

# » Nuclear Waste in Canada

## APM project and site selection overview

Peter Keech, Ph.D  
Manager, Engineered Barrier Science  
Nuclear Waste Management Organization

**nwmo**

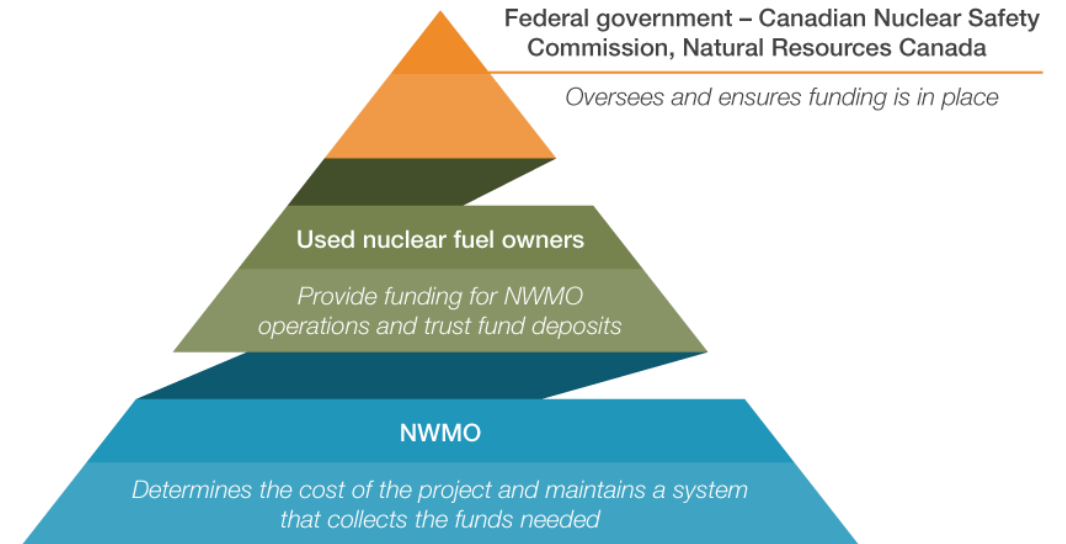
NUCLEAR WASTE  
MANAGEMENT  
ORGANIZATION

SOCIÉTÉ DE GESTION  
DES DÉCHETS  
NUCLÉAIRES

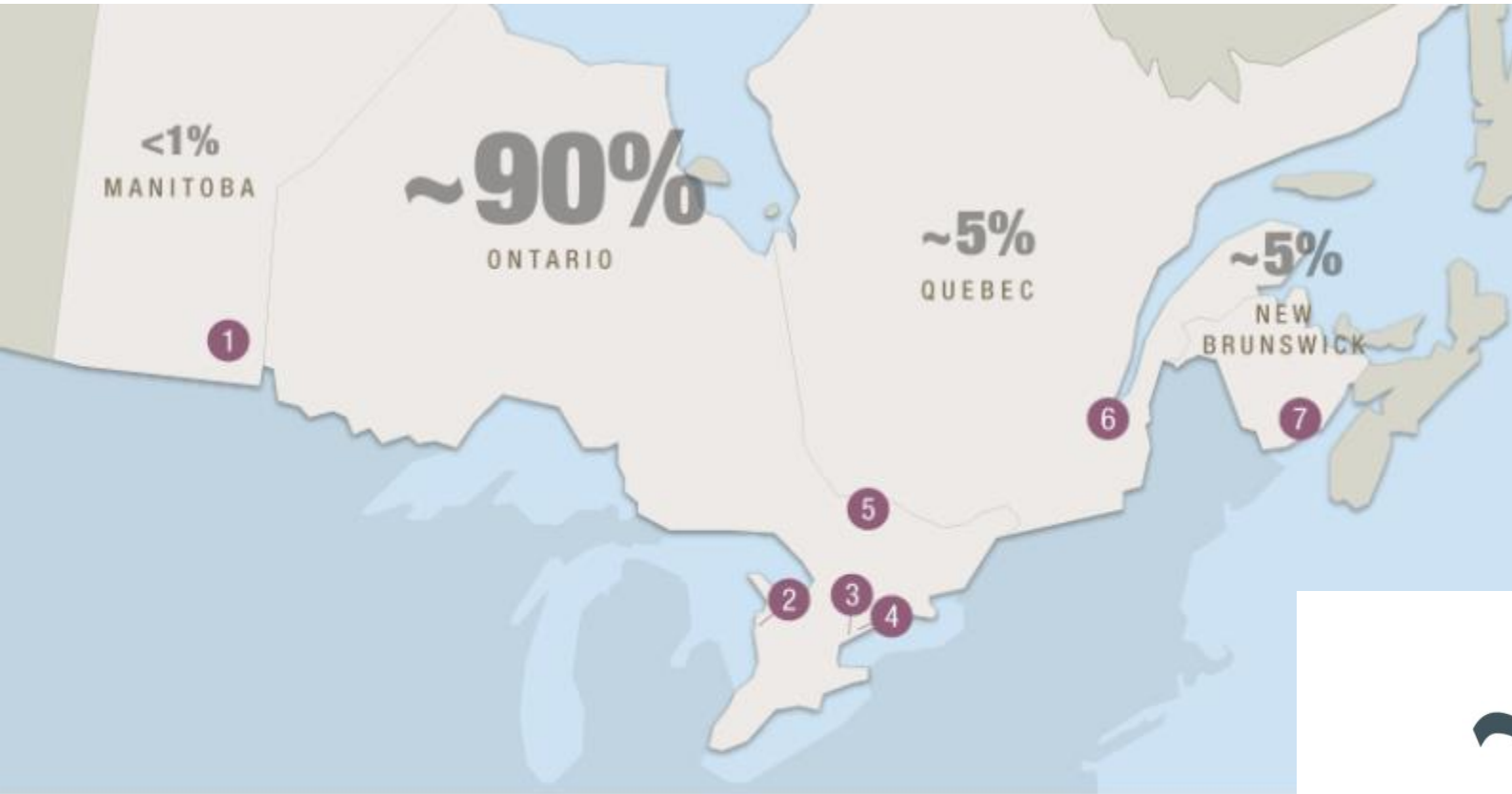


# Who we are

- Exist through Federal legislation Nuclear Fuel Waste Act
- Are a not-for-profit
- Funding comes from Canadian nuclear waste owners including New Brunswick Power
- Regulated by the Canadian Nuclear Safety commission



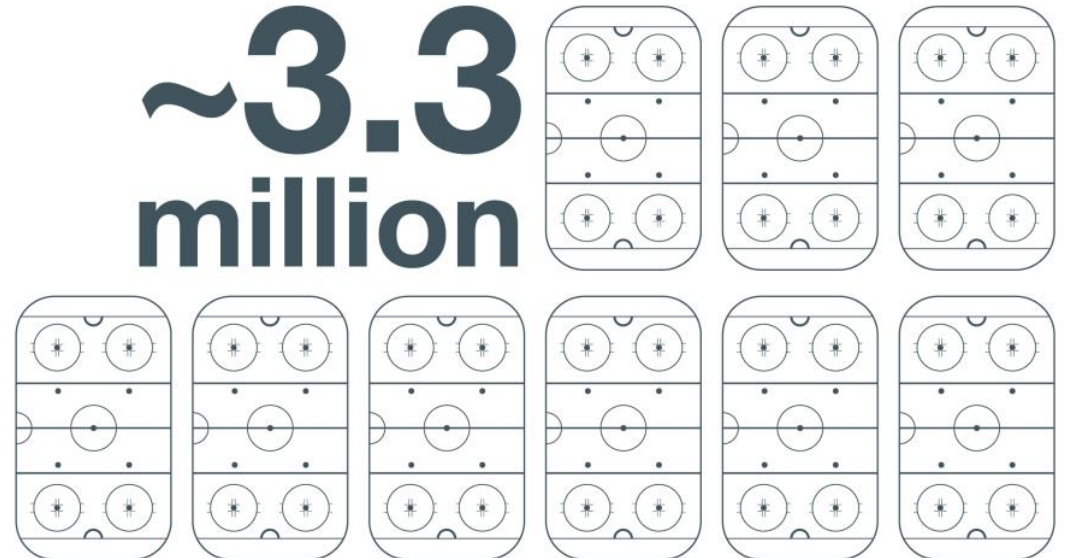
# How Much Waste & Where?



● Interim storage facilities

1. Whiteshell Laboratories
2. Bruce Nuclear Generating Station
3. Pickering Nuclear Generating Station
4. Darlington Nuclear Generating Station
5. Chalk River Laboratories
6. Gentilly Nuclear Generating Station
7. Point Lepreau Nuclear Generating Station

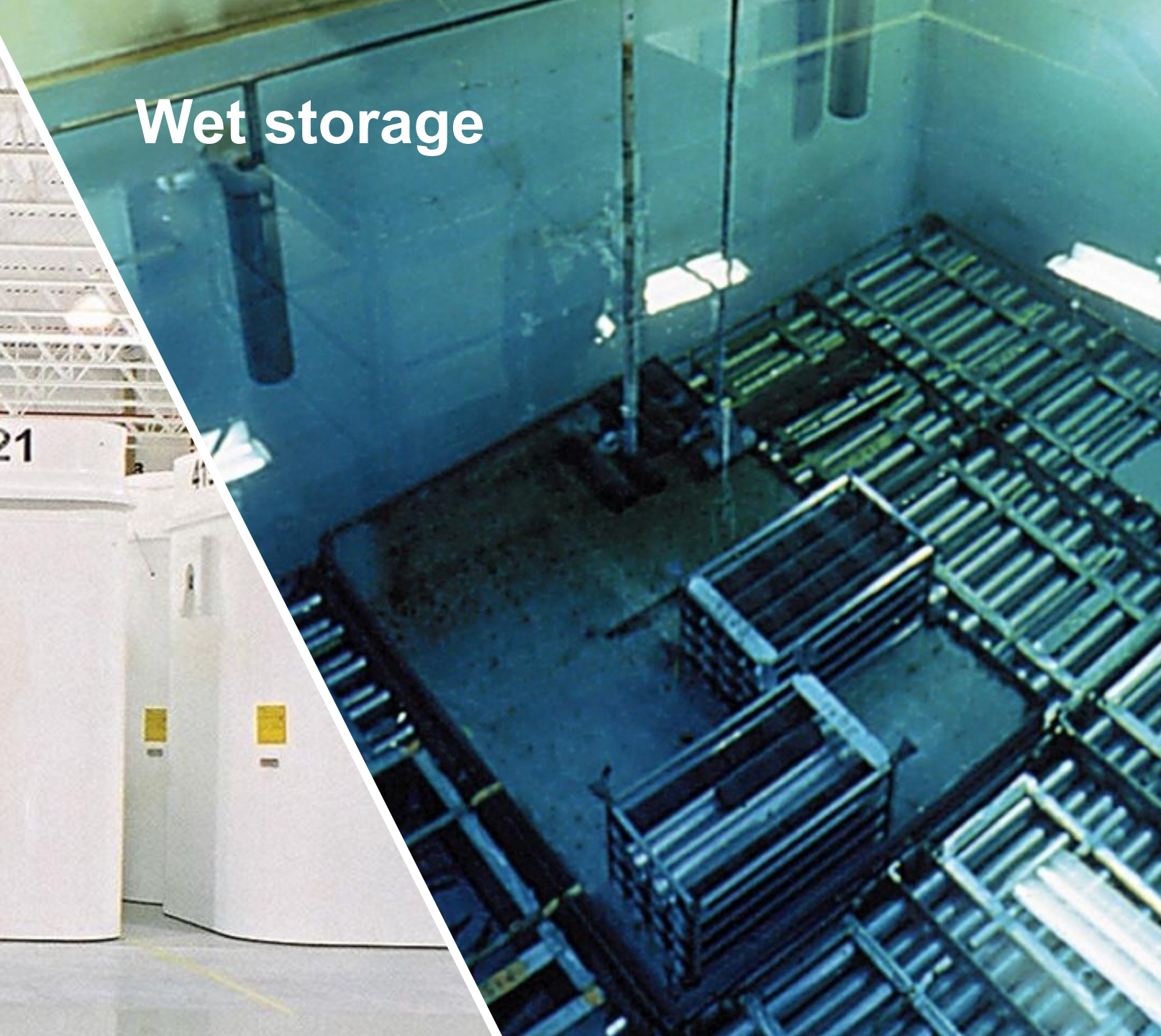
**~3.3  
million**



**Dry storage**



**Wet storage**



# Site Selection Process Initiated May 2010

**ACTION: Seek an informed and willing host with suitable rock**

- Communities choose to participate
- Multi-step technical and social assessments
- Phased process over many years
- Communities can choose to leave the process

**The project will only proceed with interested community, First Nation and Métis communities and surrounding municipalities working in partnership.**

# Phase 1 Activities

- **Agreement to proceed**  
NWMO and accountable authorities
- **Safety**  
Desktop studies of geology, environment, safety, engineering, transportation
- **Community well-being**  
Desktop studies and engagement
  - Municipal
  - Aboriginal
- **Stock-taking**  
Review findings about potential suitability, identify areas for further study



## Phase 2 - Initial Studies

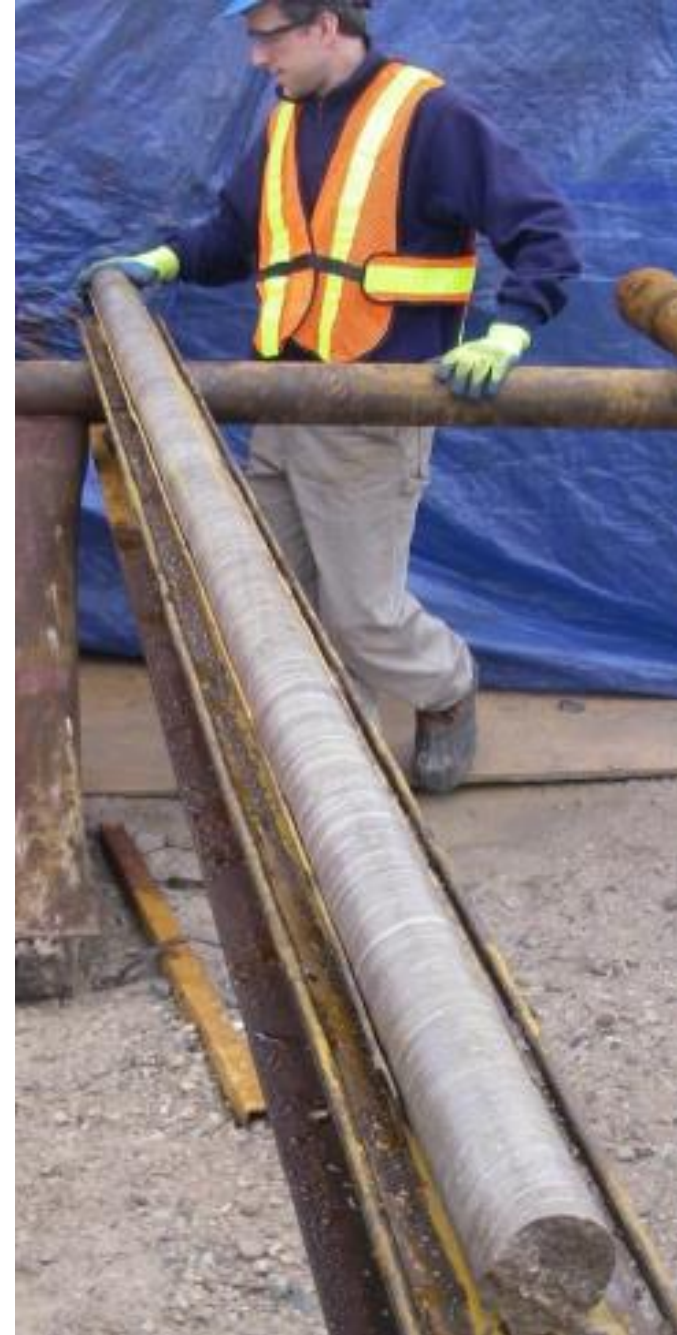
- Dialogue and planning with interested community, First Nation and Métis communities and surrounding municipalities
- Airborne geophysical surveys
- Observing geological features
- Incorporating local and Aboriginal knowledge
- Environmental surveys
- Identification of preliminary study areas
- More intensive learning



## Phase 2 - Further Engagement and Focussed Field Work

- Engagement activities to improving understanding of the study area
- Detailed geological and environmental mapping
- Explore potential for partnership with:
  - local community
  - First Nation and Métis communities
  - surrounding communities
- Borehole drilling and testing in study area

Review findings, conclude work  
in areas with low potential



# Technical Evaluation Criteria

## Six safety functions

1. Safe containment and isolation of used nuclear fuel
2. Long-term resilience to geological processes and climate change
3. Isolation of used nuclear fuel from future human activities
4. Amenable to site characterization and data interpretation activities
5. Safe construction, operation and closure of the repository
6. Safe, secure transportation routes



# Community Engagement

- Answer these questions:
  - Can we identify siting areas that are socially acceptable?
  - Can we sustain interest in the community?
  - Can we involve the surrounding area and advance the project together?



# Community Engagement Activities

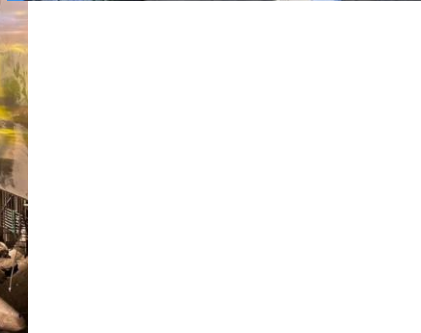
- Create awareness and understanding
  - Open houses, “Learn more” centre, Mobile Learn More exhibit
  - Walk the land with NWMO, visit borehole sites, attend trade shows and conferences
  - Delegations to Councils, kitchen table talks, meat BINGO
- Increase confidence in safety
  - SME speakers
  - Comprehensive reports
- Increase understanding of improvements well-being:
  - Identify key questions still to be addressed for community
  - Review and interpret new information
  - Explore potential to foster well-being of surrounding area

## Lesson Learned:

- Plain language learning materials a must
- Trust is key and takes a time to develop
- Real world experience (dry storage tours) – “...it’s not what I thought it was”
- Don’t rely on “snore more” slide deck

# Community Technical Engagement

- Three major activities
  - Experts going to communities for events, talks & open houses
  - Community members coming to NWMO facilities
  - Community members going to events (conferences, power plants/research reactors, Olkiluoto)





# Technical Innovation Centre

- A work space to advance Engineered Barrier Systems



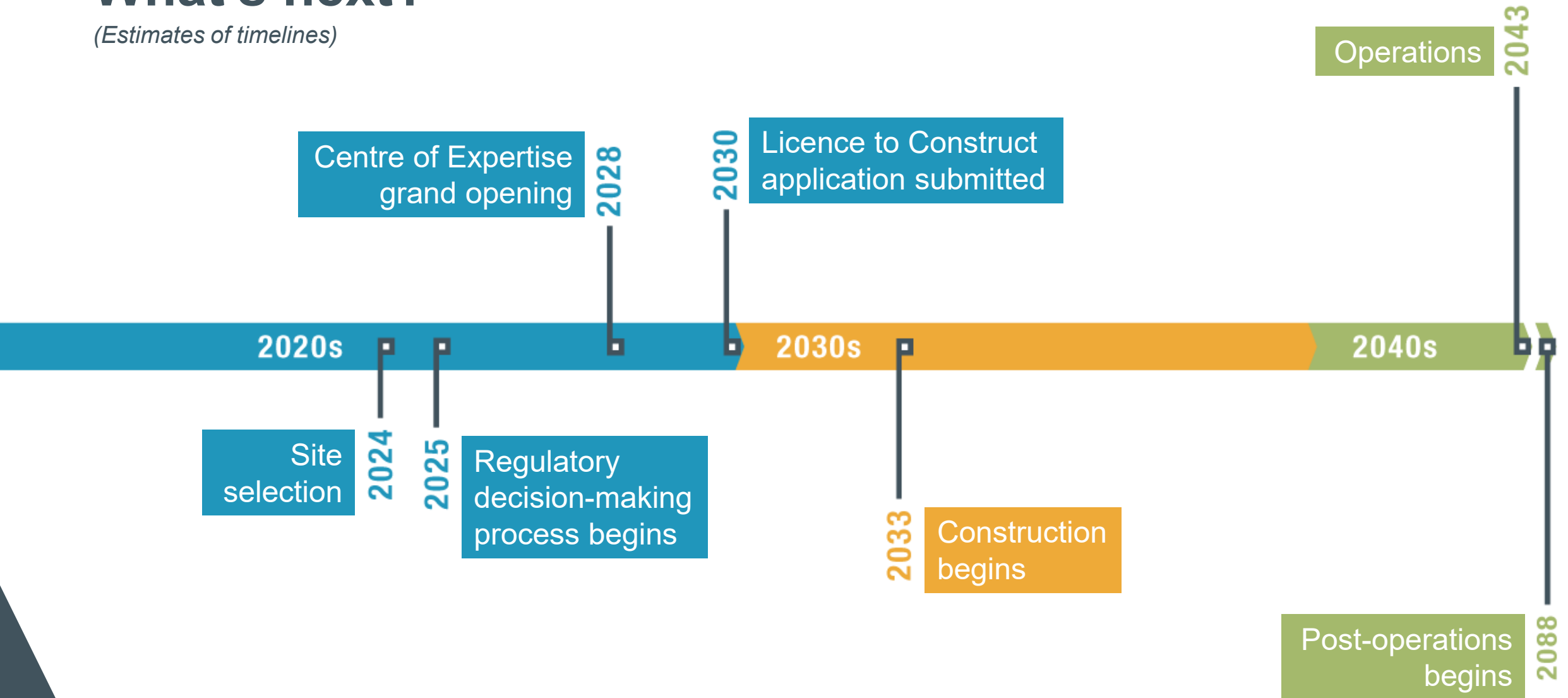
# Engagement & Collaboration

# Site Selection Decision



# What's next?

*(Estimates of timelines)*



# Keys to a Successful Site Selection Decision

**Strong  
Aligned  
Partnerships**



# Thank you

   @nwmocanada / @LaSGDN

 /company/nwmocanada

 [www.nwmo.ca](http://www.nwmo.ca)

