

# Data Center Commissioning Checklist

The below table provides a high level overview of the current Level 0-7 progress relating to the Commissioning Works.

<b>Level 0</b>	<p>Level 0, managed by the General Contractor and Owners Commissioning Consultant, serves as the initial stage of the project commissioning process, where the primary focus is on laying the foundation for subsequent stages, evaluating, planning, and documenting the necessary information, tasks, and activities for successful commissioning.</p> <p>It is important to note that while Level 0 primarily focuses on the below tasks, some of them will continue throughout the project and carry over into subsequent levels.</p>	Complete
<b>Level 1</b>	<p>Level 1, managed by the General Contractor, is where a diverse range of roles and responsibilities come together from the commissioning team to ensure that the selected plant and equipment is factory tested.</p> <p>Although this stage is relatively short and uncomplicated, it necessitates the dedicated efforts of individuals with specialized tasks and expertise.</p>	Ongoing
<b>Level 2</b>	<p>Level 2, managed by the General Contractor, is a crucial stage in the data centre commissioning process, aimed at ensuring that all equipment, plant, and components are successfully delivered, installed, and thoroughly checked via pre-start-up activities to meet the project requirements.</p> <p>This stage sets the foundation for the subsequent energization phase at Level 3.</p>	Not Started
<b>Level 3</b>	<p>Level 3, managed by the General Contractor, encompasses tasks and activities aimed at ensuring that the individual plant, equipment, systems, and components are successfully started up, tested, and operating in accordance with the design intent and approved testing scripts/procedures.</p> <p>This stage serves as a crucial step before bringing the different systems together for Level 4 and Level 5 works.</p>	Not Started
<b>Level 4</b>	<p>Level 4, managed and delivered by the Owners Commissioning Consultant, with support from the General Contractor, focuses on bringing the systems together, integrating them, and conducting a series of rigorous tests to ensure their alignment with the Owner's Project Requirements [OPR], Basis of Design [BOD], and relevant contract documentation such as drawings, specifications, and control logics.</p> <p>This stage plays a pivotal role in verifying the functional performance of these integrated systems.</p>	Not Started
<b>Level 5</b>	<p>The Level 5 Integrated Testing phase, managed by the Owners Commissioning Consultant, with support from the General/Main Contractor and is the final step in validating the performance of the installed systems. It focuses on integrating all the systems, conducting rigorous tests to evaluate and verify their functionality, interoperation, and response to simulated failure scenarios, demonstrating that they operate seamlessly together, in accordance with the owner's project requirements [OPR], Basis of Design [BOD], and other contractual documentation such as drawings, specifications, and control logics.</p> <p>Once the testing has been completed, data will be collected and analysed from the systems and instruments systems, to ensure that critical data hall and other space ambient conditions are maintained during different testing scenarios.</p>	Not Started
<b>Level 6</b>	<p>Managed and executed by the Owners Commissioning Consultant, with the support of the General Contractor, Level 6 is the final stage, where the Commissioning Process is completed with the systems transitioning to the Owner and Facilities Team, ensuring that the data centre is fully prepared and optimized for operation, and all commissioning-related activities are concluded in a systematic and well-documented manner.</p>	Not Started

# Data Center Commissioning Checklist

The below table provides a high level overview of the current Level 0-6 progress relating to the Commissioning Works.

<b>Level 0</b> Items to Start:	<b>65</b>	<b>Level 4</b> Items to Start:	<b>20</b>
<b>Level 1</b> Items to Start:	<b>14</b>	<b>Level 5</b> Items to Start:	<b>19</b>
<b>Level 2</b> Items to Start:	<b>20</b>	<b>Level 6</b> Items to Start:	<b>12</b>
<b>Level 3</b> Items to Start:	<b>21</b>		

Level	Step	Task/Activity	Status
Level 0	L0-01	Write and Issue Owners Project Requirements [OPR] Document.	To Be Completed
Level 0	L0-02	Oversee Owners Project Requirements [OPR] are being met throughout the contractor design stage, and issue updates to the project team.	To Be Completed
Level 0	L0-03	Write and Issue Basis of Design [BOD] Document.	To Be Completed
Level 0	L0-04	Ensure that the Basis of Design [BOD] is updated and reviewed by Main Contractor during the 100% design stage, and issue to the project team.	To Be Completed
Level 0	L0-05	Develop design [30%, 60%, 90%, 100%] and issue documentation for review and approval.	To Be Completed
Level 0	L0-06	Create, Develop, and Issue Computational Fluid Dynamics Study [CFD] Document.	To Be Completed
Level 0	L0-07	Complete Commissioning Review of Design [60% to 100% and Issue Report.	To Be Completed
Level 0	L0-08	Conduct Short Circuit / Single Point of Failure Coordination Study	To Be Completed
Level 0	L0-09	Issue Commissioning Document List covering all stages until handover.	To Be Completed
Level 0	L0-10	Write and Issue Data Centre Commissioning Guideline Document. [This document]	To Be Completed
Level 0	L0-11	Agree on Sequencing and Duration of Level 4 & 5 Requirements.	To Be Completed
Level 0	L0-12	Issue Initial Integrated and Sequenced Commissioning Programme.	To Be Completed
Level 0	L0-13	Issue Commissioning Process Flow Diagram covering all stages until handover.	To Be Completed
Level 0	L0-14	Agree Commissioning Process and Responsibility Matrix. [This document]	To Be Completed

Level	Step	Task/Activity	Status
Level 0	L0-15	Issue Commissioning Team Organigram covering this stage. [This is 'Initial']	To Be Completed
Level 0	L0-16	Agree equipment to be Factory Tested.	To Be Completed
Level 0	L0-17	Create, Develop, and Issue Load Bank & Metering Plan for Level 4 & 5 works.	To Be Completed
Level 0	L0-18	Write and Issue Initial Commissioning Plan.	To Be Completed
Level 0	L0-19	Write and Issue Construction Commissioning Specification.	To Be Completed
Level 0	L0-20	Upon contract award, 'Form Commissioning Team' and issue organigram.	To Be Completed
Level 0	L0-21	Set up Cx Electronic Platform [Levels 1-6] for later input of commissioning checklists, test procedures and observations/issues.	To Be Completed
Level 0	L0-22	Set up and discuss use Document Management System and Numbering Structures for the testing and commissioning works.	To Be Completed
Level 0	L0-23	Conduct Commissioning Kick Off meeting.	To Be Completed
Level 0	L0-24	Create, Develop, and Issue Commissioning Communication Protocol.	To Be Completed
Level 0	L0-25	Create, Develop, and Issue Material Submission Document List.	To Be Completed
Level 0	L0-26	Issue Integrated and Sequenced Commissioning Programme.	To Be Completed
Level 0	L0-27	Issue Integrated and Sequenced Commissioning Work Logics.	To Be Completed
Level 0	L0-28	Agree on method for Capturing Site Issues and Observations.	To Be Completed
Level 0	L0-29	Agree on Tagging Process and design of tags to be used.	To Be Completed
Level 0	L0-30	Agree on format and content of Factory Testing Scripts.	To Be Completed
Level 0	L0-31	Agree on format and content of Factory Testing Reports.	To Be Completed
Level 0	L0-32	Plan / programme Factory Testing.	To Be Completed

Level	Step	Task/Activity	Status
Level 0	L0-33	Agree on format and content of Confirmation to Ship Certificates.	To Be Completed
Level 0	L0-34	Agree Training Requirements and Write Training Manual.	To Be Completed
Level 0	L0-35	Develop Training Programme.	To Be Completed
Level 0	L0-36	Agree on format and content of Pre-Start Up Checklists.	To Be Completed
Level 0	L0-37	Agree on format and content of Functional Testing Procedures.	To Be Completed
Level 0	L0-38	Agree on format, content, and process for Inviting Owner Team for Witnessing and Verification.	To Be Completed
Level 0	L0-39	Agree Final Testing Pack information to be included in O&M.	To Be Completed
Level 0	L0-40	Agree on format and content of Daily, Weekly, Monthly Commissioning Reports.	To Be Completed
Level 0	L0-41	Agree on format and content of 2 Week Look Ahead Schedule.	To Be Completed
Level 0	L0-42	Agree on format and content of Final Commissioning Report.	To Be Completed
Level 0	L0-43	Agree on format and content of Systems Manual.	To Be Completed
Level 0	L0-44	Agree O&M Requirements.	To Be Completed
Level 0	L0-45	Write and Issue Final Commissioning Plan.	To Be Completed
Level 0	L0-46	Conduct Commissioning Focused Meetings and Workshops, issuing Minutes.	To Be Completed
Level 0	L0-47	Provide to CxP, Commissioning Focused Reports [monthly/weekly].	To Be Completed
Level 0	L0-48	Provide to Client, Commissioning Focused Reports [monthly/weekly].	To Be Completed
Level 0	L0-49	Review Information for Gap Analysis between Owner Specified Equipment and Main Contractor works.	To Be Completed
Level 0	L0-50	Create, Develop, and Issue Electrical Discrimination Study.	To Be Completed

Level	Step	Task/Activity	Status
Level 0	L0-51	Create, Develop, and Issue Arc Flash Study.	To Be Completed
Level 0	L0-52	Agree on Arc Flash Sticker Template to be used.	To Be Completed
Level 0	L0-53	Agree Thermal Graphic Inspection locations.	To Be Completed
Level 0	L0-54	Create, Develop, and Issue Thermal Graphic Procedure and Plan.	To Be Completed
Level 0	L0-55	Create, Develop, and Issue Electrical Lock Out, Tag Out Process and Procedure.	To Be Completed
Level 0	L0-56	Create, Develop, and Issue Plant Settings Report.	To Be Completed
Level 0	L0-57	Create, Develop, and Issue Schedule of required Work Permits for commissioning activities.	To Be Completed
Level 0	L0-58	Create, Develop, and Issue Commissioning Strategies.	To Be Completed
Level 0	L0-59	Agree Sequence of Operation [SOO] List.	To Be Completed
Level 0	L0-60	Create, Develop, and Issue Sequence of Operations [SOO].	To Be Completed
Level 0	L0-61	Create, Develop, and Issue BMS Graphic Document.	To Be Completed
Level 0	L0-62	Create, Develop, and Issue BMS Points List Document.	To Be Completed
Level 0	L0-63	Create, Develop, and Issue Fire Cause & Effect Matrix.	To Be Completed
Level 0	L0-64	Provide to Owner, Level Close Out Reports.	To Be Completed
Level 0	L0-65	Sign off Level.	To Be Completed
Level 1	L1-01	Fix and confirm dates of Factory Testing.	To Be Completed
Level 1	L1-02	Create, Develop, and Issue Factory Testing Scripts.	To Be Completed
Level 1	L1-03	Conduct Commissioning Focused Meetings and Workshops, where required.	To Be Completed

Level	Step	Task/Activity	Status
Level 1	L1-04	Organize Transportation and Accommodation for Factory Testing.	To Be Completed
Level 1	L1-05	Conduct Factory Acceptance Testing with owner team at factory or remotely.	To Be Completed
Level 1	L1-06	Add any issues to Observation Register and managing to close.	To Be Completed
Level 1	L1-07	Create, Develop, and Issue Factory Testing Reports for all equipment.	To Be Completed
Level 1	L1-08	Obtain and Issue Factory QA/QC documents for record and filing.	To Be Completed
Level 1	L1-09	File and manage Factory Testing information and records within the Project electronic filing system.	To Be Completed
Level 1	L1-10	Install all Red Tags where applicable.	To Be Completed
Level 1	L1-11	Issue Confirmation to Ship Certificate.	To Be Completed
Level 1	L1-12	Ship equipment to site.	To Be Completed
Level 1	L1-13	Provide to Owner, Level Close Out Reports.	To Be Completed
Level 1	L1-14	Sign off Level.	To Be Completed
Level 2	L2-01	Write and Issue Level 2 Checklists and Scripts that will be used to facilitate the works.	To Be Completed
Level 2	L2-02	Plan and Manage Deliveries of plant, equipment, and materials. [If not, Factory Tested]	To Be Completed
Level 2	L2-03	Complete Delivery and Storage Checklists when plant, equipment and materials arrive on site.	To Be Completed
Level 2	L2-04	Complete Installation Checklist Inspections.	To Be Completed
Level 2	L2-05	Complete Pre-Start-up / Energization Inspections.	To Be Completed
Level 2	L2-06	Conduct any First of Kind [FOK] Inspections if noted in the project process with the owner's CxP.	To Be Completed
Level 2	L2-07	For Electrical Panels ensure Arc Flash Stickers are attached and Breakers Set in line with the Arc Flash Report and Discrimination Study.	To Be Completed

Level	Step	Task/Activity	Status
Level 2	L2-08	Complete Foreign Object Detection [FOD] Inspection for all electrical panels and equipment.	To Be Completed
Level 2	L2-09	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
Level 2	L2-10	Manage the Overall Programme for the Commissioning Tasks and Activities.	To Be Completed
Level 2	L2-11	Add any issues to Observation Register and managing to close.	To Be Completed
Level 2	L2-12	File and manage documentation and records within the Project electronic filing system.	To Be Completed
Level 2	L2-13	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
Level 2	L2-14	Conduct Daily Morning Coordination Workshop.	To Be Completed
Level 2	L2-15	Provide Daily Commissioning Updates.	To Be Completed
Level 2	L2-16	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
Level 2	L2-17	Provide Commissioning Focused Reports. [Monthly / Weekly]	To Be Completed
Level 2	L2-18	Install all Yellow Tags where applicable.	To Be Completed
Level 2	L2-19	Provide to Owner, Level Close Out Reports.	To Be Completed
Level 2	L2-20	Sign off Level.	To Be Completed
Level 3	L3-01	Write and Issue Scripts/Start-up Plans that will be used to facilitate the start-up and testing works.	To Be Completed
Level 3	L3-02	Write and Issue Work Permits as noted in Level 0 that will be used to facilitate the start-up and functional testing works.	To Be Completed
Level 3	L3-03	Install Temporary Equipment and Instruments to facilitate the testing and Level 4 Works in line with the Load Bank & Equipment Plan.	To Be Completed
Level 3	L3-04	Ensure BMS and Control Logics are ready and available. [Point to Graphic]	To Be Completed
Level 3	L3-05	Ensure Control Room and equipment is ready and available, for testing to commence.	To Be Completed

Level	Step	Task/Activity	Status
Level 3	L3-06	Plan and Manage Energization, Site Testing and Acceptance of plant, equipment, and materials in line with approved procedures, scripts, and programme.	To Be Completed
Level 3	L3-07	Conduct any First of Kind [FOK] Testing if noted in the project process with the Owner's Commissioning Consultant.	To Be Completed
Level 3	L3-08	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
Level 3	L3-09	Manage the Overall Programme for the Commissioning Tasks and Activities.	To Be Completed
Level 3	L3-10	Add any issues to Observation Register and managing to close.	To Be Completed
Level 3	L3-11	File and manage documentation and records within the Project electronic filing system.	To Be Completed
Level 3	L3-12	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
Level 3	L3-13	Conduct Daily Morning Coordination Workshop.	To Be Completed
Level 3	L3-14	Provide Daily Commissioning Updates.	To Be Completed
Level 3	L3-15	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
Level 3	L3-16	Provide Commissioning Focused Reports [Monthly / Weekly]	To Be Completed
Level 3	L3-17	Issue Operation and Maintenance Manuals.	To Be Completed
Level 3	L3-18	Complete Clean of Data Halls and critical areas.	To Be Completed
Level 3	L3-19	Install all Green Tags where applicable.	To Be Completed
Level 3	L3-20	Provide to Owner, Level Close Out Reports.	To Be Completed
Level 3	L3-21	Sign off Level.	To Be Completed
Level 4	L4-01	Write and Issue Scripts that will be used to facilitate the testing works.	To Be Completed
Level 4	L4-02	Write and Issue Work Permits as noted in Level 0 that will be used to facilitate the works.	To Be Completed



Level	Step	Task/Activity	Status
Level 4	L4-03	Ensure that Temporary Equipment and Instruments are installed in line with the approved Load Bank & Equipment Plan as noted in Level 0 works.	To Be Completed
Level 4	L4-04	Operate Temporary Equipment and Instruments to facilitate the testing works.	To Be Completed
Level 4	L4-05	Plan and Manage Testing and Acceptance of plant, equipment, and systems in line with approved procedures, scripts, and programme.	To Be Completed
Level 4	L4-06	Complete Thermographic Studies and create report as noted in Level 0 works.	To Be Completed
Level 4	L4-07	Download Data and Information for review after testing.	To Be Completed
Level 4	L4-08	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
Level 4	L4-09	Add any issues to Observation Register and managing to close.	To Be Completed
Level 4	L4-10	File and manage documentation and records within the Project electronic filing system	To Be Completed
Level 4	L4-11	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
Level 4	L4-12	Conduct Daily Morning Coordination Workshop.	To Be Completed
Level 4	L4-13	Provide Daily Commissioning Updates.	To Be Completed
Level 4	L4-14	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
Level 4	L4-15	Provide Commissioning Focused Reports. [Level 4 / Monthly / Weekly]	To Be Completed
Level 4	L4-16	Issue Final Operation and Maintenance Manuals.	To Be Completed
Level 4	L4-17	Start Facility Operatives Training in line with the documents noted in Level 0 works.	To Be Completed
Level 4	L4-18	Install all Blue Tags where applicable.	To Be Completed
Level 4	L4-19	Provide to Owner, Level Close Out Reports.	To Be Completed
Level 4	L4-20	Sign off Level.	To Be Completed

Level	Step	Task/Activity	Status
Level 5	L5-01	Write and Issue Scripts that will be used to facilitate the testing works.	To Be Completed
Level 5	L5-02	Write and Issue Work Permits as noted in Level 0 that will be used to facilitate the works.	To Be Completed
Level 5	L5-03	Ensure that Temporary Equipment and Instruments are installed in line with the approved Load Bank & Equipment Plan as noted in Level 0 works.	To Be Completed
Level 5	L5-04	Operate Temporary Equipment and Instruments to facilitate the testing works.	To Be Completed
Level 5	L5-05	Plan and Manage Testing and Acceptance of plant, equipment, and systems in line with approved procedures, scripts, and programme.	To Be Completed
Level 5	L5-06	Download Data and Information for review after testing.	To Be Completed
Level 5	L5-07	Remove Temporary Equipment after testing has been agreed complete.	To Be Completed
Level 5	L5-08	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
Level 5	L5-09	Add any issues to Observation Register and managing to close.	To Be Completed
Level 5	L5-10	File and manage documentation and records within the Project electronic filing system.	To Be Completed
Level 5	L5-11	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
Level 5	L5-12	Conduct Daily Morning Coordination Workshop.	To Be Completed
Level 5	L5-13	Provide Daily Commissioning Updates.	To Be Completed
Level 5	L5-14	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
Level 5	L5-15	Provide Commissioning Focused Reports. [Level 5 / Monthly / Weekly]	To Be Completed
Level 5	L5-16	Complete Facility Operatives Training in line with the documents noted in Level 0 works.	To Be Completed
Level 5	L5-17	Install all White Tags where applicable.	To Be Completed
Level 5	L5-18	Provide to Owner, Level Close Out Reports.	To Be Completed

<b>Level</b>	<b>Step</b>	<b>Task/Activity</b>	<b>Status</b>
Level 5	L5-19	Sign off Level.	To Be Completed
Level 6	L6-01	Write and Issue Closeout Script.	To Be Completed
Level 6	L6-02	Complete Clean of Data Halls and critical areas. [If not completed under Level 3 tasks and activities]	To Be Completed
Level 6	L6-03	Conduct Final Site Inspection.	To Be Completed
Level 6	L6-04	Inspect and Document all Plant Settings.	To Be Completed
Level 6	L6-05	Conduct Lessons Learned Workshop and document.	To Be Completed
Level 6	L6-06	Ensure all Issues and Observations have been closed out for the project.	To Be Completed
Level 6	L6-07	Ensure all Commissioning Documentation is complete and uploaded to the relevant electronic platforms.	To Be Completed
Level 6	L6-08	Conduct Closeout Meeting.	To Be Completed
Level 6	L6-09	Issue Final Commissioning Report.	To Be Completed
Level 6	L6-10	Write and Issue Systems Manual.	To Be Completed
Level 6	L6-11	Provide to Owner, Level Close Out Reports.	To Be Completed
Level 6	L6-12	Sign off Level.	To Be Completed

# LEVEL 0 - Design & Planning

Level 0, managed by the General Contractor and Owners Commissioning Consultant, serves as the initial stage of the project commissioning process, where the primary focus is on laying the foundation for subsequent stages, evaluating, planning, and documenting the necessary information, tasks, and activities for successful commissioning.

It is important to note that while Level 0 primarily focuses on the below tasks, some of them will continue throughout the project and carry over into subsequent levels.

Step	Task/Activity	Status
L0-01	Write and Issue Owners Project Requirements [OPR] Document.	To Be Completed
L0-02	Oversee Owners Project Requirements [OPR] are being met throughout the contractor design stage, and issue updates to the project team.	To Be Completed
L0-03	Write and Issue Basis of Design [BOD] Document.	To Be Completed
L0-04	Ensure that the Basis of Design [BOD] is updated and reviewed by Main Contractor during the 100% design stage, and issue to the project team.	To Be Completed
L0-05	Develop design [30%, 60%, 90%, 100%] and issue documentation for review and approval.	To Be Completed
L0-06	Create, Develop, and Issue Computational Fluid Dynamics Study [CFD] Document.	To Be Completed
L0-07	Complete Commissioning Review of Design [60% to 100%] and Issue Report.	To Be Completed
L0-08	Conduct Short Circuit / Single Point of Failure Coordination Study	To Be Completed
L0-09	Issue Commissioning Document List covering all stages until handover.	To Be Completed
L0-10	Write and Issue Data Centre Commissioning Guideline Document. [This document]	To Be Completed
L0-11	Agree on Sequencing and Duration of Level 4 & 5 Requirements.	To Be Completed
L0-12	Issue Initial Integrated and Sequenced Commissioning Programme.	To Be Completed
L0-13	Issue Commissioning Process Flow Diagram covering all stages until handover.	To Be Completed
L0-14	Agree Commissioning Process and Responsibility Matrix. [This document]	To Be Completed

Step	Task/Activity	Status
L0-15	Issue Commissioning Team Organigram covering this stage. [This is 'Initial']	To Be Completed
L0-16	Agree equipment to be Factory Tested.	To Be Completed
L0-17	Create, Develop, and Issue Load Bank & Metering Plan for Level 4 & 5 works.	To Be Completed
L0-18	Write and Issue Initial Commissioning Plan.	To Be Completed
L0-19	Write and Issue Construction Commissioning Specification.	To Be Completed
L0-20	Upon contract award, 'Form Commissioning Team' and issue organigram.	To Be Completed
L0-21	Set up Cx Electronic Platform [Levels 1-6] for later input of commissioning checklists, test procedures and observations/issues.	To Be Completed
L0-22	Set up and discuss use Document Management System and Numbering Structures for the testing and commissioning works.	To Be Completed
L0-23	Conduct Commissioning Kick Off meeting.	To Be Completed
L0-24	Create, Develop, and Issue Commissioning Communication Protocol.	To Be Completed
L0-25	Create, Develop, and Issue Material Submission Document List.	To Be Completed
L0-26	Issue Integrated and Sequenced Commissioning Programme.	To Be Completed
L0-27	Issue Integrated and Sequenced Commissioning Work Logics.	To Be Completed
L0-28	Agree on method for Capturing Site Issues and Observations.	To Be Completed
L0-29	Agree on Tagging Process and design of tags to be used.	To Be Completed
L0-30	Agree on format and content of Factory Testing Scripts.	To Be Completed

Step	Task/Activity	Status
L0-31	Agree on format and content of Factory Testing Reports.	To Be Completed
L0-32	Plan / programme Factory Testing.	To Be Completed
L0-33	Agree on format and content of Confirmation to Ship Certificates.	To Be Completed
L0-34	Agree Training Requirements and Write Training Manual.	To Be Completed
L0-35	Develop Training Programme.	To Be Completed
L0-36	Agree on format and content of Pre-Start Up Checklists.	To Be Completed
L0-37	Agree on format and content of Functional Testing Procedures.	To Be Completed
L0-38	Agree on format, content, and process for Inviting Owner Team for Witnessing and Verification.	To Be Completed
L0-39	Agree Final Testing Pack information to be included in O&M.	To Be Completed
L0-40	Agree on format and content of Daily, Weekly, Monthly Commissioning Reports.	To Be Completed
L0-41	Agree on format and content of 2 Week Look Ahead Schedule.	To Be Completed
L0-42	Agree on format and content of Final Commissioning Report.	To Be Completed
L0-43	Agree on format and content of Systems Manual.	To Be Completed
L0-44	Agree O&M Requirements.	To Be Completed
L0-45	Write and Issue Final Commissioning Plan.	To Be Completed
L0-46	Conduct Commissioning Focused Meetings and Workshops, issuing Minutes.	To Be Completed

Step	Task/Activity	Status
L0-47	Provide to CxP, Commissioning Focused Reports [monthly/weekly].	To Be Completed
L0-48	Provide to Client, Commissioning Focused Reports [monthly/weekly].	To Be Completed
L0-49	Review Information for Gap Analysis between Owner Specified Equipment and Main Contractor works.	To Be Completed
L0-50	Create, Develop, and Issue Electrical Discrimination Study.	To Be Completed
L0-51	Create, Develop, and Issue Arc Flash Study.	To Be Completed
L0-52	Agree on Arc Flash Sticker Template to be used.	To Be Completed
L0-53	Agree Thermal Graphic Inspection locations.	To Be Completed
L0-54	Create, Develop, and Issue Thermal Graphic Procedure and Plan.	To Be Completed
L0-55	Create, Develop, and Issue Electrical Lock Out, Tag Out Process and Procedure.	To Be Completed
L0-56	Create, Develop, and Issue Plant Settings Report.	To Be Completed
L0-57	Create, Develop, and Issue Schedule of required Work Permits for commissioning activities.	To Be Completed
L0-58	Create, Develop, and Issue Commissioning Strategies.	To Be Completed
L0-59	Agree Sequence of Operation [SOO] List.	To Be Completed
L0-60	Create, Develop, and Issue Sequence of Operations [SOO].	To Be Completed
L0-61	Create, Develop, and Issue BMS Graphic Document.	To Be Completed
L0-62	Create, Develop, and Issue BMS Points List Document.	To Be Completed

Step	Task/Activity	Status
L0-63	Create, Develop, and Issue Fire Cause & Effect Matrix.	To Be Completed
L0-64	Provide to Owner, Level Close Out Reports.	To Be Completed
L0-65	Sign off Level.	To Be Completed



# LEVEL 1 - Factory Testing

Level 1, managed by the General Contractor, is where a diverse range of roles and responsibilities come together from the commissioning team to ensure that the selected plant and equipment is factory tested.

Although this stage is relatively short and uncomplicated, it necessitates the dedicated efforts of individuals with specialized tasks and expertise.

Step	Task/Activity	Status
L1-01	Fix and confirm dates of Factory Testing.	To Be Completed
L1-02	Create, Develop, and Issue Factory Testing Scripts.	To Be Completed
L1-03	Conduct Commissioning Focused Meetings and Workshops, where required.	To Be Completed
L1-04	Organize Transportation and Accommodation for Factory Testing.	To Be Completed
L1-05	Conduct Factory Acceptance Testing with owner team at factory or remotely.	To Be Completed
L1-06	Add any issues to Observation Register and managing to close.	To Be Completed
L1-07	Create, Develop, and Issue Factory Testing Reports for all equipment.	To Be Completed
L1-08	Obtain and Issue Factory QA/QC documents for record and filing.	To Be Completed
L1-09	File and manage Factory Testing information and records within the Project electronic filing system.	To Be Completed
L1-10	Install all Red Tags where applicable.	To Be Completed
L1-11	Issue Confirmation to Ship Certificate.	To Be Completed
L1-12	Ship equipment to site.	To Be Completed
L1-13	Provide to Owner, Level Close Out Reports.	To Be Completed
L1-14	Sign off Level.	To Be Completed

# LEVEL 2 - Component Delivery, Installation & Pre-Startup

Level 2, managed by the General Contractor, is a crucial stage in the data centre commissioning process, aimed at ensuring that all equipment, plant, and components are successfully delivered, installed, and thoroughly checked via pre-start-up activities to meet the project requirements.

This stage sets the foundation for the subsequent energization phase at Level 3.

Step	Task/Activity	Status
L2-01	Write and Issue Level 2 Checklists and Scripts that will be used to facilitate the works.	To Be Completed
L2-02	Plan and Manage Deliveries of plant, equipment, and materials. [If not, Factory Tested]	To Be Completed
L2-03	Complete Delivery and Storage Checklists when plant, equipment and materials arrive on site.	To Be Completed
L2-04	Complete Installation Checklist Inspections.	To Be Completed
L2-05	Complete Pre-Start-up / Energization Inspections.	To Be Completed
L2-06	Conduct any First of Kind [FOK] Inspections if noted in the project process with the owner's CxP.	To Be Completed
L2-07	For Electrical Panels ensure Arc Flash Stickers are attached and Breakers Set in line with the Arc Flash Report and Discrimination Study.	To Be Completed
L2-08	Complete Foreign Object Detection [FOD] Inspection for all electrical panels and equipment.	To Be Completed
L2-09	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
L2-10	Manage the Overall Programme for the Commissioning Tasks and Activities.	To Be Completed
L2-11	Add any issues to Observation Register and managing to close.	To Be Completed
L2-12	File and manage documentation and records within the Project electronic filing system.	To Be Completed
L2-13	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
L2-14	Conduct Daily Morning Coordination Workshop.	To Be Completed

Step	Task/Activity	Status
L2-15	Provide Daily Commissioning Updates.	To Be Completed
L2-16	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
L2-17	Provide Commissioning Focused Reports. [Monthly / Weekly]	To Be Completed
L2-18	Install all Yellow Tags where applicable.	To Be Completed
L2-19	Provide to Owner, Level Close Out Reports.	To Be Completed
L2-20	Sign off Level.	To Be Completed

# LEVEL 3 - Systems Start-Up

Level 3, managed by the General Contractor, encompasses tasks and activities aimed at ensuring that the individual plant, equipment, systems, and components are successfully started up, tested, and operating in accordance with the design intent and approved testing scripts/procedures.

This stage serves as a crucial step before bringing the different systems together for Level 4 and Level 5 works.

Step	Task/Activity	Status
L3-01	Write and Issue Scripts/Start-up Plans that will be used to facilitate the start-up and testing works.	To Be Completed
L3-02	Write and Issue Work Permits as noted in Level 0 that will be used to facilitate the start-up and functional testing works.	To Be Completed
L3-03	Install Temporary Equipment and Instruments to facilitate the testing and Level 4 Works in line with the Load Bank & Equipment Plan.	To Be Completed
L3-04	Ensure BMS and Control Logics are ready and available. [Point to Graphic]	To Be Completed
L3-05	Ensure Control Room and equipment is ready and available, for testing to commence.	To Be Completed
L3-06	Plan and Manage Energization, Site Testing and Acceptance of plant, equipment, and materials in line with approved procedures, scripts, and programme.	To Be Completed
L3-07	Conduct any First of Kind [FOK] Testing if noted in the project process with the Owner's Commissioning Consultant.	To Be Completed
L3-08	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
L3-09	Manage the Overall Programme for the Commissioning Tasks and Activities.	To Be Completed
L3-10	Add any issues to Observation Register and managing to close.	To Be Completed
L3-11	File and manage documentation and records within the Project electronic filing system.	To Be Completed
L3-12	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
L3-13	Conduct Daily Morning Coordination Workshop.	To Be Completed
L3-14	Provide Daily Commissioning Updates.	To Be Completed

Step	Task/Activity	Status
L3-15	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
L3-16	Provide Commissioning Focused Reports [Monthly / Weekly]	To Be Completed
L3-17	Issue Operation and Maintenance Manuals.	To Be Completed
L3-18	Complete Clean of Data Halls and critical areas.	To Be Completed
L3-19	Install all Green Tags where applicable.	To Be Completed
L3-20	Provide to Owner, Level Close Out Reports.	To Be Completed
L3-21	Sign off Level.	To Be Completed

# LEVEL 4 - FUNCTIONAL TESTING

Level 4, managed and delivered by the Owners Commissioning Consultant, with support from the General Contractor, focuses on bringing the systems together, integrating them, and conducting a series of rigorous tests to ensure their alignment with the Owner's Project Requirements [OPR], Basis of Design [BOD], and relevant contract documentation such as drawings, specifications, and control logics.

This stage plays a pivotal role in verifying the functional performance of these integrated systems.

Step	Task/Activity	Status
L4-01	Write and Issue Scripts that will be used to facilitate the testing works.	To Be Completed
L4-02	Write and Issue Work Permits as noted in Level 0 that will be used to facilitate the works.	To Be Completed
L4-03	Ensure that Temporary Equipment and Instruments are installed in line with the approved Load Bank & Equipment Plan as noted in Level 0 works.	To Be Completed
L4-04	Operate Temporary Equipment and Instruments to facilitate the testing works.	To Be Completed
L4-05	Plan and Manage Testing and Acceptance of plant, equipment, and systems in line with approved procedures, scripts, and programme.	To Be Completed
L4-06	Complete Thermographic Studies and create report as noted in Level 0 works.	To Be Completed
L4-07	Download Data and Information for review after testing.	To Be Completed
L4-08	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
L4-09	Add any issues to Observation Register and managing to close.	To Be Completed
L4-10	File and manage documentation and records within the Project electronic filing system	To Be Completed
L4-11	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
L4-12	Conduct Daily Morning Coordination Workshop.	To Be Completed
L4-13	Provide Daily Commissioning Updates.	To Be Completed
L4-14	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed

Step	Task/Activity	Status
L4-15	Provide Commissioning Focused Reports. [Level 4 / Monthly / Weekly]	To Be Completed
L4-16	Issue Final Operation and Maintenance Manuals.	To Be Completed
L4-17	Start Facility Operatives Training in line with the documents noted in Level 0 works.	To Be Completed
L4-18	Install all Blue Tags where applicable.	To Be Completed
L4-19	Provide to Owner, Level Close Out Reports.	To Be Completed
L4-20	Sign off Level.	To Be Completed

# LEVEL 5 - INTEGRATED TESTING

The Level 5 Integrated Testing phase, managed by the Owners Commissioning Consultant, with support from the General/Main Contractor and is the final step in validating the performance of the installed systems.

It focuses on integrating all the systems, conducting rigorous tests to evaluate and verify their functionality, interoperation, and response to simulated failure scenarios, demonstrating that they operate seamlessly together, in accordance with the owner's project requirements [OPR], Basis of Design [BOD], and other contractual documentation such as drawings, specifications, and control logics.

Once the testing has been completed, data will be collected and analysed from the systems and instruments systems, to ensure that critical data hall and other space ambient conditions are maintained during different testing scenarios.

Step	Task/Activity	Status
L5-01	Write and Issue Scripts that will be used to facilitate the testing works.	To Be Completed
L5-02	Write and Issue Work Permits as noted in Level 0 that will be used to facilitate the works.	To Be Completed
L5-03	Ensure that Temporary Equipment and Instruments are installed in line with the approved Load Bank & Equipment Plan as noted in Level 0 works.	To Be Completed
L5-04	Operate Temporary Equipment and Instruments to facilitate the testing works.	To Be Completed
L5-05	Plan and Manage Testing and Acceptance of plant, equipment, and systems in line with approved procedures, scripts, and programme.	To Be Completed
L5-06	Download Data and Information for review after testing.	To Be Completed
L5-07	Remove Temporary Equipment after testing has been agreed complete.	To Be Completed
L5-08	Update Commissioning Tracking to reflect actual status and progress. [Manually or as per Commissioning Electronic Platform]	To Be Completed
L5-09	Add any issues to Observation Register and managing to close.	To Be Completed
L5-10	File and manage documentation and records within the Project electronic filing system.	To Be Completed
L5-11	Issue regular 2 Week Look Ahead Schedules for Commissioning Team Resource Planning.	To Be Completed
L5-12	Conduct Daily Morning Coordination Workshop.	To Be Completed
L5-13	Provide Daily Commissioning Updates.	To Be Completed



Step	Task/Activity	Status
L5-14	Conduct Commissioning Focused Weekly Meetings and Workshops.	To Be Completed
L5-15	Provide Commissioning Focused Reports. [Level 5 / Monthly / Weekly]	To Be Completed
L5-16	Complete Facility Operatives Training in line with the documents noted in Level 0 works.	To Be Completed
L5-17	Install all White Tags where applicable.	To Be Completed
L5-18	Provide to Owner, Level Close Out Reports.	To Be Completed
L5-19	Sign off Level.	To Be Completed

# LEVEL 6 - CLOSEOUT/HANDOVER

Managed and executed by the Owners Commissioning Consultant, with the support of the General Contractor, Level 6 is the final stage, where the Commissioning Process is completed with the systems transitioning to the Owner and Facilities Team, ensuring that the data centre is fully prepared and optimized for operation, and all commissioning-related activities are concluded in a systematic and well-documented manner.

Step	Task/Activity	Status
L6-01	Write and Issue Closeout Script.	To Be Completed
L6-02	Complete Clean of Data Halls and critical areas. [If not completed under Level 3 tasks and activities]	To Be Completed
L6-03	Conduct Final Site Inspection.	To Be Completed
L6-04	Inspect and Document all Plant Settings.	To Be Completed
L6-05	Conduct Lessons Learned Workshop and document.	To Be Completed
L6-06	Ensure all Issues and Observations have been closed out for the project.	To Be Completed
L6-07	Ensure all Commissioning Documentation is complete and uploaded to the relevant electronic platforms.	To Be Completed
L6-08	Conduct Closeout Meeting.	To Be Completed
L6-09	Issue Final Commissioning Report.	To Be Completed
L6-10	Write and Issue Systems Manual.	To Be Completed
L6-11	Provide to Owner, Level Close Out Reports.	To Be Completed
L6-12	Sign off Level.	To Be Completed