Citizens Advisory Panel
Indian Point Decommissioning

June 13, 2019

Indian Point Planning for Decommissioning

- Indian Point Unit 2's last refueling outage was in the spring of 2018. Unit 2 will permanently shut down no later than April 30, 2020.

- Indian Point Unit 3's last refueling outage was in the spring of 2019. Unit 3 will permanently shut down no later than April 30, 2021.

- Indian Point's leadership team is focused on safe, reliable operations of Unit 2 and Unit 3 through shut down.

- Indian Point remains subject to Nuclear Regulatory Commission ("NRC") oversight and regulation. The next NRC End of Cycle meeting related to Indian Point is June 20, 2019 in Tarrytown.

Decommissioning of Indian Point

- "Decommissioning" is a multi-step process that begins when a nuclear plant is retired from service.

- The NRC oversees each phase of this process to ensure that decommissioning is done safely and securely and meets all regulatory and environmental requirements.

- In connection with the shut down, a nuclear plant owner must prepare and submit to the NRC a Post Shutdown Decommissioning Activities Report (PSDAR), a Decommissioning Cost Estimate (DCE), and an Irradiated (a/k/a "Spent Nuclear") Fuel Management Plan.

PSDAR and DCE

PSDAR

- ❑ Description of Planned Decommissioning Activities
- ❑ Decommissioning Schedule
- ❑ Decommissioning Cost Estimate (DCE)
- ❑ Discussion of Environmental Impacts

DCE

- ❑ Discusses the Decommissioning Plan assumptions
- ❑ Specific Costs for:
  - NRC License Termination
  - Spent Fuel Management (SFM)
  - Site Restoration
- ❑ Provides Total Costs by Decommissioning Period

NRC Allowed Decommissioning Strategies

- **DECON** (immediate dismantling), soon after the nuclear facility closes, equipment, structures, and portions of the facility containing radioactive contaminants are removed or decontaminated to a level that permits release of the property and termination of the NRC license.
- **SAFSTOR** (deferred dismantling), a nuclear facility is maintained and monitored in a condition that allows the radioactivity to decay; afterwards, the plant is dismantled and the property decontaminated.
- **ENTOMB**, radioactive contaminants are permanently encased on site in structurally sound material such as concrete. The facility is maintained and monitored until the radioactivity decays to a level permitting restricted release of the property. To date, no NRC-licensed facilities have requested this option.

Spent Nuclear Fuel Management Plan

Spent Nuclear Fuel Management Plan Content

- Written notification will be submitted to NRC discussing changes to the Indian Point program for management of spent nuclear fuel.

- Program by which Indian Point intends to manage and provide funding for the management of all spent nuclear fuel until it is transferred to the U.S. Department of Energy for ultimate disposal.

- Will describe Indian Point plan to move the fuel from the Spent Fuel Pool (Wet Storage) to the ISFSI (Dry Storage).

Spent Fuel Management

- After shut down, all nuclear fuel in the reactor will be transferred to the spent fuel pool for initial cooling and then moved to dry cask storage on site.

- Dry casks are sealed metal and concrete containers that fully enclose the spent fuel.

- Under federal law and by contract, the U.S. Department of Energy is obligated to remove the spent nuclear fuel from the Indian Point site and dispose of it in an NRC-licensed facility.

Spent Fuel Management at Indian Point

- Currently, there are 48 casks at Indian Point holding spent nuclear fuel assemblies, which are located on the site's Independent Spent Fuel Storage Installation (ISFSI).
- We will need 125 casks in total to hold all of the spent nuclear fuel generated during the operations of Indian Point Units 1, 2, and 3.
- A second ISFSI is planned to be constructed at Indian Point and is expected to be complete by 2Q 2021.
- 54 casks will be located on the first ISFSI and 71 casks will be located on the second ISFSI.

Spent Fuel Management at Indian Point

- Holtec International has been Entergy's dry fuel service and spent fuel cask/storage vendor at Indian Point, Palisades, Pilgrim, and Vermont Yankee.
- Holtec has:
  - 30 years of safe spent nuclear fuel management
  - Expertise in designing/building on-site fuel storage installations
  - Supplied SNF services to over 110 nuclear sites worldwide
- At Vermont Yankee, Holtec recently set an industry benchmark by completely defueling the spent fuel pool in just over 3.5 years.

Entergy Has Agreed To Sell Indian Point to Holtec

- On April 16, 2019, Entergy and Holtec International announced that they have reached an agreement pursuant to which Entergy will sell the subsidiaries that own Indian Point Units 1, 2, and 3 to a Holtec subsidiary for decommissioning.

- The sale, which will be effective after Unit 3 has been shut down and permanently defueled (2Q 2021), includes the transfer of the licenses, spent fuel, decommissioning liabilities, and Nuclear Decommissioning Trusts (NDT) for the three units.

- The transaction closing is targeted for 3Q 2021.

Entergy Has Agreed To Sell Indian Point to Holtec

- Entergy is committed to finding a position within the company for any qualified Indian Point employee willing to relocate.

- Generally, employees in positions selected to remain at Indian Point after shutdown and permanent defueling, and into the applicable decommissioning phase(s), will be transitioned to CDI when the transaction is closed, if they accept CDI's job offer.

- For employees covered by a collective bargaining agreement, those agreements will be assumed and honored by CDI.

- The current payment in lieu of taxes (PILOT) agreement between Entergy and the tax jurisdictions (set to expire by 2025) will transfer to Holtec's subsidiary, which will assume the payment responsibilities under the terms of the PILOT agreement.

Entergy Has Agreed To Sell Indian Point to Holtec

- The transaction is subject to closing conditions, including approval from the NRC.

- The companies also plan to seek an order from the New York State Public Service Commission (PSC) disclaiming jurisdiction or, alternatively, approving the transaction.

- Closing is also conditioned on obtaining from the NYS Department of Environmental Conservation (DEC) an agreement confirming Holtec's decommissioning plans as being consistent with applicable standards.

Entergy Has Agreed To Sell Indian Point to Holtec

- Holtec and Comprehensive Decommissioning International (CDI), a U.S.-based joint venture company formed in 2018 between Holtec and SNC-Lavalin, have agreed to enter into an agreement for CDI to perform the decommissioning of Indian Point.

- Holtec plans to initiate decommissioning at Indian Point decades sooner than would occur if Entergy remained the owner and selected the maximum sixty (60) year SAFSTOR option.

- A more defined timetable will be developed in connection with Holtec's preparation of its PSDAR and Site-Specific DCE, which will likely be submitted to the NRC in 4Q 2019.

Holtec Overview

- Holtec International is a privately held energy technology company with operation centers in FL, NJ, OH, and PA in the U.S., and globally in Brazil, Dubai, India, South Africa, Spain, U.K. and Ukraine.

- Since its founding in 1986, Holtec has no history of any long-term debt and enjoys a platinum credit rating from the financial markets.

- Resourced to manage licensed and decommissioning activities at permanently shutdown and defueled sites.

Comprehensive Decommissioning International (CDI)

- A focused D&D delivery company, combining Holtec's spent fuel skills with SNC-Lavalin's decommissioning capability.
- Holtec and SNC-Lavalin are working and investing together in the nuclear industry—we are long term partners.
- Two financially strong parent companies able to stand behind project delivery.

Combined Capability & Financial Stability

SHARED CULTURE OF SAFETY AND INTEGRITY

Worldwide D&D Experience

HOLTEC DECOMMISSIONING INTERNATIONAL

Comprehensive Decommissioning International
A Holtec and SNC-Lavalin Company

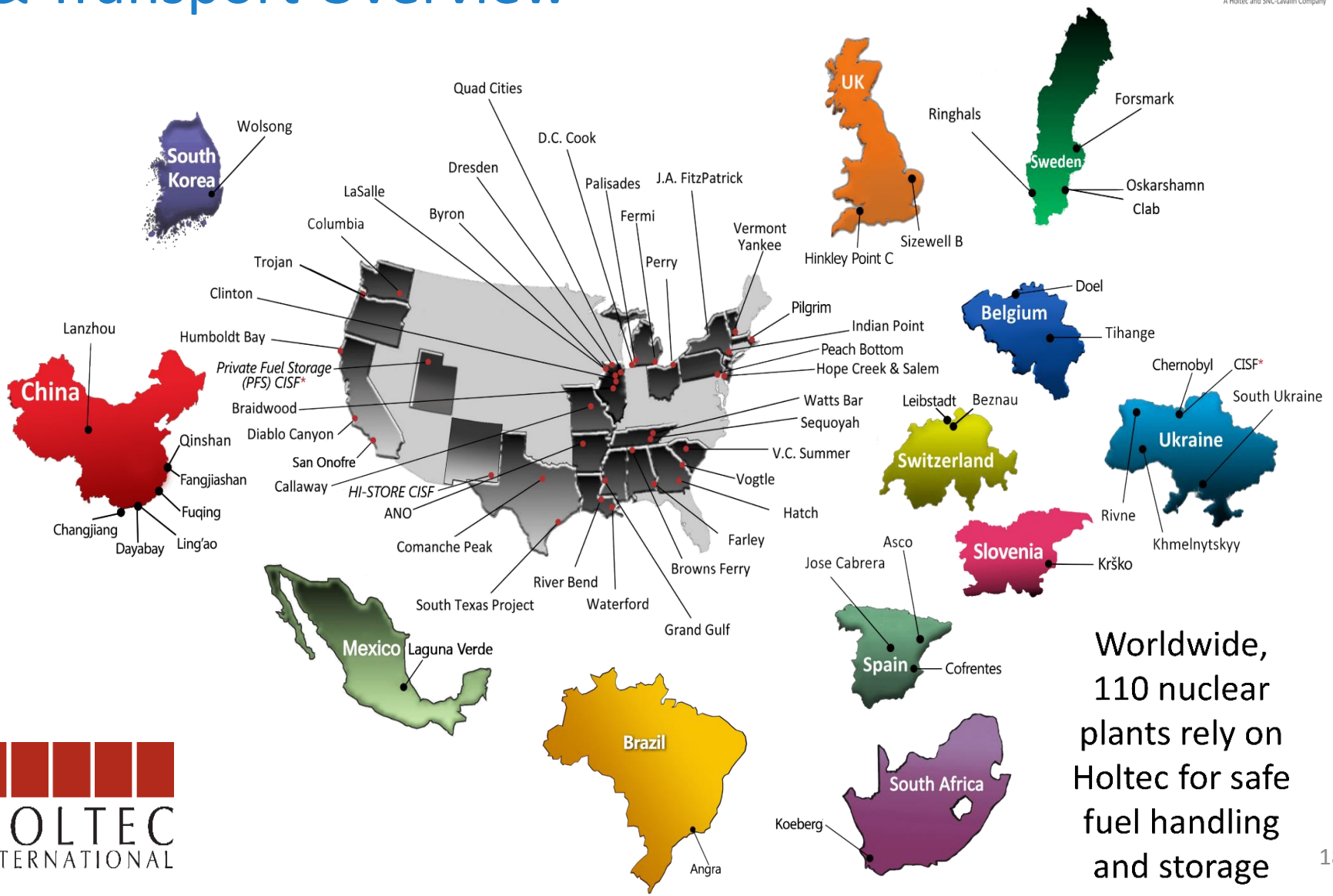
Holtec

- 30 years of safe spent nuclear fuel management
- Expertise in design/build on-site fuel storage installations
- SNF services supplied to over 110 nuclear sites worldwide
- Only cask certificate holder that has performed all dry storage implementation work with in-house resources

SNC-Lavalin (Atkins)

- Shared heritage of commercial facility D&D at Big Rock Point, Zion and Magnox
- Over 100 waste cleanup, D&D and government site remediation projects in the US & Canada
- Waste treatment technologies and new storage/disposal canisters at Fukushima
- Multiple research reactor decommissioning projects in Canada

Holtec's Worldwide Dry Storage & Transport Overview



Worldwide, 110 nuclear plants rely on Holtec for safe fuel handling and storage

SNC-Lavalin Worldwide D&D Experience

Zion Nuclear Power Station, USA

- Many current Atkins/SNC-Lavalin employees were involved in the project

Big Rock Point Nuclear Power Plant, USA

- Major component removal including the reactor vessel and decontamination/demolition of the Radioactive Waste Building

Magnox Reactor Fleet, UK

- Managed operations, defueling, and decommissioning of 22 Magnox nuclear power reactors at 10 sites

Fukushima Dai-ichi, Japan

- Supplied water treatment technologies, dewatering solutions, and new storage/disposal canisters

CANDU Fleet, Worldwide

- Provider of reactor services and major refurbishment of primary systems
- Test/research reactor D&D – Slowpoke, Nuclear Power Demonstration Project (NPD)

HDI & CDI - How Does This Fit Together?

- Spent fuel management and nuclear services
- Spent fuel cask/storage vendor

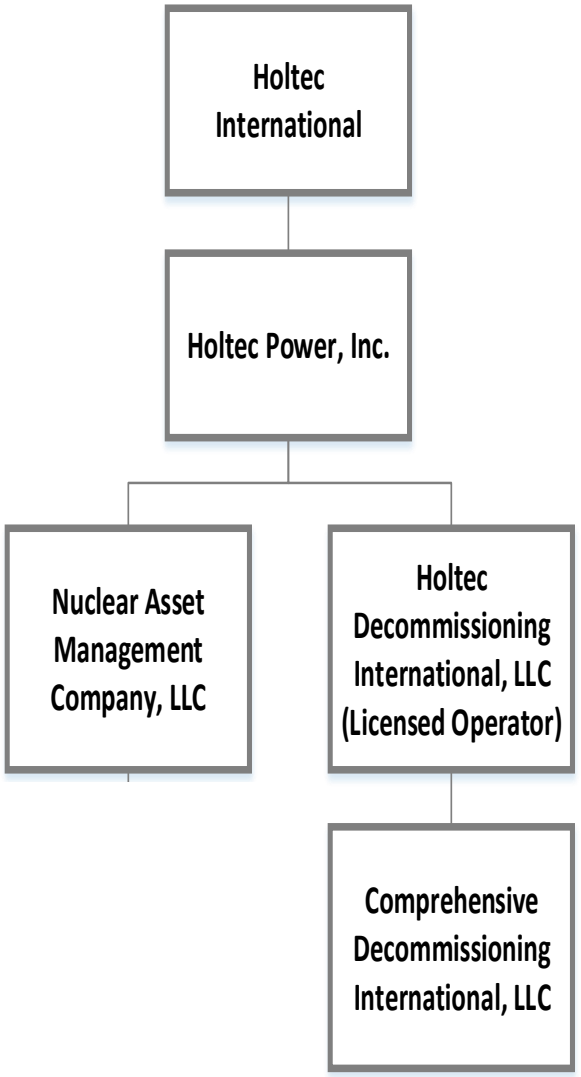
Provide resources and oversight to support the Safe, compliant operation of the acquired sites

- Wholly-owned Holtec subsidiary

Licensed operator for all decommissioning sites in the Holtec fleet, including Oyster Creek

- Jointly owned by Holtec/SNC-Lavalin
- Extensive decommissioning project experience

Decommissioning General Contractor (DGC) for the Holtec fleet



Projected Timeline

Milestone	Target Date
Submit PSDAR and related filings to NRC	4Q 2019
File license transfer application (LTA) with NRC • NRC Pre-submittal Meeting (public) • Submit LTA to NRC	4Q 2019
File application with NYSPSC	4Q 2019
Permanent Shutdown of Unit 2	2Q 2020
Permanent Shut down of Unit 3	2Q 2021
Transaction Close	**2Q 2021**