



Enforcing C – 448-02Enforcing the Global Quality GeoExchange Program®

2nd National GeoExchange™ Business & Policy Forum
Calgary ! – December 10, 2007

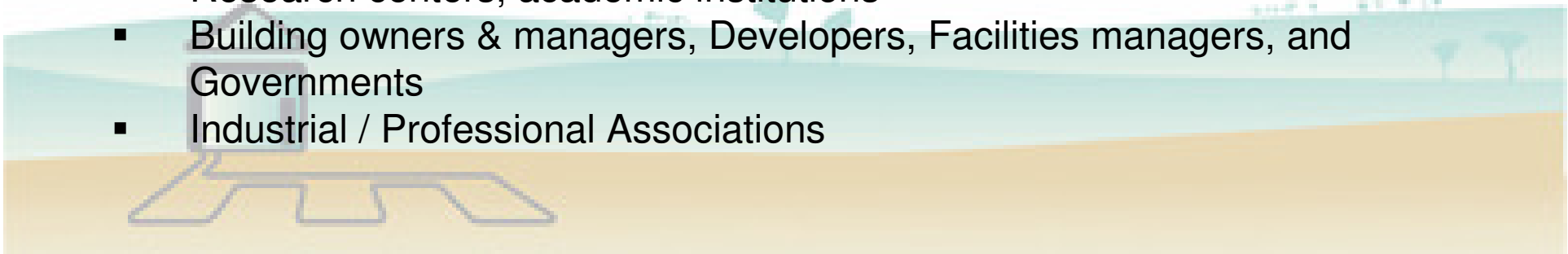
Ted Kantrowitz
Vice President
Canadian GeoExchange Coalition

Who are we?

The Canadian GeoExchange Coalition acts as the industry catalyst to unite private and public sector stakeholders, and to expand the market for ground source heat pumps and geoexchange™ technology in Canada. As the nexus of information, training, certification, standards and public awareness, our mandate is to work with stakeholders to build the necessary infrastructure to foster the growth of the Canadian geoexchange™ industry.

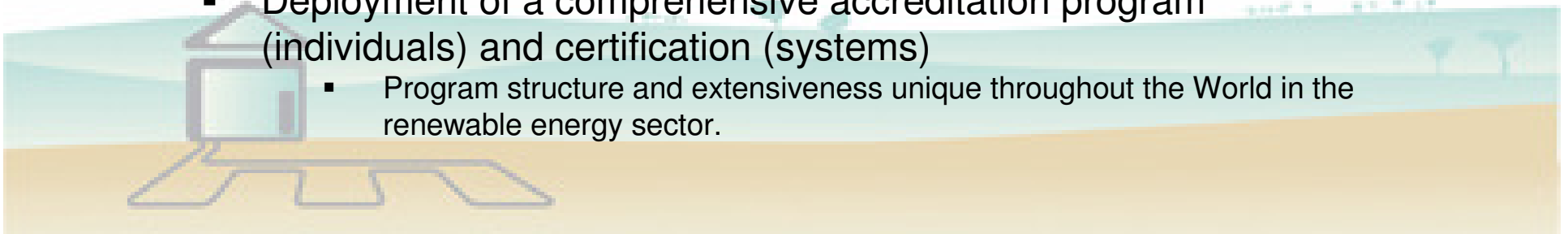
More than 165 members from across Canada:

- Equipment Manufacturers and Distributors
- System Designers (Architects & Engineers)
- System Installers
- Energy Distribution Companies (electric and natural gas)
- Financial, legal, other industry support services
- Research centers, academic institutions
- Building owners & managers, Developers, Facilities managers, and Governments
- Industrial / Professional Associations

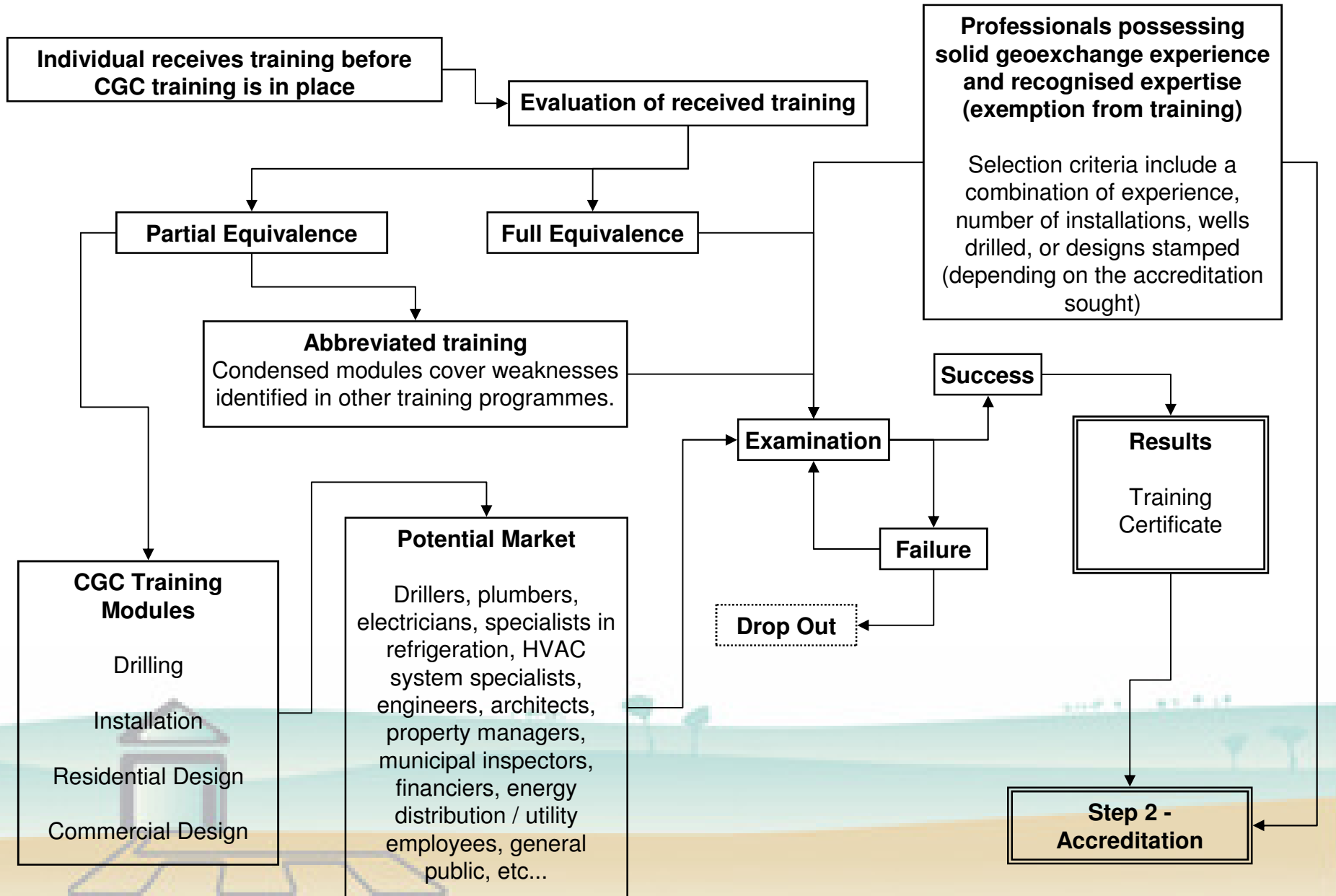


Where are we from and what do we do?

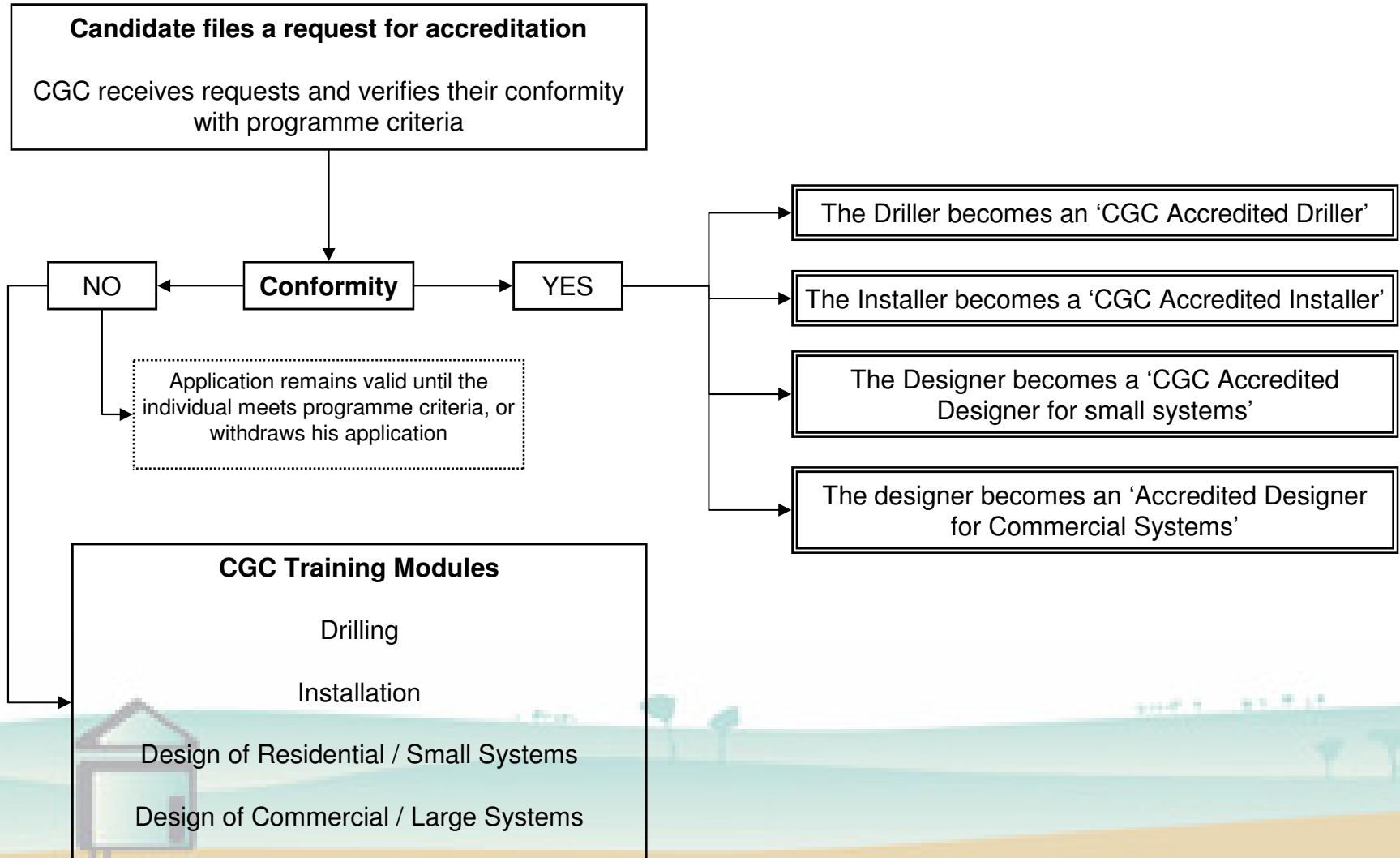
- Created in 2002 thanks to the joint financial efforts of Natural Resources Canada and 6 electric utilities
- 2002-2005: managed pilot projects and put in place the basis for the development of a market transformation initiative
- 2005-2007: development and deployment of the market transformation initiative – CGC Global Quality GeoExchange Program
 - Development and deployment of 4 training programs
 - Drilling
 - Installation
 - Residential Design
 - Commercial Design
 - Partnership with the Association of Canadian Community Colleges and 20 other delivery agents
 - Deployment of a comprehensive accreditation program (individuals) and certification (systems)
 - Program structure and extensiveness unique throughout the World in the renewable energy sector.



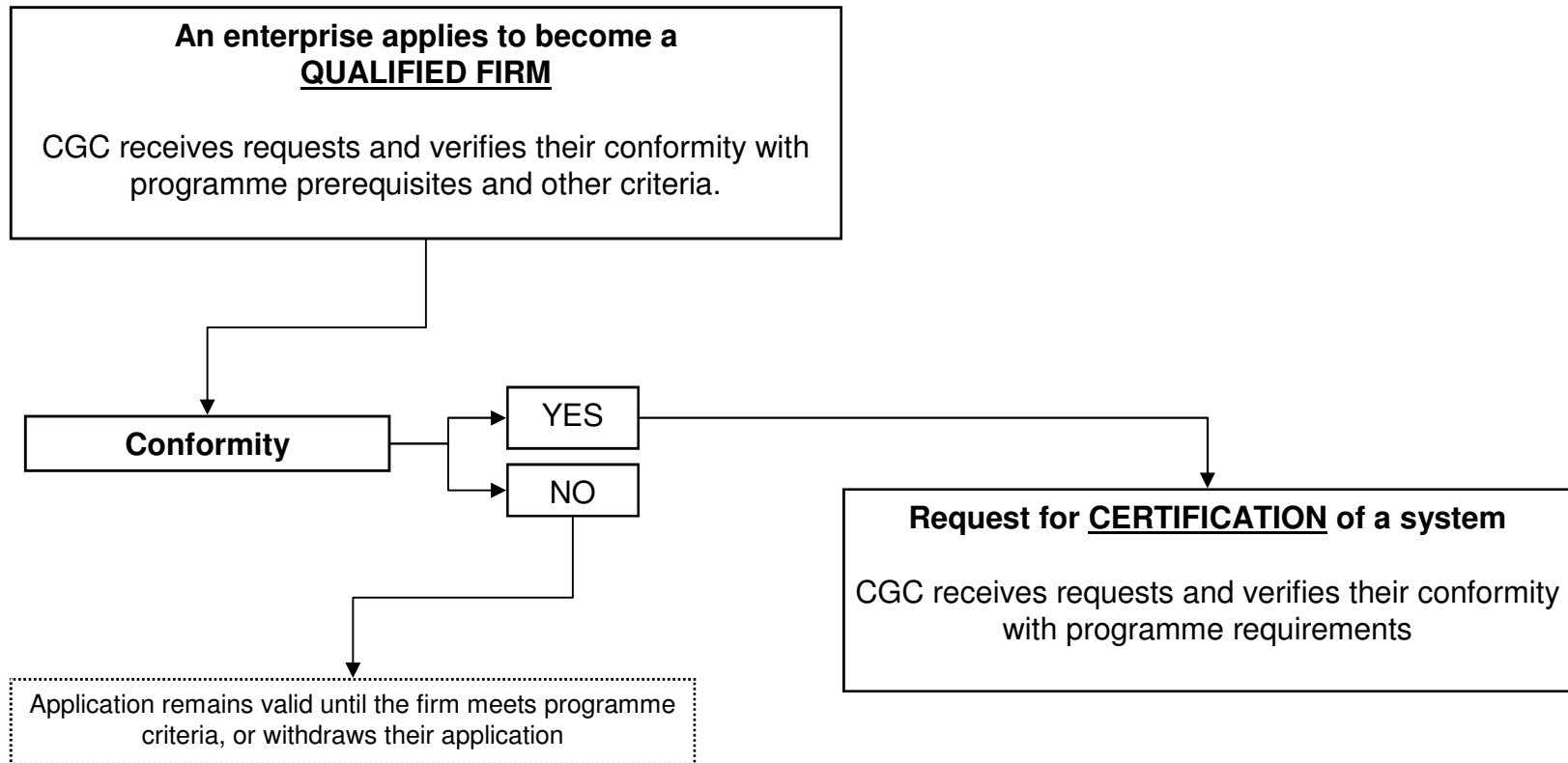
Step 1 – Training



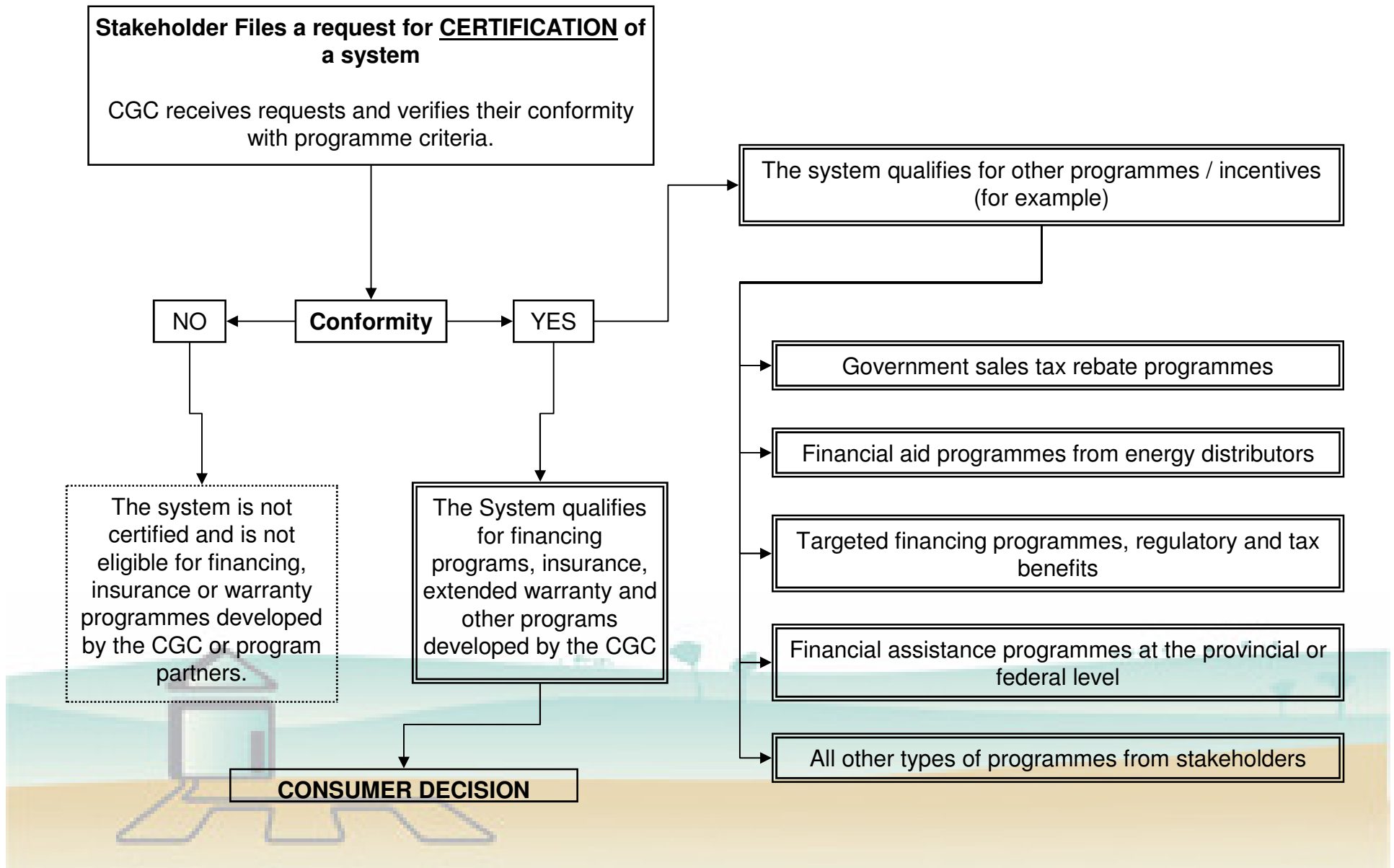
Step 2 – Accreditation



Step 3 – Qualification of Firms

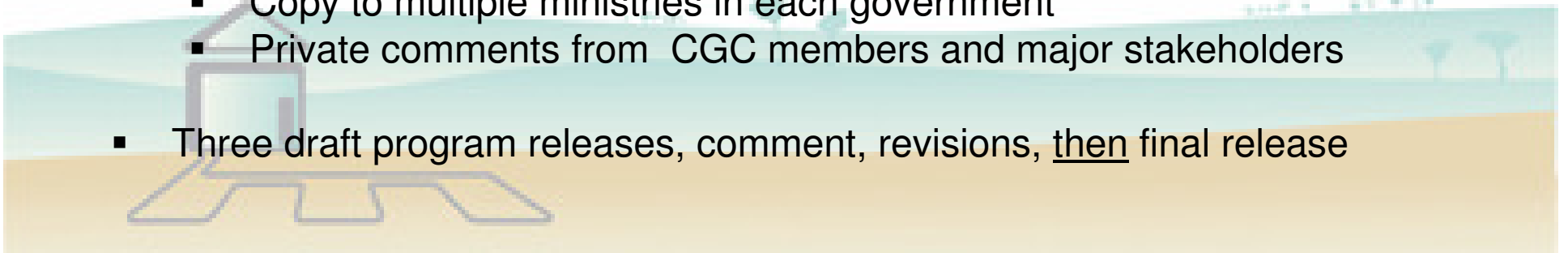


Step 4 – Certification of Systems



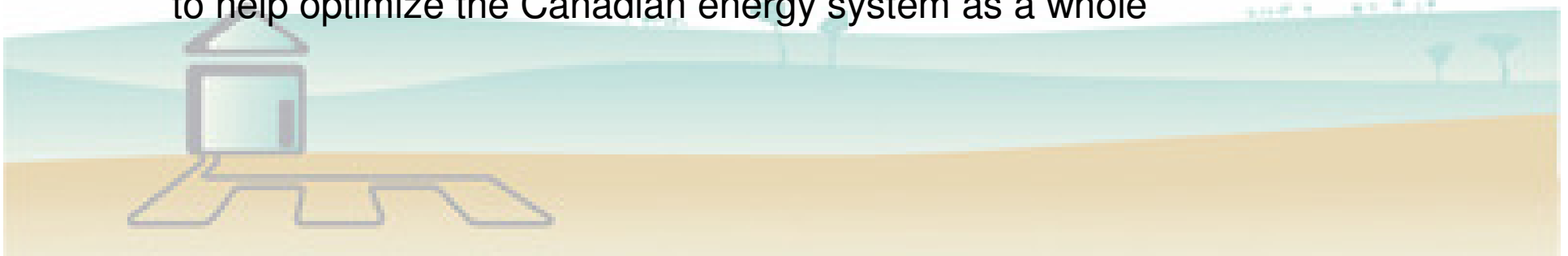
How did CGC and partners do it?

- A decade of consultations from government, utilities, CGC
- Open RFP Process for training development – Sept 2005
- Study to assess whether & which stakeholders would benefit from a quality programme – early 2006
 - Long term health of the industry – reputation issues
 - Avoid the boom-bust subsidy effect and ‘little mushrooms’
 - Protect consumers, boost competition, grow the pie
 - Possibly help unite the industry
- Report and staff recommendation, CGC Board Resolution
- National Public Consultation – June 2006
 - Fifteen days, twelve cities (!) coast to coast – industry, consumers,
 - Copy to multiple ministries in each government
 - Private comments from CGC members and major stakeholders
- Three draft program releases, comment, revisions, then final release

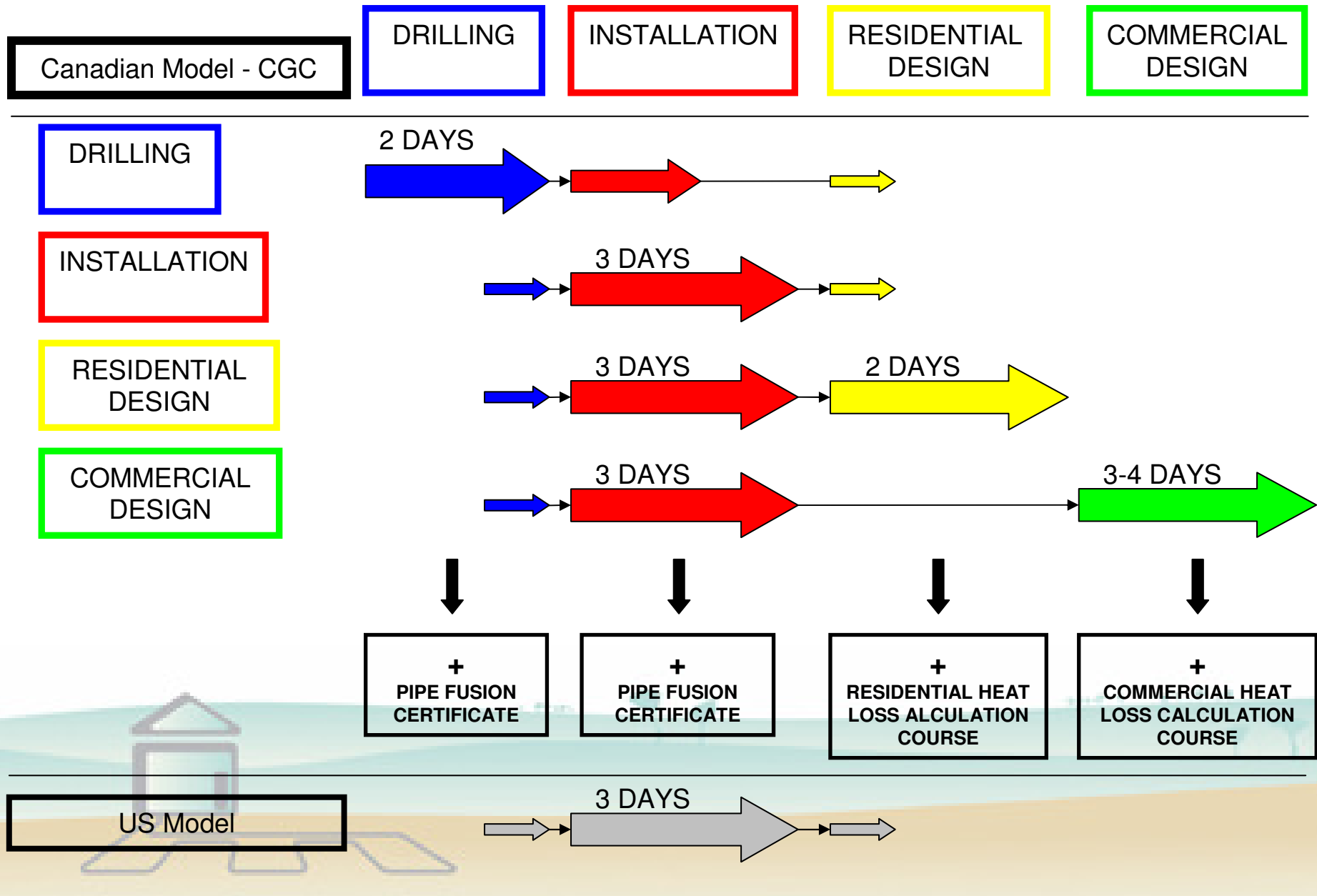


Why all the effort ?

- Put in place the market transformation infrastructure to support the expected growth of the industry – ‘the same thinking that got us here won’t get us where we’re going’
- Create a strong and **even more** professional geoexchange industry through our training programs and partnerships – building a labour force
- Keep Canadian financial resources (training and accreditation) in Canada and reinvest those financial resources in Canada to support services to the Canadian industry
- Create the necessary mechanisms for this industry to play a major role as a renewable and reliable energy source all across Canada
- Ensure that this industry plays a major and increasingly significant role to help optimize the Canadian energy system as a whole



Comparative analysis – training programs – Canada vs US



Comparative analysis – training and installers accreditation

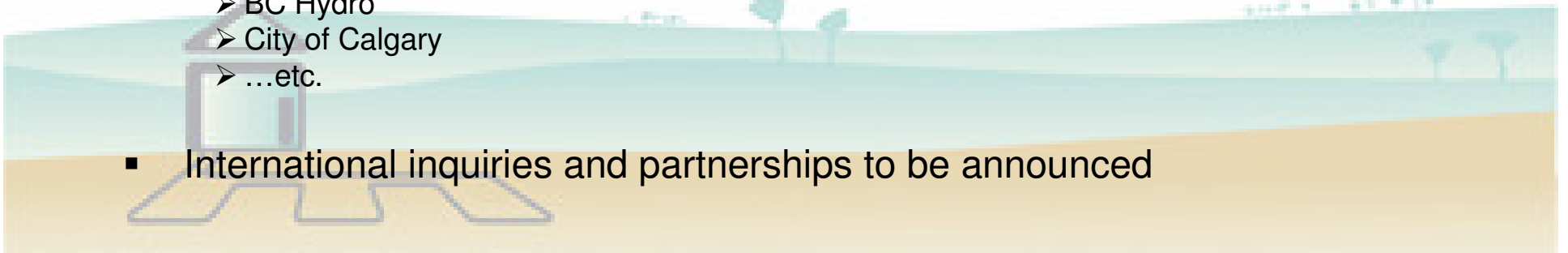
Canadian Model

US Model

✓Specialized separate training for drillers, installers and designers	yes	no
✓In-class training harmonized for all trainers / quality controlled	yes	no
✓Training material fully adapted to Canadian regulations	yes	no
✓Training material fully updated yearly	yes	no
✓Trainers selected based of their professional credentials	yes	no
✓Trainers meet yearly to discuss course content	yes	no
✓Trainers participate in ongoing discussion on training improvement	yes	no
✓Automatic accreditation with training	no	yes
✓Accreditation requires professional references	yes	no
✓Accreditation requires verified field experience and performance	yes	no
✓Accreditation requires supervision for first installations	yes	no
✓Accreditation requires appropriate work permits and licenses	yes	no
✓Accreditation renewal linked to compulsory membership	no	yes
✓Accreditation renewal linked to conference attendance	no	yes
✓Accreditation renewal linked to quality work and performance	yes	no
✓Accreditation renewal linked to positive customer feedback	yes	no
✓Accreditation linked to a complaint management mechanism	yes	no
✓Accreditation linked to a Code of Conduct enforcement	yes	no
✓Etc...		

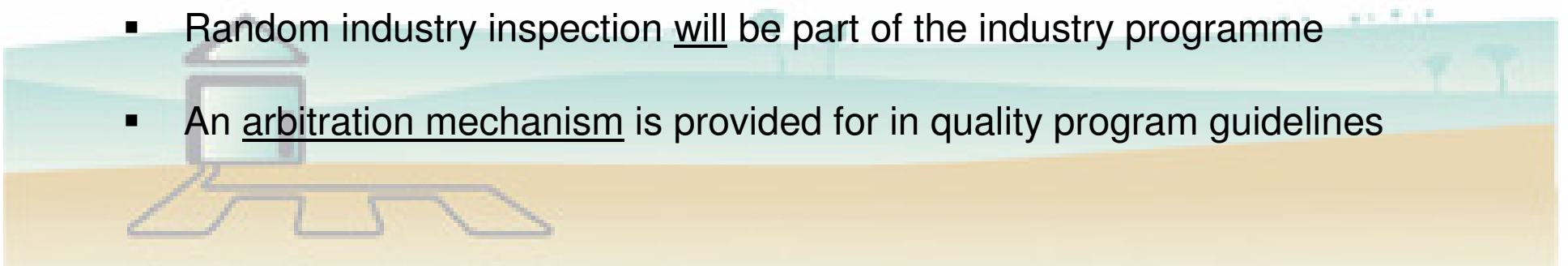
Are we there yet ?

- Not quite, but...
- CGC Global Quality GeoExchange Program® now fully deployed
- Partnering with colleges and universities – more than 15 so far
- Partnering with competent associations for training delivery
- Many major stakeholders refer to the program for their grants and subsidies
 - *ecoENERGY Retrofit – Homes*: full system certification required as of January 1st, 2008
 - Government of Saskatchewan
 - Government of Ontario
 - Hydro-Québec
 - Manitoba Hydro
 - BC Hydro
 - City of Calgary
 - ...etc.
- International inquiries and partnerships to be announced



So that's a great program folks, but....

- Enforcement depends first on market participants, stakeholders, governments, and end consumers
- Enforcement of quality program will either be done by us or for us
 - Choose your history: engineers or electricity or gas...
 - Making the industry grow beyond its 'organic' limit to be a real partner within the Canadian energy framework
- Calgary GeoExchange Inspection Mechanism is now the draft CGC Recommended GeoExchange Inspection Procedures
 - To be released for public & provincial comment in January 2008
 - Training municipal inspectors and permitting staff to begin in 2008
- Provincial & Municipal regulations & laws will always take precedence
- Random industry inspection will be part of the industry programme
- An arbitration mechanism is provided for in quality program guidelines

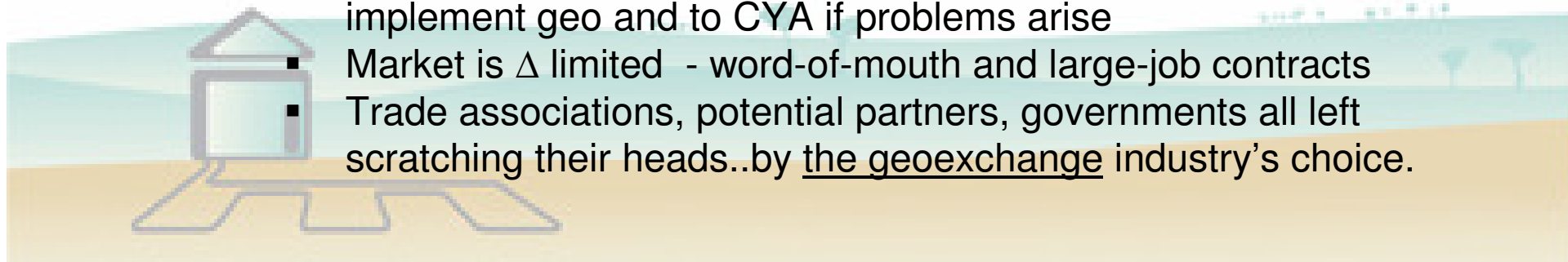


...we have a number of options

Enforcement depends first on market participants, governments, and consumers

US model :

- Every distributor or manufacturer, contractor, designer, project owner or homeowner for him/herself
 - Limited upside to teaming – control and trust issues
- Worst case: Individual lawsuits between individual parties
 - Participants play a mini-“Roman emperor” game
 - Participants lose time and energy from their ‘real’ (i.e. Profit-making) business
- And the result: *Market limits itself - !*
 - Engineers and trade bodies have a very limited framework to implement geo and to CYA if problems arise
 - Market is Δ limited - word-of-mouth and large-job contracts
 - Trade associations, potential partners, governments all left scratching their heads..by the geoexchange industry’s choice.



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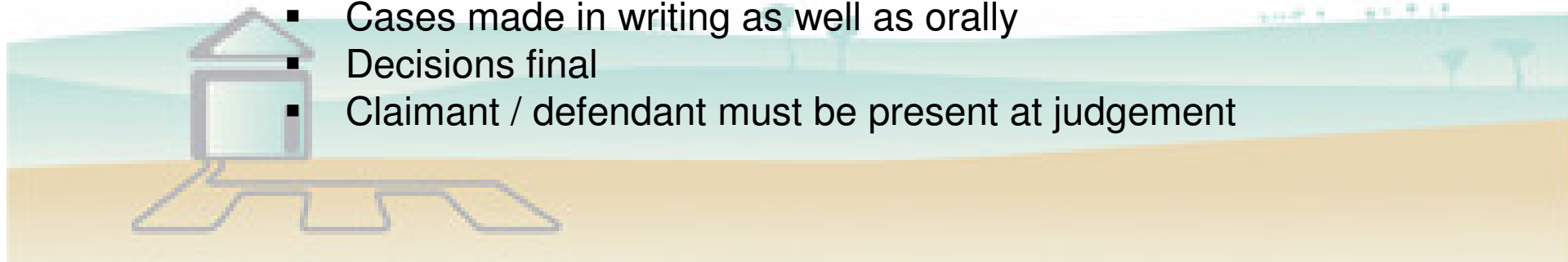
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European model :

- Tribunal for technical equipment performance disputes only
 - Between claimant and HP manufacturer
 - Between claimant and testing centre

- Screening of cases by staff - target 50 – 70 % resolution rate
 - Written complaints, written responses
 - Technical analysis required by neutral on-staff professionals
 - Parties encouraged to settle early and often

- Quarterly gathering / conference call of tribunal
 - Representation on panel offered to each party
 - Cases made in writing as well as orally
 - Decisions final
 - Claimant / defendant must be present at judgement

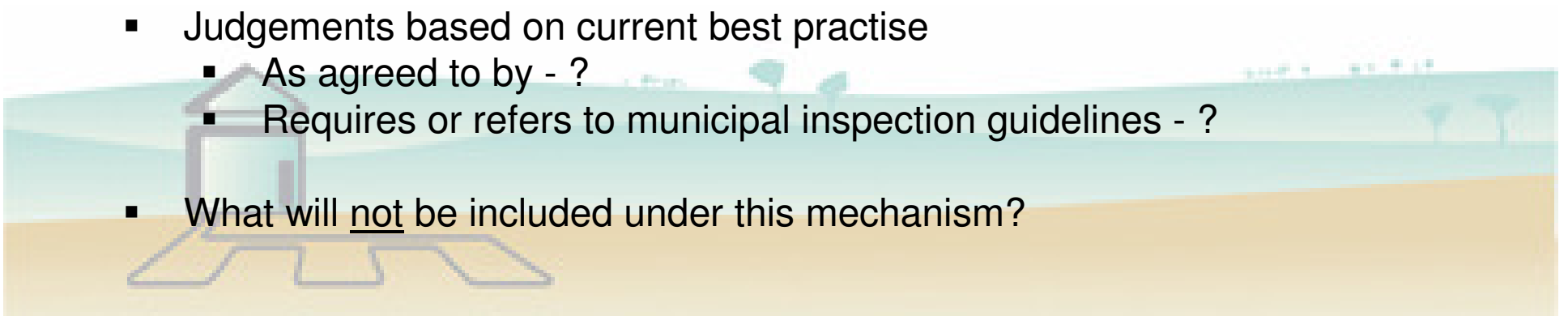


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Canadian model : Questions ?

- Owner complaints sent directly to provincial arbitration / mediation bodies or to the national industry arbitration panel ?
- A panel composed of - ?
 - Local market folks or specifically no local folks - ?
 - Mix of market participants – consumer, manufacturer, contractor - ?
 - Geographic representation - ?
- Judgements based on conformance to C-448 – in letter or intent?
- Judgements based on current best practise
 - As agreed to by - ?
 - Requires or refers to municipal inspection guidelines - ?
- What will not be included under this mechanism?



However, enforcement itself is frankly not optional.

“Green design has brought to the forefront of the design and construction community a holistic view of how to design, build, and operate higher performing buildings.

As such, the noble goals espoused by sustainable development and green buildings are certainly worth aggressively pursuing — but it must be done with significant care, especially in the areas of high risk for moisture and mold problems.

It seems that some of the “best practices” and “lessons learned” in other fields are not being applied in a precise enough manner when it involves green construction, at least as that applies to moisture control.”

The Hidden Risks Of Green Buildings: avoiding moisture & mold problems

Odom, Scott, & DuBose, Liberty Building Forensic Group

Mini-Monograph

National Council of Architectural Registration Boards, pub.

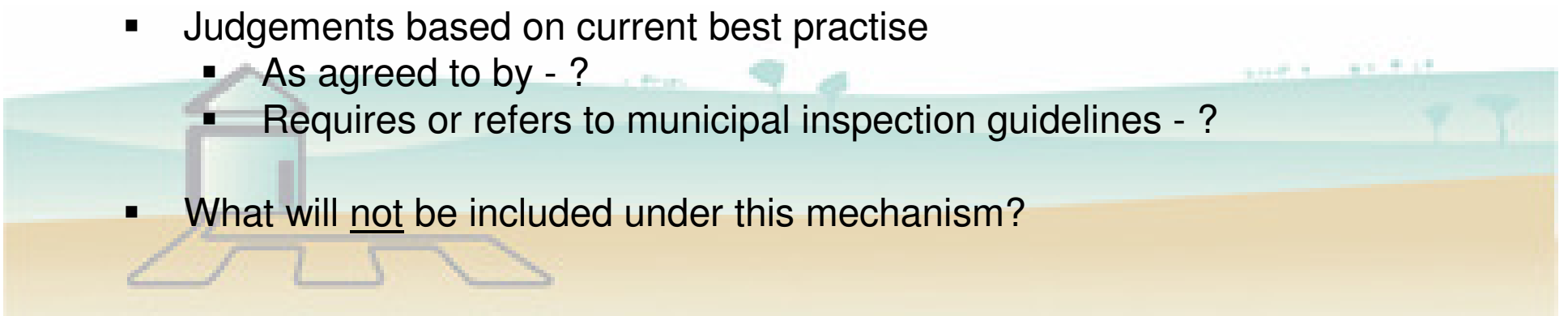


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Thank you !

Your comments requested:

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