

INDUSTRIAL COMMISSIONING ASSOCIATION MONTHLY NEWSLETTER

For commissioning professionals working on
industrial plant processes and energy system projects

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CEO MESSAGE

By Paul Turner, P.Eng., PMP

The Industrial Commissioning Association is working hard to get you more resources for commissioning to help you on your projects. These are some of the things we are working on:

ICA Global Commissioning Standard – The review team is just completing their 6-week reviews of the set of standards documents. This will be the most comprehensive commissioning standard ever written, available for everyone as reference on their projects. This will be the largest source of lessons learned based on many decades of commissioning expertise, so you don't have to make the same expensive mistakes on your projects.

This set of standards defines all the risk-mitigating activities required during all phases of projects – from FEED to handover – for smooth commissioning to meet project in-service dates with high-quality systems.

Intermediate and Advanced Training

Programs – For some people, the standard will be a great reference they can use and apply on projects right away. For others, they may prefer training to learn the standard a bit quicker, and understand the best-practices to apply to their projects. For those interested, the Intermediate Planning Framework program will be released very soon. Member's of the Industrial Commissioning Association will be the first to know when it's released, watch your email for updates. The Advanced Planning Framework program will be released soon as well, for commissioning specialists who want to reach

peak performance on projects.

Outreach – The Industrial Commissioning Association is continuing to build bridges with other associations and industry partners. Watch for updates on the podcasts and interviews we are participating in.

Networking Opportunities – As commissioning professionals, it is beneficial to network and learn from other commissioning professionals working on similar projects, to learn and grow and share information. The Industrial Commissioning Association holds regular online meetups for commissioning professionals to collaborate as a group. See the upcoming meetups that are scheduled in the Member's Area.

Document Templates – We all use similar documents on projects – Commissioning Plans, Safety Plans, Kickoff Meeting Agendas, etc – so why do we have to create new documents for these each time we start a new projects? If you've written one of these documents in the past, you have a reference you can modify and update for the next project. But what about someone who has never written one of these before?

The Industrial Commissioning Association is creating a document template library, coming soon. When this is available, you can log into the Member's Area, get the document template you need, and have a reference point you can use to create your project specific data. This will help people get started with the documents listed in the ICA Global Commissioning Standard, and give projects a baseline to start with when planning for commissioning. Watch for this update coming soon.

Suggestions – If you have any other initiatives you would like to see the Industrial Commissioning Association undertake, please let us know.

Email us at info@icxa.net and let us know your thoughts.

The end of the year is often when projects slow down for the holiday season. Please enjoy the short break and stay safe as we rest and recharge for another busy year of projects in 2025!

Paul Turner, P.Eng, PMP



"This will be the most comprehensive commissioning standard ever written, available for everyone as reference on their projects."

MUSKRAT FALLS – A MISGUIDED PROJECT – AN INSIDE LOOK THAT PROJECT TEAMS WILL ALL TOO EASILY RECOGNIZE

By Darren Sangster, PMP

I just finished reading the Executive Summary from the Commission of Inquiry Respecting the Muskrat Falls Project in Newfoundland & Labrador, available at the following link:
<https://www.gov.nl.ca/iet/muskrat-falls-a-misguided-project/>

If you have some time, I highly encourage my project colleagues to read through it. Even for those who haven't been involved in large projects, it provides valuable insight into the cascading challenges project teams face when initiatives go off track.

Below is a summary of the key recommendations from the inquiry for projects with budgets of \$50 million or more:

- **Engage External Experts & Strengthen Oversight:** The government should consult independent experts for project assessments and establish oversight processes based on best practices from other jurisdictions.
- **Public Utilities Board Review:** Any large project that might affect electricity ratepayers should undergo a review by the Public Utilities Board.

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This review should assess the project's business case, cost, schedule, and reliability, with findings reported to both the government and the public.

- **Transparency in Information Disclosure:**

Amend the Energy Corporation Act to allow the Information and Privacy Commissioner to decide if Nalcor's information claims of "commercial sensitivity" are justified. Nalcor should not withhold information from key government officials unless permitted by existing privacy laws.

- **Cost Estimates & Risk Management:** For project funding, use a conservative probability factor (P85) and account for potential bias in cost and schedule estimates. Include contingency amounts for risks in the overall budget but do not disclose specific figures publicly. Disclosure of risk amounts should follow structured guidelines.

- **Finance Department Oversight:** The Department of Finance and Treasury Board should manage financing, cost control, and project cost reviews. They should assess the project's financial impact on the Province before granting approval.

- **Strategic Planning for Churchill Falls (2041):** Establish a non-political, well-funded expert panel to develop strategies for maximizing benefits from the Churchill

Falls generating station and other potential sites. The panel should report progress regularly to the Cabinet to prepare for negotiations with Québec.

My Perspective:

As someone involved in completions and commissioning, receiving systems from construction to perform Operational Readiness testing before start-up, the two key issues that I see as persistent challenges on projects are:

Engage External Experts & Strengthen Oversight

Often, project teams lack a clear understanding of the project completions model and how engineering, construction, and commissioning activities are interconnected. This misalignment directly affects when assets can start up and begin generating returns. Engaging the right experts early for guidance is a critical step that many project teams overlook, as was evident with Muskrat Falls.

Cost Estimates & Risk Management

Accurate schedules and cost estimates for completions and commissioning can be developed during the Front-End Engineering Design (FEED) phase using Issued for Design (IFD) documents. This provides key stakeholders with a realistic view of the costs and time needed to reach start-up after construction. However, this planning is often deferred until much later in the detailed design or construction phases, leading to unpleasant surprises for stakeholders when additional time and budget are suddenly required to realize their returns.

Key Takeaway:

If you're a senior project leader or corporate executive overseeing a major project, I encourage you to involve completions and commissioning experts from the beginning. Their expertise in facility start-up can provide your teams with valuable insights into the correct sequencing of construction and engineering to support a seamless commissioning phase and beyond.

Contrary to popular belief, in projects - as in life - **everything is connected.**



Image provided by Darren Sangster

***“Contrary to popular belief,
in projects - as in life -
everything is connected.”***



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A SYSTEMS-BASED APPROACH IS THE SECRET TO COMPLETING COMMISSIONING

by Paul Turner, P.Eng., PMP

We've failed to teach project managers how to finish projects during commissioning. It's not their fault. It's just that systematization or a project management approach to commissioning are not topics that are taught in any of the project management literature that's out there.

I remember years ago when I studied and passed the PMP exam, I thought I was ready to take on any project with my newly minted certification. But my expectations quickly met reality. Looking back now, it is hard to believe that I did not come across the words "systematization" or "commissioning" even once when learning about project management. While I knew all the terminology for Gantt charts, charters, budgets, and WBS, these are all things to start a project, and I was wholly unprepared to finish a project. Only after managing commissioning of a multi-billion dollar megaproject did I understand what commissioning was really all about.

Projects are complex, and it's a challenge to make sure that all the big and small details come together at the end to deliver high-quality systems that can be used for decades

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of reliable operation. Without a project management approach to methodically complete commissioning, all the pieces of projects quickly get scattered, and it's difficult to put everything back together into one functional plant process, if you're not following a systems-based approach.

This is one of the main reasons for having commissioning folks involved early in projects – to help project managers systematize projects and plan design, construction, and commissioning activities in conjunction for a smooth completion in the end.

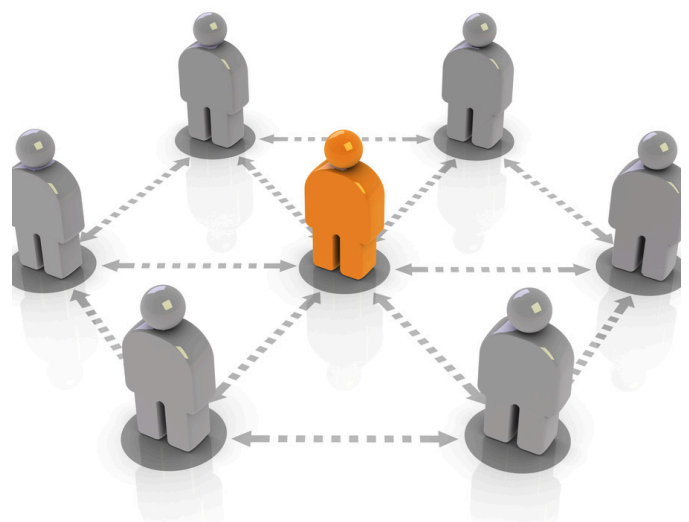
A systems-based approach is the only method to group projects into manageable sections for completion in stages. Systematization is different than your project WBS or AWP methods. Systematization requires a systems-based approach to group equipment into functional systems that aligns with your project startup sequence.

Construction groups will often sequence their installation activities by area, which makes sense to optimize material deliveries and workforces. When construction is about 60% to 70% complete, this is the point in time when the focus must switch from area completion

to systems-based completion. This is not an easy switch to make, and if not precisely planned, the transition will not go well, or may not even happen at all.

For this switch to be successful, systematization must be defined early enough in projects to let construction groups know what this transition will look like. Ideally this is defined in contracts, but construction contracts are often pretty light on commissioning details that define how projects will finish. At the very least, how this transition needs to take place must be defined in contracts, with a timeline for when systematization details will be provided, so there are no surprises.

Too often, commissioning groups only become engaged in projects when construction is already 60% to 70% complete. This doesn't leave much time to define systematization and coordinate with construction groups – they've already made their own assumptions to plan for long lead equipment, and they've already hired workforces to complete construction. This is hardly the right time to inform them that their plans need to change, it is very late to try to change plans to re-align construction completions and commissioning without



adding delays.

When commissioning folks engage in projects too late, it's impossible to plan for an efficient finish. All groups have to scramble to finish, and this is hardly an efficient approach to completing projects when there is so much time and money on the line.

Instead, a better approach is to define how projects will be completed at the beginning. The earlier you inform construction groups (ideally in contracts) for how the project will be systematized and how their work needs to complete to align with commissioning, the easier it is for them to switch to systems-based completion at the right time and plan within these constraints. This allows for a smooth transition from construction to commissioning to achieve project in-service dates.

Nobody likes changes on projects – design changes, schedule changes, cost increases – and when more upfront information about commissioning and how the project will be completed is provided to all groups, changes can be minimized. The tendency to defer commissioning involvement to later in projects, thinking that commissioning is just testing at the end, costs project teams a lot of unnecessary expenses. When more upfront commissioning information is made available by having commissioning folks involved in planning discussions earlier, all groups have a much clearer understanding of what success looks like during commissioning, and can plan to complete their work more efficiently.

The main reason to have commissioning folks involved early in projects, is to plan commissioning in conjunction with design and construction so that all groups can optimize their plans for efficient completion.

It does not make sense to withhold commissioning information from design and construction groups when they are planning their activities, since they'll have to make their own assumptions which will be difficult (and expensive) to change later when completing the project during commissioning.

Project managers must be aware of the consequences of delaying commissioning information when design and construction groups are planning their work. The most efficient and cost-effective approach is for project teams to take a systems-based approach to completing projects right from the start, so all groups on projects can collaboratively plan for a strong finish in the end.

“A better approach is to define how projects will be completed at the beginning.”



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COMETH THE HOUR - BIG TECH AND BIG BANKS THROW THEIR SUPPORT BEHIND NUCLEAR ENERGY.

by Darren Sangster, PMP

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*"If you would know the value of money, go and
try to borrow some." – Benjamin Franklin*

A rock-solid adage of venture investing is that all the deals are undersubscribed except for the ones that are oversubscribed. As such, a handsome living can be made by simply slipstreaming behind term sheets negotiated by others when you know that everybody else knows that the underlying startup will soon raise again at a higher valuation. One need not understand financial models, technology trends, or even the language embedded in the documents signed. Get yourself invited into deals that others are eager to fund, and lucrative returns are sure to follow.

This phenomenon—a variant of Ben Hunt's common knowledge game—emphasizes the edge born of recognizing inflection points in groupthink. Consider the comparatively sleepy world of project financing, where private investors like pension funds seek modest but stable returns to duration-match future liabilities. Large public goods projects such as water treatment facilities and power plants require significant upfront investment and are often fraught with risk. However, with the right combination of government support and big-name banks backing the deal, private money will often compete to participate. Good luck breaking ground absent that trifecta of

confidence.

Perhaps no industry has suffered from a lack of such confidence as much as the civilian nuclear energy sector. In the decades that followed the meltdown at Three Mile Island in 1979, the industry stayed on its back foot, put there by the relentless scaremongering of opportunistic Malthusians. Barely able to defend keeping perfectly operational facilities open—let alone building new ones—nuclear power producers seemed content to avoid making any headlines, good or bad. Now, the artificial intelligence revolution and its associated need for a practically endless supply of high-quality electricity have radically altered the confidence landscape:

"The owner of the shuttered Three Mile Island nuclear plant in Pennsylvania will invest \$1.6 billion to revive it, agreeing to sell all the output to Microsoft Corp. as the tech titan seeks carbon-free electricity for data centers to power the artificial intelligence boom.

Constellation Energy Corp., the biggest US operator of reactors, expects Three Mile Island to go back into service in 2028, according to a statement Friday. While one of the site's two units permanently closed almost a half-century ago after the worst US nuclear accident, Constellation is planning to reopen the other reactor, which shut in 2019 because it couldn't compete economically. Shares of Constellation Energy jumped as much as 22%, the most on record, to an all-time high on Friday."

Mark Nelson, noted nuclear advocate and friend of the Doomberg team, commented on the deal to us via private correspondence:

"Electricity is not, and never was, a commodity. It is a service with strict and

uncompromising location- and time-based constraints. Nuclear almost perfectly matches the specific service needs of the next generation of centralized AI datacenters in a way that distributed, weather-based energy cannot match, at least not at any reasonable cost.

Getting electricity to market when and where it is needed is a savage problem. The amount of constant power required at individual hyperscale datacenters is unprecedented. Combine these two things and nuclear power becomes extremely valuable because it is both constant and carbon-free. Restarting existing plants makes perfect sense in this context.”

While enthusiasts justifiably celebrate a milestone that would have seemed unthinkable just a few months ago, when the history of the past few weeks is written, the Microsoft deal will likely be viewed as only the second most important development for civilian nuclear power. This past Monday—on the sidelines of the Climate Week summit in New York, no less—a gathering of international heads of state, leaders of numerous mega-banks, and representatives from the nuclear industry took place at the Rainbow Room in Rockefeller Center. Titled “Financing the Tripling of Nuclear,” the meeting almost certainly marks a critical inflection point that will finally give investors around the world the confidence to pour much-needed capital into new nuclear deployment at scale. Let’s explore what went down and what it means.

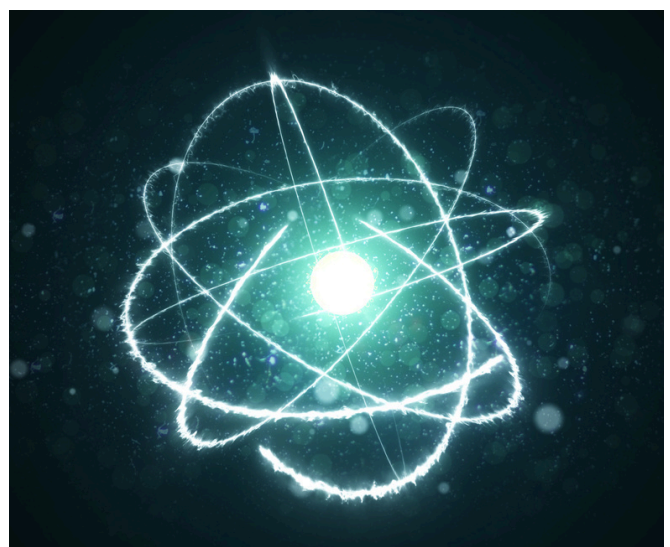
The context of Monday’s meeting is as important as the event itself. Last December, at the United Nations Conference of Parties (UN COP28) in the United Arab Emirates (UAE), 22 nations united to sign the Triple Nuclear

Declaration, jointly committing to triple the global installed nuclear capacity by 2050. (The list of nations supporting the initiative has since grown to 25.) Even more significant was nuclear’s inclusion as a legitimate carbon mitigation option in the UN Global Stocktake, dealing a near-fatal blow to the opposition:

“Accelerating zero- and low-emission technologies, including, inter alia, renewables, nuclear, abatement and removal technologies such as carbon capture and utilization and storage, particularly in hard-to-abate sectors, and low-carbon hydrogen production;”

The importance of nuclear’s inclusion (next to the word “renewables”!) cannot be overstated. It gives a powerful voice to those who have been calling for international financial institutions to put nuclear on the menu. In theory, this development should mean new nuclear power projects are given the same beneficial funding incentives wind and solar have enjoyed. If such a situation manifests, a nuclear renaissance is all but guaranteed.

This brings us back to Monday’s meeting at Rockefeller Center, hosted and attended by many of the same advocates who made the



Triple Nuclear Declaration at COP28 a reality. As a sign of the current US administration's supportive shift toward nuclear, the opening remarks were delivered by John Podesta, Senior Advisor for International Climate Policy to President Biden. Podesta—John Kerry's successor in the position—delivered the new party line that civilian nuclear energy is an essential contributor to the future global energy mix. In his role, he is certainly aware of the wide array of support Biden has thrown behind nuclear energy, including efforts to keep Diablo Canyon operational in California and the initiative to restart the Palisades Power Plant in Michigan. He had this to say in the official press release that accompanied the meeting:

“Our collective mission is clear: nuclear energy is clean energy, and if we are to

ensure a livable planet, build secure, sustainable supply chains for clean energy and bolster prosperity around the world, we need to make sure that nuclear energy does its part. I know we can make it happen—as long as we work together.”

The session's programming was in lockstep with the requisite support from government factions and big banks. The first panel featured senior government leaders from Slovenia, Sweden, Bulgaria, France, and Romania—all strong supporters of the Triple Nuclear Declaration—followed by a panel featuring top executives from Bank of America, Barclays, BNP Paribas, Brookfield, Citi, Goldman Sachs, and Guggenheim Securities. The clear message articulated by both discussions was impossible to miss: the big banks are all-in on nuclear, and prior



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hesitations to support the technology have been fully vanquished. To wit:

"BNP told the Financial Times there was 'no scenario' in which the world could hit carbon neutrality by 2050 without nuclear power, citing the UN's Intergovernmental Panel on Climate Change. Barclays said it was taking part because nuclear could be a solution to the intermittency of wind and solar energy."

Returning to Nelson, he had this to say about Monday's monumental event:

"The importance of what transpired earlier this week cannot be overstated. After decades of unjustified hesitancy, the world is finally realizing that nuclear energy must play a critical role in our collective energy future. No gigawatt-scale power plant can be built without the combined support of government and the financial sector, and until the events of the past year, such backing for new nuclear has been in doubt. In my view, Monday was a watershed moment for nuclear power."

As testimony to the rapid sea change in the attitude towards nuclear energy, even The Sierra Club—an architect of incalculably damaging smears against atomic energy and a hotbed of Malthusian pessimism—was recently forced to acknowledge the new reality. Buried on page 27 of a recent policy position statement titled "Demanding Better: How growing demand for electricity can drive a cleaner grid" was this eyebrow-raising nugget (emphasis added):

"Clean energy standards (CES) are fundamentally technology-neutral, allowing for storage, geothermal, and even nuclear and high-performing carbon capture to participate, as cost-effective."

Under this construct, novel technologies that provide system value for high renewable penetration, like long-duration storage, can gain market share and show value. CES have been adopted in 16 states since 2017."

Tepid as the concession might sound, its inclusion is nothing short of monumental. With the nuclear energy option conquering the confidence constraints holding back financial support for a much-needed nuclear revival, those holding the private funding purse strings are surely catching the buy signal. This is an occasion to put partisan politics aside and welcome progress—progress due in no small part to a small group of mostly unsung heroes whose tenacity and influence were ready to capture nuclear's advantage when the hour finally arrived. Count us among those unabashedly celebrating their win.



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