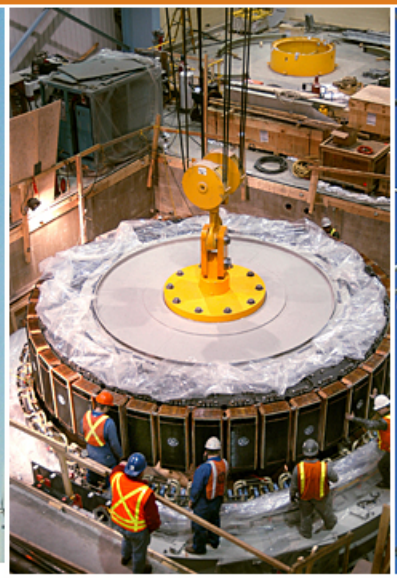



HYDRO
THE POWER OF COMMITMENT

Lower Churchill Project

Project Management Approach (Post-Gate 2)
&
Contracting Strategy

21 April '08

Safety Moment

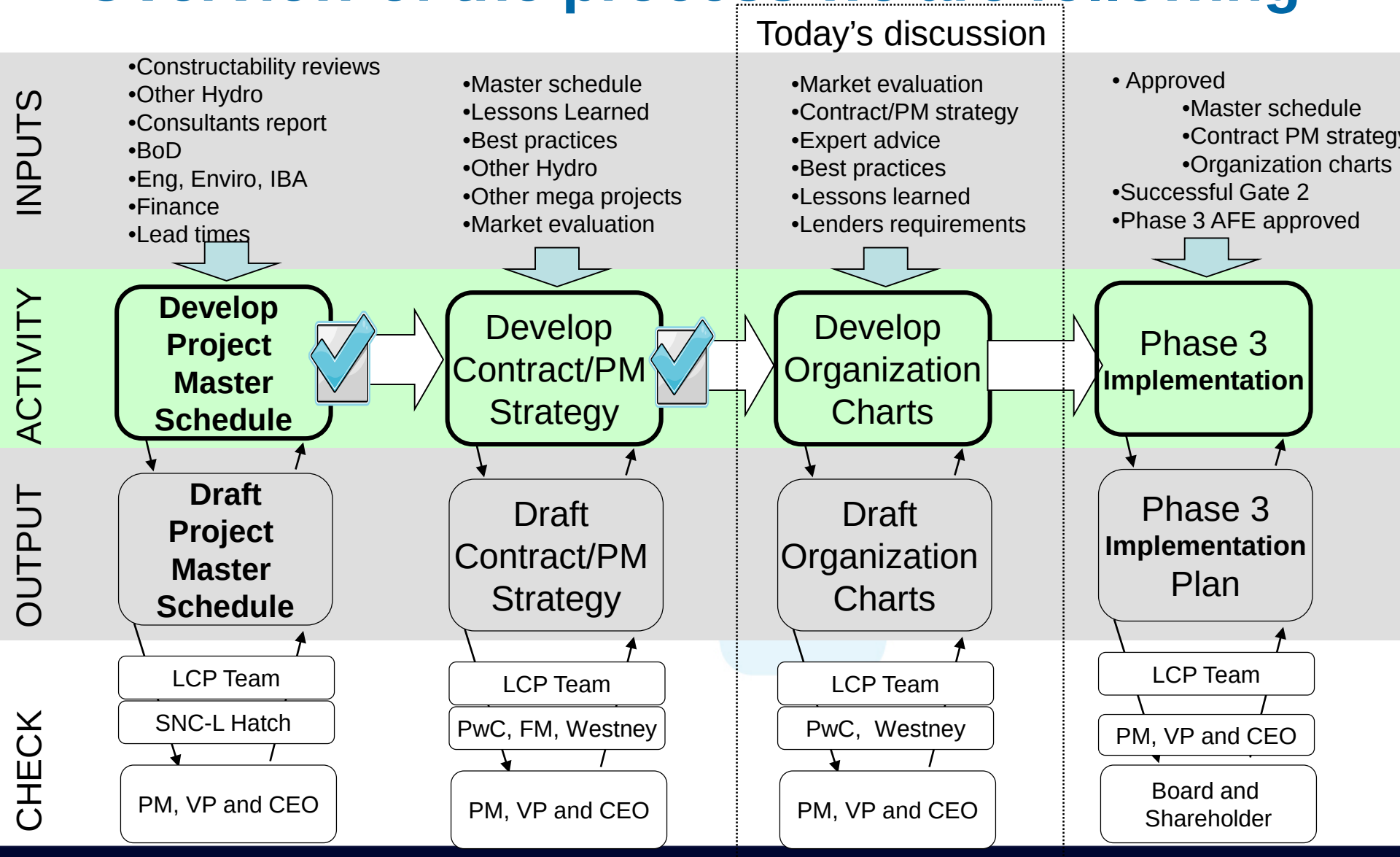
~~ Tyres~~

- Time to switch over from winter to summer tyres
- Check for uneven wear – sign of alignment problems
- Check for damage – side walls and tread area
- Rotate tyres and get balancing done
- Check correct rotation
- Replace worn tyres
- Check air pressure regularly

Purpose

- To review the proposed Post-Gate 2 Project Management Approach and associated Contracting Strategy for the LCP
- To obtain executive management agreement to proceed.
- Review Organizational proposal

Overview of the process we are following



Project Framing

Integrated PMT

Scope 1

Gull Island Generation

- Support Facilities
- Camps
- Reservoir
- Access Roads
- Diversion
- Dam
- Powerhouse Civil Works
- T&G
- BOP
- Communications

Scope 2

HV dc Specialties

- Converter Stations
- Associated Equipment
  - HVdc insulators
  - electrode line
  - conductors
- Submarine Cable
- Subsea Installations / Landing Sites
- etc..

Scope 3

Overland Transmission

- equipment purchase
  - conductor
  - AC insulators
  - tower steel
- line construction & equipment Installation
  - clearing
  - access roads
  - camps
  - foundations
  - anchors
  - tower erection
  - string lines

Notes

1. Includes export to Maritimes (Lingan)
2. No contingency included
3. Shown in CAD 2008
4. IDC not included

Scope 1 - Gull island Generation

- Includes multiple contracts for a diverse range of work scopes

- Site preparation and access roads
- Early works
- Site temporaries
- Accommodations and administration
- Reservoir clearing
- Diversion tunnels
- Powerhouse
- Intake and penstocks
- Main excavation works and dam
- Spillway structure
- Turbine gens and BOP
- Switchyards
- Communications
- Catering
- Site services
- HADD
- LCP site team
- Permits

Scope 2 – HVdc specialities

- Includes EPCC of HVdc systems with up to three supplier/contractors
  - Converter stations at Gull, Soldiers Pond and Maritimes end (NS) at appropriate ratings
  - Sub sea cables across S of Belle Isle and Maritimes (NS)
  - Switching stations
  - Communications
  - Engineering
  - Project management

Scope 3 – Overland Transmission

- Includes

- Owner purchase of steel and members for towers, conductors supplied free issue to multiple installation contractors.

  - AC transmission from Gull Island (GI) to Churchill Falls
  - DC transmission from GI to Strait of Belle Isle (SOBI)
  - DC transmission from SOBI to Taylor's Brook (TB)
  - DC transmission from TB to Soldier's Pond (SP)
  - DC transmission from TB to Cape Ray (CR)
  - Electrode lines

Overview of relative distribution of Project Capital Costs

CIMFP Exhibit P-02444

Mix of Lump sum and unit rate / Primarily EPC Lump Sum

Scope 1

Gull Island Generation

Detailed Engineering
Design liability / responsibility

Functional Specification

Construction Contract(s)

-Camp Support Facilities
-Construction Fac.
-Civil Works
-Reservoir clearing
construct, commission

Construction liability / responsibility

EPC Contract(s)

- T & G
- BOP
- etc..

design, fabricate, install, commission

Design / Construction liability / responsibility

Cap Costs
~14% of Unit Rate
~10% Lump sum

~20% of Cap Cost

Scope 1 ~44% of Cap Cost

Primarily EPC Lump Sum

Scope 2

HV dc Specialties

- Converter Stations
- Subsea Installations / Landing Sites
- etc..

Functional Specification

EPC Contract(s)
- Converter Stations
- Subsea Installations
- Electodes
- etc…

design, fabricate, install, commission

Design & Construction liability / responsibility

Scope 2 ~31% of Cap Cost

Primarily Lump Sum Materials free issue by Owner

Scope 3

Overland Transmission
AC and DC

Detailed Engineering

Design liability / responsibility

Owner Purchasing – Free issue to Installation Contractors
•Steel and completed members for transmission towers
•Conductors
•Insulators

Construction Contract (s)
install, commission
Construction liability / responsibility

Scope 3 ~25% of Cap Cost

Lenders perspective (summary of PwC advice)

- The single EPC approach is not a requirement – complex projects require more appropriate solutions
- Lump sum and EPC type contracts are viewed as providing price certainty
- Incentives are viewed as positive and help to gain price certainty – e.g. completion bonuses, LD's
- Creditworthy contractors and suppliers are essential
- Project Management team (integrator) must have aligned incentives to finish the project on time and on cost targets
- Engineering, Project Management and Construction Contractors must be experienced and have a solid reputation and name
- Lenders can be convinced of non conventional project delivery methods but need to have lenders engineer buy in
- Lenders do not like to have changes sprung on them too late so at financial sounding introduce the approach that will be taken and stick to that approach

How Would Price Certainty Be Viewed

- Price Certainty
  - 60 to 75% of Project Capital Costs would be EPC and/or Lump sum type with 10 to 15% Owner supplied material and remainder unit rate type
  - EPC and Lump Sum contracts would have LD clauses
  - Firm quantities for unit rate contracts would be determined by financial close
  - Creditworthiness of Contractors and Suppliers would be part of the contract evaluation process
  - Comprehensive QA program to be in place
  - Only tried, tested and proven technology to be used
  - Risks are identified, mitigated and assigned
  - Rigorous cost and schedule controls to be in place
  - Comprehensive Change management processes
  - Lessons learned and Best in class processes to be employed

How Would Credibility Be Viewed

- Credibility
  - We have to recognize that ECNL has no history of successful major project execution – so we must focus on the NL experience and the quality of our people, suppliers and contractors
  - All positions shall have defined role descriptions with qualifications and experience required, all key roles will be hand picked and some senior positions will be from international sources
  - Engineering and PM Contractors would be with internationally recognized companies e.g. Hatch, SNC-L, MWH
  - Suppliers would be internationally recognized and leaders in their fields of business e.g. ABB, Voith Siemens, Areva, Alstom
  - Civil Contractors would be major hydro/civil contractors e.g. PKS, PCL, Imbregilo, Skanska
  - Specialist advisors include PwC, Westney, IPA, Landsvirkjun, Statnett
  - PM contracts would include incentives to achieve cost and schedule targets to gain alignment and commitment of integrated team

Our Approach to Phase 3 Organization Design

- In phase 2, issue RFP to pre qualified engineering consultants for Scope1, 2 and 3. We expect to move forward with two major consulting groups in an integrated team.
- We have learnt from recent experience that the hands off approach does not work we must manage the consultants and be co-located to be successful
- The consultants would produce the engineering deliverables as shown previously with design integrity checking of drawings and specifications by LCP engineering (B Barnes and team)
- Procurement and contracting would be carried out by LCP (L Clarke and team)
- The organization charts for Phase 3 (colour coded to show parent organization) have been developed with role descriptions for key personnel
- Senior Construction personnel will be required during Phase 3
- The numbers and disciplines of personnel on the charts have been benchmarked against other hydro projects by the LCP teams

Our Approach to Phase 4 Organization Design

- As demonstrated successfully on other mega projects, the model is to have a Home Office team which has the overall responsibility for HSE, Cost, Schedule, Risk, Planning, Engineering changes and Project Management with satellite site teams at major construction sites, primarily at Gull Island
- The Site Managers and their teams are responsible for construction, MC and commissioning to the required quality standard and to deliver the completed systems at site and handover these to the Operations Team
- There will be a Site Team Manual developed to describe all site team functions and protocols
- The organization charts for Phase 4 have been developed – it is too early to identify parent organization, this will be done later, the intent will be to migrate personnel from the Phase 3 organizations into Phase 4, key role descriptions have been developed
- Construction Management with personnel possessing extensive major hydro/civil construction experience will dominate the site team organizations
- The numbers and disciplines of personnel on the charts have been benchmarked against other hydro projects by the LCP teams

Next Steps

- Seek senior NLH approval of recommendation;
- Continue discussion with PWC & Faskens to ensure alignment
- Develop document (RFP) to issue to potential PSC contractors;
- Receive, review and negotiate contracts based on proposal submissions.
- In order to meet schedule:
  - Phase 3 Engineering contract(s) needs to be awarded by mid 08 so that process can start for other Contracts and Equipment PO's such as:
    - Camp, Reservoir Clearing, Construction Bridge, Diversions, Early civil, TG sets, Cable, etc.
  - Suitable office location to be identified for occupation after Gate 2 is achieved