

10-15-2025

North Dakota Industrial Commission  
ATTN: Clean Sustainable Energy Program  
State Capitol – Fourteenth Floor  
600 East Boulevard  
Bismarck, North Dakota 58505

Dear Members of the Commission,

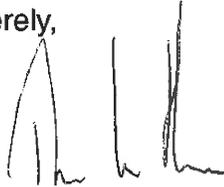
On behalf of Sustainable Projects Group Inc. - SPGX, I hereby submit our application for the Clean Sustainable Energy Authority (CSEA) grant for the project "Lithium for Clean Energy Delivery: Demonstration from Produced Water". We respectfully request grant funding in the amount of \$9,523,919 to support our total project cost of \$19,047,839.

Sustainable Projects Group Inc. - SPGX hereby provides a binding commitment to complete the project as described in the application should the Commission award the requested funding. We confirm that we have the technical, financial, and management capacity to execute the project, including managing all equipment installation, procurement, commissioning, and ongoing operations.

We also affirm to comply fully with all program requirements, including documentation of matching funds, reporting obligations, and ensuring all regulatory and environmental standards are met.

Thank you for your consideration. We are confident this project will significantly advance clean energy, environmental sustainability, and economic development in North Dakota.

Sincerely,

X 

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Thomas Lund Hansen  
CFO

Clean Sustainable Energy Authority  

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North Dakota Industrial Commission

## Application

**Project Title:** Lithium for Clean Energy Delivery:  
Demonstration from Produced Water

**Applicant:** Sustainable Projects Group Inc. -  
SPGX

**Date of Application:** 10-15-2025

**Amount of Request**

**Grant:** \$9,523,919

**Loan:** -

**Total Amount of Proposed Project:**  
\$19,047,839

**Duration of Project:** 35 months

**Point of Contact (POC):** Kristina Muliulyte

**POC Telephone:** +4531530967

**POC Email:** kmu@lithiumharvest.com

**POC Address:** Tankedraget 7, 9000 Aalborg,  
Denmark

## TABLE OF CONTENTS

<b>Abstract</b>	<b>2</b>
<b>Project Description</b>	<b>3</b>
<b>Standards of Success</b>	<b>11</b>
<b>Background/Qualifications</b>	<b>12</b>
<b>Management</b>	<b>13</b>
<b>Timetable</b>	<b>14</b>
<b>Budget</b>	<b>16</b>
<b>Confidential Information</b>	<b>17</b>
<b>Patents/Rights to Technical Data</b>	<b>17</b>
<b>State Programs and Incentives</b>	<b>17</b>

## **ABSTRACT**

### **Objective:**

As the U.S. faces a growing gap between lithium demand and supply<sup>1</sup>, Sustainable Projects Group Inc. (SPGX) has developed a proprietary process to extract lithium from oil and gas produced water. While each technology in the process is commercially proven, their integration into a full-scale extraction system is unprecedented. The next step toward commercialization is the construction of a demonstration facility in North Dakota, with key objectives including site preparation, equipment procurement, construction, commissioning, and establishing baseline data for future optimization. The project will support clean energy delivery through advancing domestic critical mineral supply, engage local contractors and suppliers, and establish North Dakota as a leader in sustainable lithium production.

### **Expected Results:**

- Fully operational 408-ton of lithium carbonate equivalent (LCE)/year facility installed at the partner-provided site in ND.
- Upscale O&G energy production at the partner site by utilizing produced water – the industry’s waste stream.
- Established foundation for further private investment and commercialization.
- 12 new local full-time stable clean energy jobs and increased economic activity in ND.
- Strengthened North Dakota’s role in the clean energy and critical materials sectors.
- Support for sustainable energy production and delivery through a domestic lithium supply for batteries and renewable energy applications, providing approximately 480–640 MWh of battery energy storage systems (BESS) capacity per year—enough to power tens of thousands of homes.

### **Duration:**

35 months

### **Total Project Cost:**

\$19,047,839

### **Participants:**

The project will be led and executed entirely by Sustainable Projects Group Inc. (SPGX), which will be responsible for overall project management, engineering, process design, procurement, commissioning, and operational execution of the demonstration plant. Specialized tasks, including construction, civil works, and electrical installations, will be performed by qualified subcontractors under SPGX’s oversight. All technical decisions, quality control, and integration of outsourced work will remain the responsibility of SPGX.

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<sup>1</sup> Benchmark Mineral Intelligence Webinar “The Mines of Tomorrow - Lithium” <https://www.benchmarkminerals.com/events> 2024

## **PROJECT DESCRIPTION**

### **Objectives:**

As the lithium industry is poised for rapid expansion driven by the growth of clean energy production, both global and domestic lithium supply in the United States is projected to fall short of demand. SPGX has developed a proprietary process for lithium extraction from oil and gas produced water and sees an opportunity to contribute to clean energy production by building a lithium extraction facility from produced water in North Dakota.

While each technology in SPGX's process is commercially proven in the oil and gas (O&G) industry's water treatment, its integration into a full-scale lithium extraction system from produced water is unprecedented. The next critical step toward commercialization is the construction of the first demonstration plant. The company has secured a site location, established a local partner, and initiated permitting and fundraising activities. For the Clean Sustainable Energy Authority Program, SPGX proposes a project focused solely on the construction of the demonstration plant. This represents a critical step in the company's commercialization pathway. Key objectives of the project include:

- Prepare site.
- Procure necessary equipment and materials.
- Construct and commission the demonstration facility.
- Ensure the facility meets design specifications and safety standards.
- Establish baseline data for future optimization and efficiency validation.

Further optimization and efficiency validation of the plant will follow as the next step in the overall commercialization path, generating crucial technical knowledge under real-world conditions.

The demonstration facility in North Dakota will advance SPGX's proprietary lithium extraction process from produced water, supporting the growth of clean energy production through domestic critical mineral supply. The project will engage local contractors and suppliers, contributing to economic development and workforce opportunities in the state. By establishing a scalable and innovative approach to lithium production, the facility will position North Dakota as a leader in critical mineral development while promoting environmentally sustainable energy practices.

### **Methodology:**

The proposed project will focus on the construction and commissioning of a demonstration-scale lithium extraction facility from oil and gas produced water in North Dakota. The methodology outlines how the project funds will be allocated and the specific tasks required to achieve the stated objectives. Each step aligns with project goals, regulatory requirements, and the intended contribution to sustainable energy production.

#### **1. Site Preparation and Infrastructure Integration**

Objective: Prepare the existing site in McKenzie County for the demonstration facility without disrupting ongoing operations.

Tasks:

- Clear and grade the northwest corner of the existing pad.
- Extend utilities (power, water, and communications) from existing infrastructure.
- Construct a foundation for building and equipment.
- Install piping connections for inflow and outflow to integrate with existing produced water systems.

Funds Allocation: Civil works, site preparation, utility extensions, and engineering oversight.

## **2. Equipment Procurement**

Objective: Acquire and install the equipment necessary for lithium extraction, ensuring compatibility and safety.

Tasks:

- Procure commercially proven water treatment and lithium extraction equipment.
- Coordinate delivery schedules to align with construction milestones.
- Equipment inspection upon arrival.

Funds Allocation: Equipment purchase, shipping, and oversight.

## **3. Construction of Facility Building**

Objective: Build the demonstration facility according to design specifications.

Tasks:

- Construct steel building and internal layout to house extraction equipment.
- Install structural supports, enclosures, and access platforms.
- Ensure compliance with occupational safety and building codes.

Funds Allocation: Construction labor, materials, safety inspections, contingency funds.

## **4. Installation of plant equipment**

Objective: Install the demonstration facility equipment according to design specifications.

Tasks:

- Install equipment within the facility, including integration of pipelines and process systems.
- Install electrical components, cables and control system
- Conduct inspections and safety checks during installation.

Funds Allocation: Installation labor, materials, safety inspections, contingency funds.

## **5. Commissioning and Initial Process Testing**

Objective: Ensure the facility operates safely and as designed, verifying that all systems are functional prior to full-scale operation.

Tasks:

- Conduct initial system startup and commissioning of equipment.
- Perform dry and wet test runs to confirm equipment functionality and process integration.
- Test control system, including critical safety interlockings
- Identify and resolve any operational issues.
- Verify that the facility meets design, safety, and regulatory standards.

Funds Allocation: Commissioning labor, contingencies, testing supplies, system checks, and troubleshooting.

## **6. Project Management and Oversight**

Objective: Ensure timely and effective completion of all project tasks within budget, schedule and specs.

Tasks:

- Update and manage project schedule with milestones.
- Monitor budget, procurement, and progress of contractors.
- Conduct weekly project meetings and submit interim reports to the Commission.
- Ensure compliance with CSEA reporting and documentation requirements.

Funds Allocation: Project management labor, reporting, and administrative costs.

### **Anticipated Results:**

Successful completion of the demonstration plant will verify the integration and functionality of SPGX's proprietary lithium extraction process under real-world conditions. This will enable the next phase of commercialization, during which operational performance and efficiency data will be collected and optimized. This project will bring tangible benefits to North Dakota by creating local employment opportunities during construction and commissioning, as well as training a skilled workforce for future plant operations. It will stimulate the local economy through the procurement of materials, services, and ongoing operational support, while providing valuable on-the-job experience in advanced clean energy and critical mineral technologies. By establishing a scalable and innovative lithium production approach, the project positions North Dakota as a leader in sustainable energy development, attracting further investment and reinforcing the state's role in supporting domestic critical mineral supply, which is essential for the growth of clean energy technologies and regional energy security.

The key deliverables of this project include completion of all site preparation and civil works, delivery and installation of major process equipment, construction of the facility building, and full mechanical and electrical integration of the lithium extraction system. The project completes with commissioning and a start-up readiness report, verifying that all systems meet design, safety, and regulatory standards.

Throughout the project, progress will be documented through regular internal updates and interim reports submitted to the Clean Sustainable Energy Authority in accordance with program requirements.

### **Facilities:**

The project will be hosted and supported by the Partner in McKenzie County, North Dakota, as shown in Figure 1 of the Appendix section “Supporting Items to the Application.” The Partner, who operates the existing site, will provide access to produced water and pad utilities. This location is ideal due to its direct access from the main road. Furthermore, no dwellings are located within five hundred feet of the project site, in accordance with local regulations. This has been verified by Highlands Engineering & Surveying, PLLC.

The lithium extraction facility will be erected on the northwest corner of the existing pad. Due to the sufficient size of the current pad, no expansion or additional land acquisition is required. Figure 2 of the Appendix section “Supporting Items to the Application” shows the proposed facility location along with the existing gun barrels and injection pumps.

The total produced water volume across the partner’s operational site is estimated to reach approximately 108,000 barrels per day (bbl/d), all transported through the extensive produced water gathering system established in the Bakken area (see Figure 3 of the Appendix section “Supporting Items to the Application”). Of this total, 48,000 bbl/d will be allocated to the project well. The current produced water volume from the project well is 15,000 bbl/d, which is sufficient to support the demonstration facility. Furthermore, the planned expansion ensures a clear pathway toward commercial-scale deployment. The lithium extraction demonstration can be constructed at the well without modification to existing infrastructure. From the gun barrels, which perform final treatment of the produced water prior to re-injection, a pipeline will be installed to connect to the lithium extraction facility, while a return pipeline will transport treated process water back to the gun barrels for re-injection. Traffic flow on the pad has been assessed, and construction of the new facility will not obstruct operations. Service trucks will retain full access to both the existing facility and the lithium extraction unit.

As shown in Figures 4 and 5 of the Appendix section “Supporting Items to the Application.”, the project will involve the construction of the foundation, steel building, and utility extensions from the existing facility, along with additional piping for inflow and outflow. Power and water supply will be provided from the existing on-site network. Construction is expected to take approximately 17 months, including civil works, steel building and equipment installation.

The facility is designed to initially process up to 15,000 bbl/d of produced water for lithium extraction, corresponding to a demonstration-scale unit. It represents approximately 14% of the site’s total planned inflow. The design allows for future facility scale-up to a 48,000 bbl/d capacity that ensures a direct pathway toward commercial operation of 1,374 tons of LCE a year.

## **Resources:**

The project will leverage a combination of technical, human, and material resources to ensure the successful completion of the demonstration facility. Key resources include:

1. **Site and Infrastructure:** The project will be hosted on an existing produced water disposal pad operated by a local partner. The site provides ample space for the facility, with existing pad utilities. The availability of this infrastructure enables rapid construction and integration of the lithium extraction system without requiring land acquisition or major modifications to existing operations. The proposed feedstock—produced water from the site—has been tested and validated, demonstrating a viable business case. A detailed review is provided in Figure 8 of the Appendix section, “Supporting Items to the Application.”

2. **Equipment and Technology:** All major process equipment, including commercially proven water treatment and lithium extraction units, will be procured from established suppliers. Equipment is readily available, and specifications have been verified to ensure compatibility with the demonstration-scale process. Integration of these technologies within a single facility represents the primary demonstration goal of the project.

3. **Human Resources:** The project team will include engineers, project managers, and technicians from SPGX with expertise in water treatment, lithium extraction, and industrial construction. Local contractors and labor will be engaged for civil works, steel building erection, and utility connections, ensuring both project feasibility and local workforce participation. Project leadership has prior experience in managing demonstration-scale clean energy projects, providing confidence in timely execution.

4. **Materials and Consumables:** Construction materials for foundations, steel building, piping, and utility extensions are available locally or through regional suppliers, minimizing delays.

Overall, all project resources are readily available, capable, and aligned with the project timeline and objectives. The combination of a prepared site, proven equipment, skilled personnel, and local contractor engagement ensures that the demonstration facility can be constructed, commissioned, and tested effectively within the proposed schedule.

## **Techniques to Be Used, Their Availability and Capability:**

The process of the demonstration-scale lithium extraction facility consists of the following main steps:

### **1. Pre-treatment:**

To protect the DLE adsorption material, produced water is first cleaned of solid particles, emulsified oil, and grease. This step removes ~95% of suspended solids and oil/grease, producing a small amount of sludge that will be safely disposed of.

### **2. Direct Lithium Extraction (DLE):**

Lithium ions are selectively adsorbed onto an active material, then released by washing to produce a lithium-rich solution. Adsorption was chosen over membranes, solvent extraction, or ion-exchange due

to its maturity, commercial availability, proven scalability, and not need any chemicals. The DLE system is capable of processing 15,000 bbl/day with a projected lithium recovery of >90%.

**3. Cleaning:**

The lithium-rich brine still contains impurities such as boron, magnesium, and other divalent ions that are removed. Design capacity is 15,000 bbl/day with targeted impurity removal of >99%.

**4. Precipitation and Drying:**

The concentrated solution is converted to  $\text{Li}_2\text{CO}_3$  by adding  $\text{Na}_2\text{CO}_3$  in a crystallizer. The precipitated  $\text{Li}_2\text{CO}_3$  is washed, dewatered, centrifuged, dried, micronized, and packaged. Production capacity at demonstration scale is 408 tonnes/year, with targeted product purity >99.5%  $\text{Li}_2\text{CO}_3$ , the purity needed for battery manufacturing.

**5. Auxiliary Services / Balance of Plant:**

Auxiliary systems provide necessary utilities and process support, including:

- Ultrapure water RO unit
- Clean water RO unit

Together, these techniques represent a fully integrated lithium extraction process that can be validated at demonstration scale, establishing the foundation for subsequent optimization and commercial deployment.

A generalized summary of techniques to be used in the project and their availability and capability is summarized in Table 1. A more detailed process description can be found in the Appendix section “Supporting Items to the Application” pages 4-6.

<b>Process Step</b>	<b>Technique / Equipment</b>	<b>Purpose</b>	<b>Availability</b>	<b>Capability / Metrics</b>
<i>Pre-treatment</i>	Clarification and Filtration Unit Operations	Remove suspended solids, oil, and grease	Commercially available from multiple suppliers	Removes ~95% solids/oil; capacity 15,000 bbl/day
<i>Direct Lithium Extraction</i>	Adsorption	Selective lithium extraction from brine	Mature commercial technology; multiple suppliers	Continuous operation; lithium recovery >90%;
<i>Cleaning</i>	Multiple Water Purification Technologies	Remove Mg/Ca and boron, concentrate	Commercially available	Impurity removal >99%;
<i>Precipitation &amp; Drying</i>	Solid Product Processing Unit Operations	Produce $\text{Li}_2\text{CO}_3$ product	Commercially available equipment	Target purity >99.5% $\text{Li}_2\text{CO}_3$ ; output 408 tonnes/year
<i>Auxiliary / Balance of Plant</i>	Water Treatment Unit Operations	Supply water for washing and the general process	Commercially available	Produces required water continuously and supports continuous operation

Table 1 Project techniques summary

Such a proposed process is highly competitive from environmental and cost points of view. As presented in Figure 6 of the Appendix section “Supporting Items to the Application”, it can deliver a highly competitive Opex, placing us on the low end of the cost curve (Figure 1).

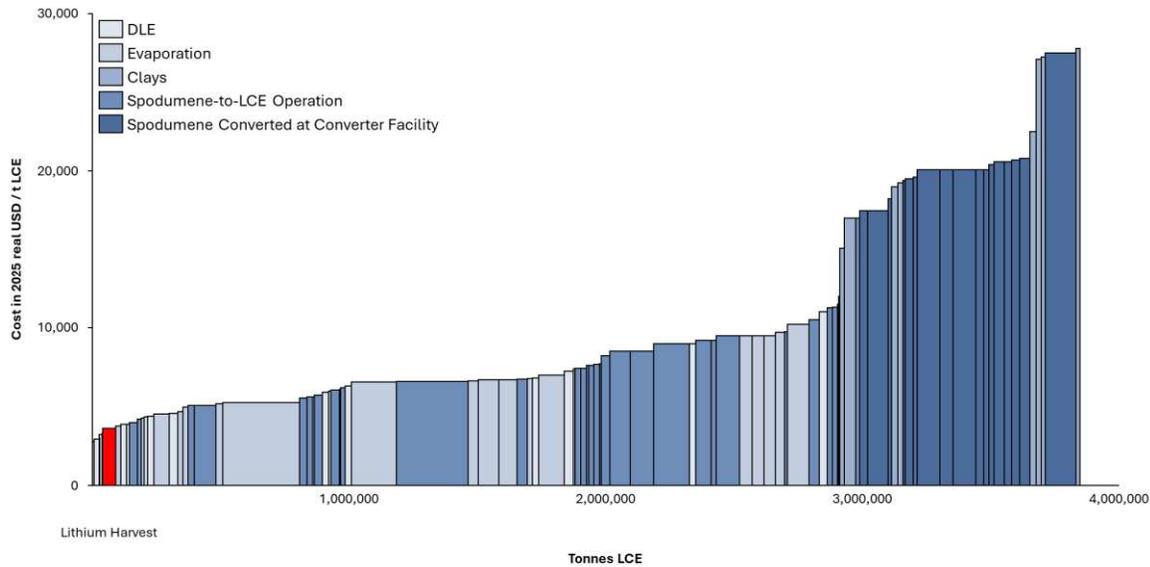


Figure 1 Lithium Cost Curve, Source: Benchmark Minerals Intelligence, Internal research, Investors materials

Additionally, compared to the conventional lithium extraction methods, it delivers significant environmental benefits as listed in Table 2.

	<b>SPGX Solution</b>	<b>Solar Evaporation Brine Extraction</b>	<b>Hard Rock Mining</b>	<b>SPGX Solution: Environmental impact reduction</b>
<b>Lithium feedstock</b>	Produced water	Continental brine	Rock / spodumene	Utilization of process waste instead of raw feedstock
Average footprint per mt of LCE	61 ft <sup>2</sup>	39,352 ft <sup>2</sup>	3,605 ft <sup>2</sup>	Significantly smaller natural land disturbance
<b>Environmental impact</b>	Minimal	Soil and water contamination	Soil and water contamination	Zero discharge operation, any residual waste is disposed of only following the highest environmental standards
Freshwater consumption per mt of LCE	22,729 gallons	118,877 gallons	20,341 gallons	Up to 5 times reduced freshwater consumption
<b>CO2 footprint per ton of LCE</b>	Neutral	3.1 tonne	20.4 tonne	3.1-20.4 tonne lower CO2 footprint per ton of LCE

Table 2 SPGX's process environmental benefits summary, Source: International Lithium Association and internal process engineering studies

### **Environmental and Economic Impacts while the Project is Underway:**

During construction and commissioning, the project will be designed and managed to minimize environmental impacts while generating positive economic effects for North Dakota. Environmentally, the facility will utilize an existing produced water disposal pad, avoiding land acquisition and minimizing disturbance to surrounding areas. Construction activities will follow standard best practices to control dust, noise, and runoff, and all waste materials will be managed according to local and federal regulations. The project's design ensures that no emissions or discharges beyond permitted limits will occur, and integration with the existing produced water system avoids additional strain on local water resources.

Economically, the project will create employment opportunities for local contractors, laborers, and technical personnel during construction, steel building erection, utility extensions, and equipment installation. Local procurement of construction materials, equipment, and services will provide direct economic benefits to regional suppliers and vendors. Additionally, the project will build local technical capacity by engaging workers in advanced water treatment and lithium extraction processes, supporting workforce development and future operations. Overall, while the demonstration facility is under construction and commissioning, the project will stimulate the local economy, provide hands-on experience in a high-tech clean energy sector, and do so with minimal environmental disruption.

### **Ultimate Technological and Economic Impacts:**

Completion of the demonstration facility will mark a critical advancement toward the commercialization of SPGX's proprietary process for lithium extraction from produced water. This project will deliver the first fully constructed and commissioned demonstration-scale facility, validate the integration of modular process units, and confirm compatibility with existing produced water infrastructure. While optimization and performance validation will follow in the next project phase, this facility establishes the physical and operational foundation required to transition the technology from pilot-scale research toward commercial deployment.

Technologically, the facility will demonstrate that lithium can be efficiently extracted from oilfield-produced water using an integrated system of proven water treatment technologies. Designed to process approximately 15,000 barrels of produced water per day, the plant represents a scalable model for future commercial facilities of up to 48,000 barrels per day. Completion of the project will advance the technology readiness level from TRL 6 to TRL 9, demonstrating readiness for full process testing and optimization. The project, therefore, represents a key step toward enabling domestic lithium recovery that supports clean energy production and delivery.

Economically, the project will generate immediate benefits through local job creation and procurement of materials and services within North Dakota. Construction and commissioning are expected to employ 30-50 local temporary workers, with additional indirect benefits for regional suppliers and contractors. Beyond construction, the facility will serve as a platform for training local personnel in lithium extraction operations, preparing a workforce for future commercial sites. Over time, replication of similar facilities across the Bakken region and the whole US could represent investments of \$18–25 million per site,

contributing to economic diversification, job creation, and strengthened energy sustainability within the state.

### **Why the Project is Needed:**

The growing demand for clean energy production and supply has intensified the need for a secure, domestic lithium supply to support energy storage and grid reliability. Currently, U.S. lithium production is limited<sup>1</sup> to a single commercial operation of 5,000 tons of LCE by Albemarle in Nevada<sup>2</sup>, creating dependence on imports and constraining clean energy expansion. North Dakota's oilfields generate large volumes of produced water, representing an untapped resource for sustainable lithium recovery.

SPGX's proprietary process offers a new pathway to extract lithium from produced water using proven treatment technologies. However, this integration has not yet been demonstrated on scale. The proposed project is therefore essential to construct and commission the first demonstration facility, establishing the foundation for future testing, optimization, and commercialization. This initiative will turn an existing industrial byproduct into a valuable clean energy resource while creating local jobs, supporting economic diversification, and positioning North Dakota as a leader in sustainable energy, supporting innovation.

### **STANDARDS OF SUCCESS**

- ***Emissions reduction.***

Implementation of the lithium extraction demonstration facility is expected to minimize environmental emissions, with anticipated reductions of up to 20.4 tons in CO<sub>2</sub> emissions compared to conventional lithium extraction (the CO<sub>2</sub> emissions reduction based on green energy use).

- ***Reduced environmental impacts.***

The proposed process reduces environmental impact by valorizing O&G waste streams before their disposal, producing lithium carbonate without contributing to land degradation, extensive land use, or toxic waste generation as in conventional lithium extraction.

- ***Value to North Dakota.***

A successful demonstration will position North Dakota as a leader in sustainable lithium production from produced water. The project will stimulate local economic activity, create 12 direct and multiple indirect jobs, engage local contractors, and support the development of a skilled workforce in advanced clean energy technologies.

- ***Explanation of how the public and private sector will make use of the project's results, and when and in what way.***

The project will generate technical knowledge and operational insights that can be shared with both public and private stakeholders. This information will support future commercial-scale deployment, guide policy and investment decisions, and increase awareness of sustainable lithium recovery methods.

- ***The potential commercialization of the project's results.***

Demonstrating the integrated facility will lay the foundation for the next phase of testing, optimization, and eventual commercial deployment. A successful demonstration is expected to accelerate commercial readiness within 2-3 years, enabling additional facilities in North Dakota and other U.S. basins.

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<sup>2</sup> Reuters "Exclusive: Trump wants..." 2025 <https://www.reuters.com/business/autos-transportation/trump-administration-seeks-equity-stake-lithium-americas-amid-loan-talks-2025-09-23/>

- ***How the project will enhance the research, development, and technologies that reduce environmental impacts and increase the sustainability of energy production and delivery of North Dakota's energy resources.***

The project validates an innovative process for lithium extraction from produced water, reducing reliance on imported lithium and contributing to the development of critical minerals that support clean energy production and delivery.

- ***How it will preserve existing jobs and create new ones.***

The project will create immediate construction and commissioning jobs and will train local personnel for future operational roles, supporting workforce continuity and building capacity for commercial-scale operations.

- ***How it will otherwise satisfy the purposes established in the mission of the Program.***

By advancing the construction of a demonstration facility for sustainable lithium extraction, the project directly supports the CSEA mission to develop large-scale technologies that reduce environmental impacts, increase energy sustainability, and strengthen North Dakota's leadership in clean energy and critical mineral production.

## **BACKGROUND/QUALIFICATIONS**

SPGX is a water-technology company developing and commercializing sustainable lithium extraction processes from water-based resources. The company's patented process integrates proven, commercially available water treatment and separation technologies into a single, efficient system for producing battery-grade lithium with minimal environmental impact. The process has been validated through extensive engineering design, bench-scale and desktop verification, demonstrating full readiness for deployment. The commercial availability of the individual process units reduces the overall technical risk.

The next step toward commercialization is the construction and commissioning of a 408-ton-per-year lithium carbonate demonstration facility in North Dakota. This plant will recover lithium from oil and gas produced water and serve as the foundation for subsequent operational campaigns. The project does not focus on technology validation, but on establishing the physical and operational infrastructure necessary for full-scale deployment. The plant design is complete, and major equipment items have been specified and quoted for cost estimation. All required permits have been initiated and are pending only final approvals. By structuring development in phases, SPGX aims to manage risk effectively, maintain execution control, and ensure smooth progression toward commercial operation.

The SPGX team combined holds +20 years of experience in water treatment and executive management:

Sune Mathiesen – CEO and Co-founder. Prior to co-founding SPGX, Sune served as CEO, President, and Director of LiqTech International and held senior roles at Provital, Broen Lab, and GPA Flowsystems. He has overseen the sale, construction, and management of over 400 industrial water treatment systems across private and public sectors. Sune provides overall leadership, strategic direction, and capital-raising support for the company and projects.

Paw Juul – CTO and Co-founder. Paw previously served as CEO of LiqTech Water and co-founded Provital in 2009. With a M.Sc. in Biomedicine and extensive experience in membrane and produced water treatment technologies, he has developed several proprietary systems and automated control algorithms

installed in more than 400 industrial plants. Paw will act as the project's Technical Lead, responsible for plant design, process integration, and technical execution.

Thomas Lund Hansen – CFO. Thomas holds a M.Sc. in Chemical Engineering and an MBA from IESE. His experience includes developing large-scale natural resource projects for Rio Tinto and BHP, as well as management consulting with McKinsey & Company on sustainability and life cycle assessment initiatives. He has contributed to global standards for product carbon footprinting (PAS2050).

Internal SPGX resources, such as process and mechanical engineers, will be utilized where appropriate in project execution as well.

This experienced team combines strong technical expertise, operational capability, and financial management, ensuring the successful delivery of the project and establishing a foundation for subsequent demonstration and commercial-scale deployment.

## MANAGEMENT

SPGX will manage and oversee the project using a structured project management framework to ensure that all objectives are met on schedule and within budget. Key elements of management and oversight include:

**Project Leadership:** A designated site based and fully allocated Project Director will be responsible for overall coordination, reporting, and communication with the funding agency. Each major task will have a Task Lead accountable for execution, technical performance, and timely completion, while overall project oversight will be provided by the Project Technical Lead.

**Project Planning and Scheduling:** A detailed Gantt chart and milestone schedule will guide project activities, which will be updated and expanded from the suggested timetable in this application after the proposal is granted. Key milestones will include procurement of equipment, plant construction, commissioning, and initial operational testing.

**Regular Monitoring and Reporting:** Weekly internal progress meetings to track tasks, identify bottlenecks, and implement corrective actions. Monthly management reviews to evaluate overall progress, resource allocation, and budget status. Yearly or Half-year (depending on contract conditions agreed with Clean Sustainable Energy Authority) interim reports submitted to the Commission, summarizing technical progress, expenditures, and any deviations from the schedule.

**Evaluation Points / Performance Metrics:** Completion of major tasks by predefined milestones. Actual expenditure compared to planned costs. Verification that each system component meets design specifications and operational targets. Adherence to environmental, health, and safety regulations. Identification and mitigation of potential risks affecting schedule, cost, or technical outcomes.

**Corrective Actions:** Deviations from the plan will trigger a corrective action review, with adjustments to schedules, resources, or methodology to ensure objectives are achieved. Contingencies have been considered in both project time and budget allocations.

This management approach ensures the project is executed efficiently, progress is measurable, and objectives—including successful commissioning of the demonstration plant—are achieved within the proposed timeline.

The project organizational chart is presented in Figure 2.

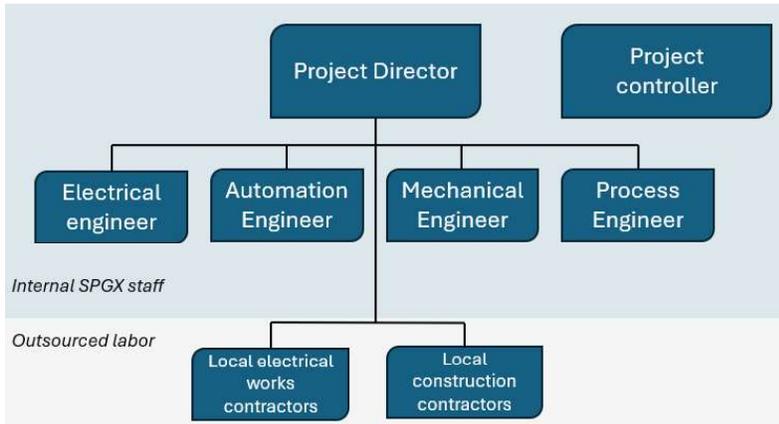


Figure 2 Project organization structure

## TIMETABLE

A visualization of the proposed project timeline, including prior and consequent work estimates, is presented in Figure 3. Parallel execution of project tasks will help minimize project duration. Varying equipment lead times allow installation to start before all items are delivered.

While a detailed project schedule setting forth the starting and completion dates, dates for completing major project tasks/activities, and proposed dates upon which the interim reports will be submitted are detailed in Table 3. All scheduled dates may be adjusted depending on the completion of the grant agreement, in the event that the proposal is awarded.

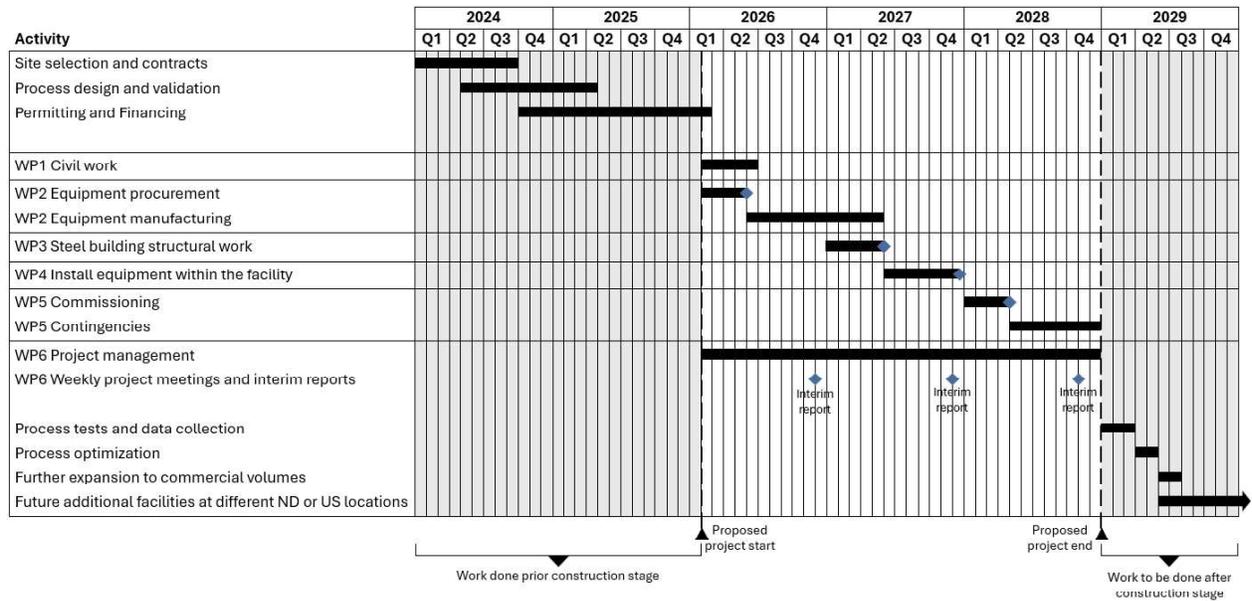


Figure 3 Project schedule

Task	Start Date	Completion Date
<b>Total project</b>	02-01-2026	12-31-2028
<b>Civil work</b>	02-01-2026	07-01-2026
<b>Equipment procurement and manufacturing</b>	02-01-2026	05-31-2027
<b>Steel building construction</b>	01-01-2027	05-01-2027
<b>Equipment installation</b>	06-01-2027	12-15-2027
<b>Commissioning</b>	01-01-2028	04-01-2028
<b>Interim report 1</b>	-	12-15-2026
<b>Interim report 2</b>	-	12-15-2027
<b>Interim report 3</b>	-	12-15-2028

Table 3 Project timetable

## BUDGET

Project Expense	Associated Grant	NDIC Loan	Applicant's Share (Cash)	Other Project Sponsor's Share	Total
Pre-treatment equipment	\$808,136.79	-	\$808,136.79	-	\$1,616,274
DLE equipment	\$1,464,639.29	-	\$1,464,639.29	-	\$2,929,279
Cleaning	\$743,793.60	-	\$743,793.60	-	\$1,487,587
Precipitation and drying	\$1,094,665.00	-	\$1,094,665.00	-	\$2,189,330
Auxiliary systems/Balance of plant	\$606,718.56	-	\$606,718.56	-	\$1,213,437
Tanks	\$151,424.50	-	\$151,424.50	-	\$302,849
Control system	\$395,000.00	-	\$395,000.00	-	\$790,000
Electrical work onsite	\$325,000.00	-	\$325,000.00	-	\$650,000
Construction	\$1,648,237.50	-	\$1,648,237.50	-	\$3,296,475
Analysis instrumentation	\$75,000.00	-	\$75,000.00	-	\$150,000
Freight	\$269,817.50	-	\$269,817.50	-	\$539,635
Contingencies (17%)	\$1,516,486.55	-	\$1,516,486.55	-	\$3,032,973
Project owner cost	\$425,000.00	-	\$425,000.00	-	\$850,000
<b>Total</b>	<b>\$9,523,919.29</b>	<b>-</b>	<b>\$9,523,919.29</b>	<b>-</b>	<b>\$19,047,839</b>

The requested funding is essential to complete all aspects of the demonstration plant, including site preparation, procurement of major process equipment, mechanical and electrical installation, commissioning, and project management. Each expense directly supports the construction and operational readiness of the facility.

If less funding is available than requested, the project's objectives, including completion and commissioning of a fully operational demonstration facility, would not be achievable within the proposed schedule. While the facility could still be constructed, the timeline would likely be significantly extended beyond that outlined in the project plan.

The project will be fully matched with internal capital from SPGX, covering 100% of the non-CSEA funding portion, and 50% of the total project cost. Documentation of the company's available capital and commitment to support this project will be provided before disbursement, in compliance with CSEA 3.02.

## **CONFIDENTIAL INFORMATION**

All information requested to be treated confidentially was placed in the separate Appendix document provided together with the main application document named "SPGX Application Appendix\_CONFIDENTIAL" including the request for confidentiality.

## **PATENTS/RIGHTS TO TECHNICAL DATA**

SPGX (the applicant) holds Patent No. DK181523 for the process used in this project, and has a pending U.S. patent for the same process. All intellectual property generated as part of this project—including inventions, improvements to the patent process, technical data, trade secrets, and any software or documentation—will remain the property of SPGX.

SPGX acknowledges that any inventions or patents developed under the Program will be subject to the provisions of CSEA-6.03 and CSEA-6.04. SPGX will retain full ownership of all intellectual property developed through the project. The State of North Dakota will have a non-exclusive, royalty-free right to practice such inventions for governmental purposes, and the applicant will make commercially reasonable efforts to offer North Dakota manufacturers fair market-value, royalty-bearing licenses to use any resulting technology, as required by the Clean Sustainable Energy Authority program.

## **STATE PROGRAMS AND INCENTIVES**

SPGX has not participated in any programs or received incentives from the State of North Dakota within the last five years.