Conventional Generator Commissioning & Testing Workshop

Specification & Construction

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Spec & Construction: Introduction

This presentation Covers:

- Overview of the project delivery phase
- Key activities and Milestones
- EirGrid / IPP Interfaces
- Pre-Grid code testing & Energisation

Spec & Construction: New stations

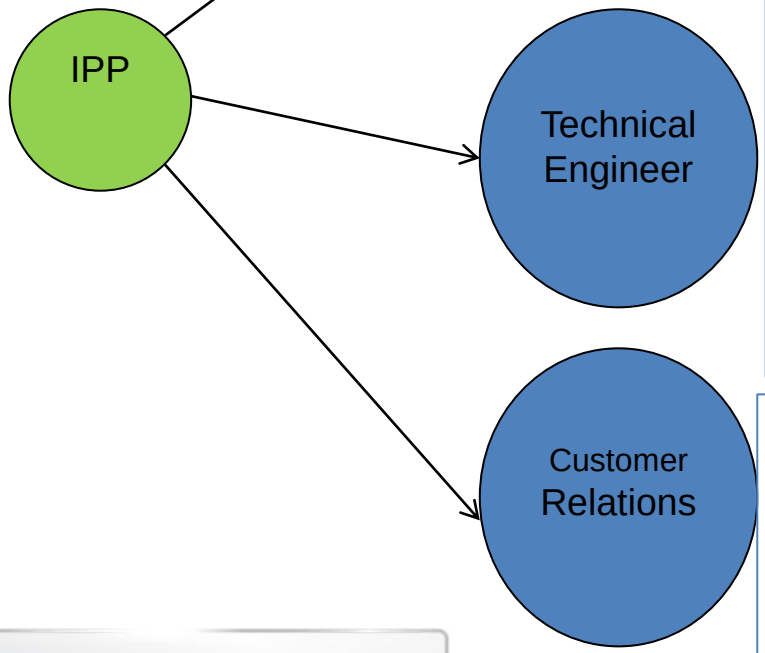








Spec & Construction: EirGrid Team & Role



- Manage EirGrid project team
- Project cost and schedule
- Change control & Reporting
- Manage ESB Telecoms
- Commercial / Non-construction issues

- Technical standards =>Functional Specs.
- IPP Design Review / Construction oversight
- Contestable programme oversight
- ESB Networks Liaison
- Arrange ESBN Commissioner attendance
- Site snagging and handover
- Pre-grid code testing

Customer Relations Responsibilities:

- Manage Customer account
- Deal with non-project specific issues
- Coordinate requests for modernisations / replacement.

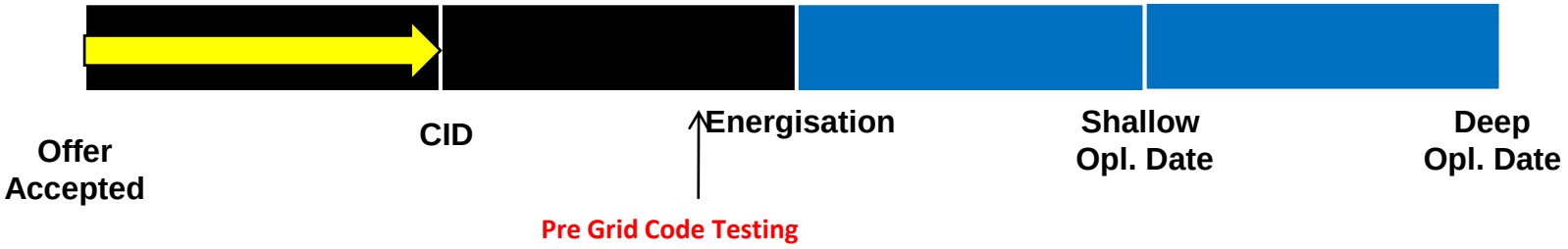
Spec & Construction: Milestones

- Offer Accepted
- Consents Issue Date (CID)
- Energisation
- Shallow Operational Date
- Deep Operational Date



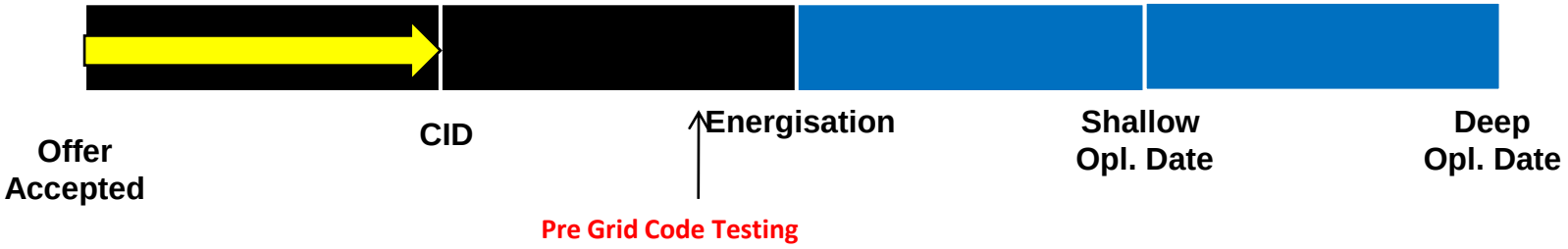
Offer Accepted | **CID** | **Energisation** | **Shallow Opl. Date** | **Deep Opl. Date**

Spec & Construction: consent phase EirGrid Key activities



- PP for Shallow Works
- Project definition and initiation
- Programming and resource allocation
- EG functional specifications & signal lists

Spec & Construction: consent phase IPP Single Line Diagram



- Kick off meeting: IPP Confirms SLD in application is the final version
- Or IPP Provides updated version.
- EirGrid signal list / Interface design will be based on this SLD.

Spec & Construction: consent phase Interface Development: IPP SLD

- Final IPP SLD
  - Arrangement of MV feeders & incomers
  - Switchgear / Plant designation & rating
  - Transformers tap
  - Points of earthing / disconnection
  - Relaying scheme arrangements
  - Post-confirmation changes may cause delays.

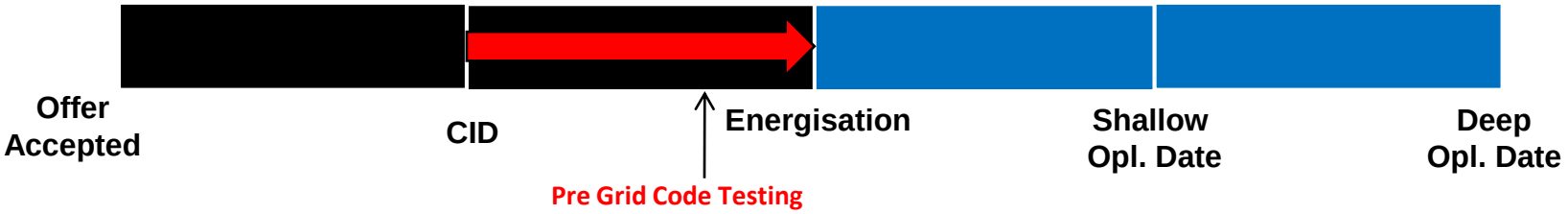
Spec & Construction: consent phase Interface Development: Signal List

- EirGrid Signal List defines all requirements between IPP and NCC
- Developed from IPP SLD
- EMS Database is developed from the Signal List
- Controls & Measurands
- Signals & Indications

Specification & Construction: The IPP / EirGrid Interface:

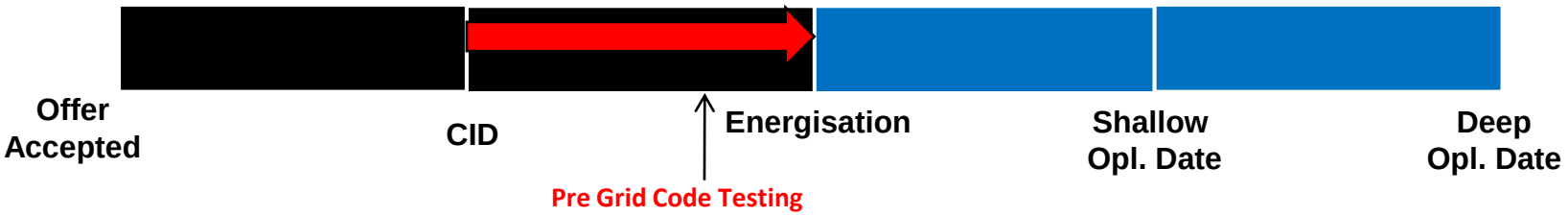
- EirGrid Interface Schematic based on IPP SLD and EirGrid signal list. Contains:
  - Requirements as per Signal List
  - Trips commands between HV and LV circuit breakers
  - Position indication, Interlocking requirements & Protection signals
- Design meetings to agree final schematic prior to construction phase

Specification &Construction Build phase EG Role: (1)



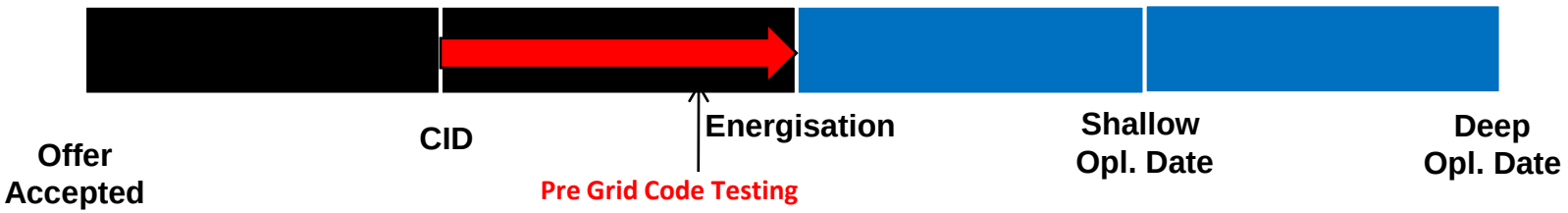
- Project Agreement (ESBN)
- Review of IPP detailed design drawings (2wks)
- Issue updated Programmes
- Arrange construction of telecoms infrastructure

Specification &Construction Build phase EG Role (2)



- Oversight of IPP Construction
- Schedule: Outages, ESBN Commissioners and ESB Telecoms
- Ensure all IPP Construction requirements met pre GCT and pre-energisation.

Spec & Construction: Build Phase IPP Role



- Timely & comprehensive submission of design packages.
- Timely programme updates to EirGrid
- Pre-commissioning and complete EirGrid documentation
- Facilitate final site handover checks by EirGrid and ESBN personnel

Specification & Construction: Pre-commissioning Testing

- All EirGrid, IPP and ESB works are to be completed and pre-commissioned before commissioning of the shallow works begins.

1. IPP Wiring completion cert.
2. IPP pre-commissioning record sheets
3. ESBTS Wiring completion cert.
4. EMS database set up cert.
5. EirGrid Transmission Station pre-commissioning

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Pre-energisation tests

Prior to energisation (part of Phase A GCT):

- Pre-energisation Commissioning will complete Phase A of GCT.
- The Phase B, C & D tests of Grid code are post energisation.

Specification & Construction: Commissioning Testing

Tests by ESBI Commissioner, before Energisation:

1. EirGrid station - NCC signals function tests
2. IPP – NCC signals functions tests
3. IPP/EG Interlock functions test record cert
4. IPP/EirGrid Earth system completion cert
5. Eirgrid Protection settings and verification
6. Remainder Phase A tests (some by IPP).

Specification & Construction: Pre- Grid Code Testing

- Energisation by ESBN to EirGrid E.I.
- Handover to Operations

Post Energisation:

- Proceed to Phase B, C & D of Grid-code Tests


EIRGRID
semo
Single Electricity
Market Operator
SONI
System Operator for Northern Ireland