the first case of COVID-19 in the U.S. was confirmed (2020)

22 — Abortion was legalized in the U.S., and President Lyndon Johnson died (1973)

23 — The world's deadliest earthquake killed 830,000 in China (1556), statesman John Hancock was born (1737), and the Frisbee was introduced (1957)

24 — Singer Neil Diamond was born (1931), beer was first sold in cans (1935), actor John Belushi was born (1949), and British statesman Winston Churchill died (1965)

25 — Transcontinental phone service began in the U.S. (1915), the first Winter Olympics were held in Chamonix, France (1924), the first Emmy Awards were presented (1949), and singer Alicia Keys was born (1981)

26 — The dental drill was patented (1875), actor Paul Newman was born (1925), television was first demonstrated to the public (1926), and guitar god Eddie Van Halen (1955) and hockey legend Wayne Gretzky (1961) were born

27 — Composer Wolfgang Amadeus Mozart was born (1756), the **National Geographic Society was founded** (1888), and three astronauts died in a launch pad fire aboard Apollo 1 (1967)

28 — The space shuttle Challenger exploded (1986)

29 — President William McKinley was born (1843), Kansas became a state (1861), baseball's American League was founded (1900), the first members of the Baseball Hall of Fame were elected (1936), and TV personality Oprah Winfrey was born (1954)

30 — President Franklin D. Roosevelt was born (1882), Adolf Hitler was named chancellor of Germany (1933), Mohandas Gandhi was assassinated (1948), **musician Phil Collins was born** (1949), the Vietnam War's Tet Offensive began (1968), and actor Christian Bale (1974) was born

31 — Slavery was abolished in the U.S. (1865), baseball legends Jackie Robinson (1919) and Nolan Ryan (1938) were born, President Truman announced the development of the hydrogen bomb (1950), and singer Justin Timberlake was born (1981)



Is your data and info **C**urrent, **A**ccurate, **C**omplete, **R**epeatable, **A**uditable and **C**ompliant®?

©2019, CT Hewitt Consulting

6 TIPS TO BE AN EFFECTIVE PROJECT MANAGER (WITHOUT MICROMANAGING)

1. Have a detailed plan
2. Play to your team's strengths
3. Remove yourself
4. Utilize questions
5. Set communication expectations
6. Ask for feedback