The Importance of Having a Commissioning Provider for GeoExchange Projects
The 5 Stages of Implementing a Quality & Cost Efficient Project

Geothermal: The Genius Renewable
Live at Groundwater Week in partnership with NGWA
Las Vegas, NV
December 5-7, 2023
A Commissioning Provider's (CxP) mission is to create **Quality** based projects. They facilitate:

- Detailed Owner's Project Requirements (OPR)
- In-depth site inspections
- Cross team communications
- Precise and complete inspection and testing plan (ITP)
- Centralized documentation and confident O&M handoff
- Ongoing system monitoring, support and functional validation
The Beginning

Stage 1

Initiate Commissioning (Cx)
Create Roles and Responsibilities

Develop the Owner's Project Requirements (OPR)

Develop a Cx Plan

5 Stages of Cx

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Examples

Stage 1

Industrial Pressure Equipment QA/QC Inspection

Fire Hall with OPR not met
Preliminary Investigation

Stage 2

Advise on the **Best** path to meet the OPR

- Site Inspection
  - Understand Budget vs Expectations
- Refine the Cx Plan & ITP, Develop RFPs for Design Teams

5 Stages of Cx

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Examples

Stage 2

Remote Project in Coastal BC

District Energy System with Unique Opportunity
Quality Assurance & Documentation

Stage 3

Ensure that the Cx Plan is Being Followed

Ensure the Design Meets the OPR

Collect and Control Documents Including Basis of Design

5 Stages of Cx

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Quality Assurance & Documentation

Stage 3 Continued

Provide Coordination & Prep for Start-up

Monitor Site Reviews
- Review Manuals for Completeness and Accuracy

Construction Checklists
- Detailed Review of Sequence of Operations and Control System

5 Stages of Cx

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Examples

Stage 3

Continuity of document control for client with a lot of change-over

Remote village administration building with no Cx
Start-Up

Stage 4

Make Sure it Works

Simulate all Modes of Operation and Watch Changes Between Modes

Not Working? Repair & Repeat

Working? See you at Stage 5!

5 Stages of Cx

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Examples
Stage 4

Distillery tank valves crossed over and air in system

Aquatic Center open loop groundwater system required replacement
Monitoring & Verification

Stage 5

Post Occupancy Evaluation
Warranty Support

Review Cx Report and Energy Model
Ensure System is Still Running Properly and as Predicted

Confirm Steady State and Normalize Data
Compare Data to Validate Performance & Efficiency

5 Stages of Cx
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Examples

Stage 5

Simultaneous heating and cooling system optimization

District energy system that was difficult to repair and then remediate
Every Geo project is unique.

A qualified Commissioning Provider has the experience and expertise to ensure a consistent approach while providing customized solutions and verified results.

The upfront cost of including a CxP at the beginning of a project can ensure costly mistakes are avoided and OPR are met.
Thank You

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