



# Climate Advisory Services

*Do you need to understand your climate-related risks? Do you need to develop climate-related roadmaps or set climate action goals? Our climate advisory team can help you every step of the way.*

# Introduction

Do you feel the urgency? We do. Climate change continues to be top of mind, not only with its impacts on our infrastructure and communities but also in understanding our contributions and actions to help mitigate.

So how do we become more resilient and adaptable? What can we do to turn the tide on climate change?

First, we help our clients foresee the potential impacts climate change can have on their projects—through climate scenario analysis and climate change risk assessments. Next, we guide them through resilience and adaptation planning, helping them to prepare for a future of climate uncertainty.

Finally, we help them understand how their actions impact climate change, and the value mitigation programs can offer. More and more employees, clients, and investors are requiring organizations to be transparent about their climate change action plans. By helping our clients establish environmental, social, and governance (ESG) goals, we can then help them inventory their current state, develop mitigation plans, benchmark future progress, and reduce their climate impacts.

Stantec's systems-based climate advisory services approach empowers our diverse range of design and consulting professionals with the expertise they need to help clients see projects through a climate lens—and then act on what they find.

Only by addressing climate change today can we create the resilient and sustainable communities of tomorrow.

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## **Adaptation:**

**In human systems, the process of adjustment to actual or expected climate and its effects to moderate harm.**

## **Resilience:**

**The capacity of social, economic, and environmental systems to cope with a hazardous event, such that they maintain their essential function and capacity for adaptation.**

## **Mitigation:**

**A human intervention to reduce emissions or enhance the sinks (storage) of greenhouse gases.**

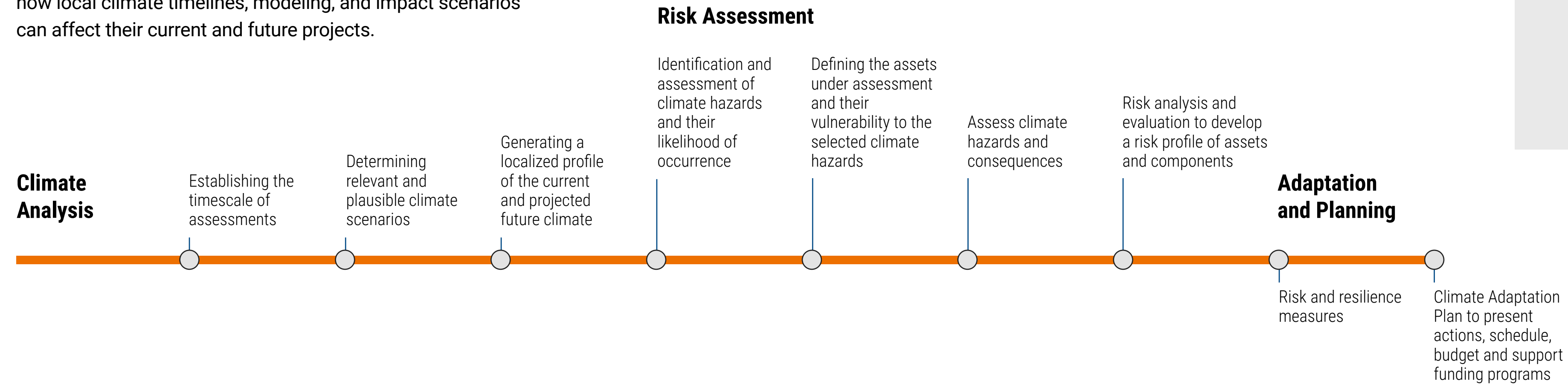
## **Sustainability:**

**A dynamic process that guarantees the persistence of natural and human systems in an equitable manner.**

# Our Services

## CLIMATE ANALYSIS

By understanding the role climate plays—past, present, future—we can better support our clients with understanding how local climate timelines, modeling, and impact scenarios can affect their current and future projects.



## CLIMATE RISK ASSESSMENTS

Our collaborative approach to assessing climate risk provides our clients with a deeper understanding of the challenges facing their projects. Stantec has developed a climate risk assessment approach based on ISO standards that are scaleable to any project. We also use other industry tools including PIEVC Protocol, First Nations Infrastructure Resilience Toolkit, Better Places Toolkit, and Climate Lens.

## RESILIENCE AND ADAPTATION PLAN

Once the climate change risk assessment is complete, the next step is to focus on the elements at highest risk and identify how to reduce the risk given future climate uncertainty. Resilient solutions can range in complexity and cost, from enhancing operations and maintenance activities, developing resilient design or modifications that adapt to adapt to the changing climate.

## Climate impacts our

1. Property
2. Lifestyle
3. Personal Health
4. Resources
5. Economy

# Establishing a successful ESG program

With increased urgency, our clients continue to look to our climate advisory services as they navigate and develop their Environmental, Social, and Governance (ESG) programming. Across all sectors, there is increased ESG related pressures from stakeholders, employees, and investors to access capital.

Understanding climate scenarios, performing climate risk assessments, and developing adaptation plans are all components of a strong ESG program. This work can even help support access to grants and funding from various government sources.

Many companies are trying to act quickly—going from zero to fully implemented. But, developing a solid ESG program requires time to establish goals, develop a successful implementation plan, identify benchmarks to measure progress, and generate transparency through reporting. None of which happens overnight.

Our multidisciplinary team of experts can help you establish and navigate the components of a solid ESG program. →

# ESG

## Drivers

- Responsible investment
- Long-term performance and value
- Regulations
- Risk management
- Resilience
- Competitiveness
- Disclosure requirements

## Environmental

- Releasing initiatives/ investments to support low carbon opportunities
- Recognizing the energy transition as a valuable opportunity
- Material topics include: water management/scarcity, biodiversity, hazardous waste, plastic waste
- Greenhouse Gas (GHG) emissions quantification, verification, audits, reduction, inventories, and net zero planning

## Social

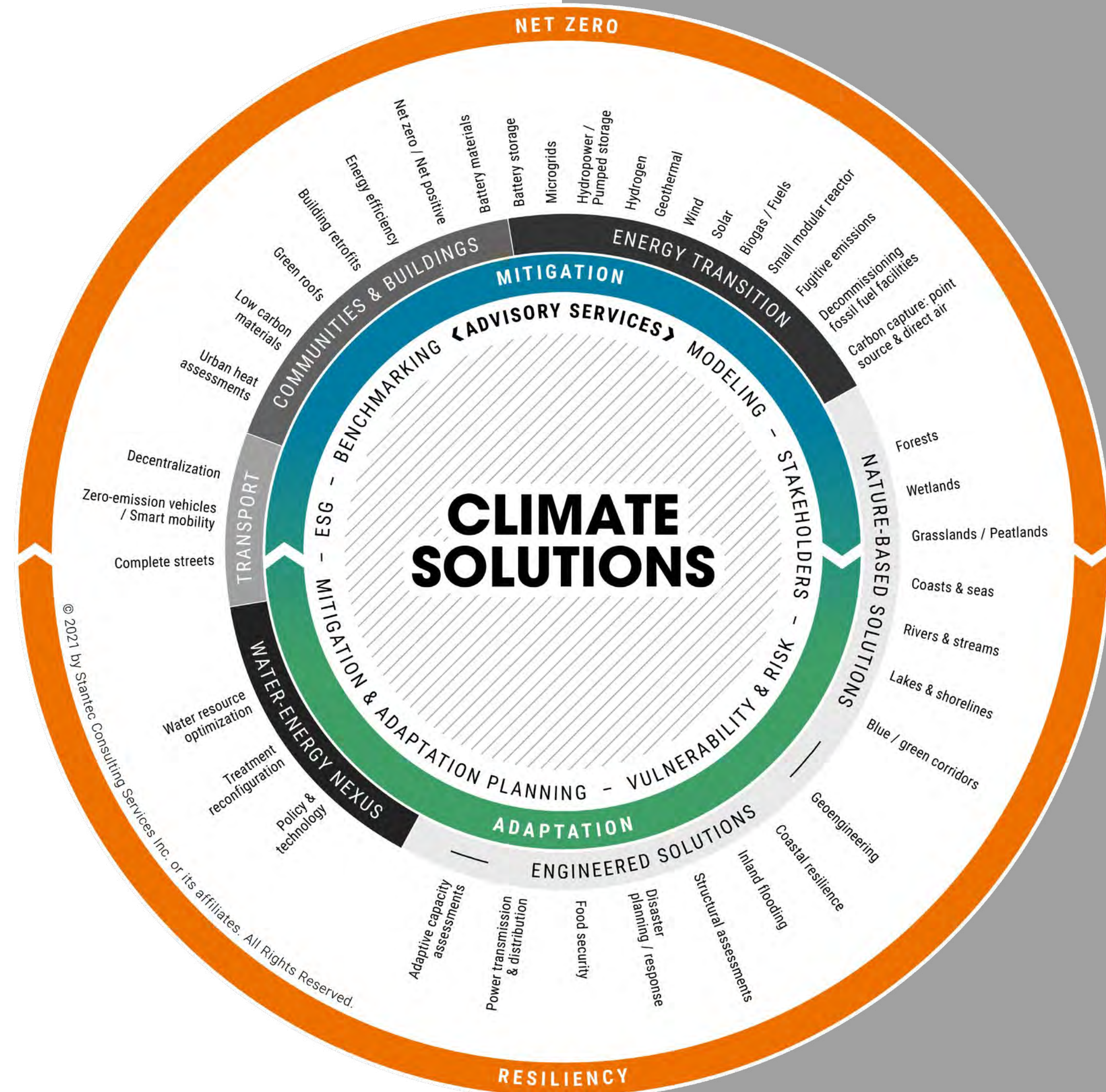
- Disclosing contributions to the UN Sustainable Development Goals
- Disclosure of commitments or policies on human rights or labor and net zero planning

## Governance

- Board Level or Executive Management Level oversight of ESG issues
- Mandatorily/voluntarily disclosing the integration of climate-related risk as part of shareholder demand or financial regulations such as Task Force on Climate-Related Financial Disclosures (TCFD)

# Our approach to Climate Solutions

We have been providing services related to climate change planning, mitigation, and adaptation for decades. Through this experience, we have learned that our greatest influence on improving climate outcomes stems from the creative, innovative **Climate Solutions** we provide to our clients and communities.



# Insights

We recognize that to fulfill our promise to design with community in mind, we need to consider climate change in our project work.

Our global teams supported

**\$1.02B**

in environmental and sustainability-related projects in 2020.



# Thought Leaders

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## **ANCA ANDREESCU**

Project Management  
Lead Adviser (Belgium)

Underdeveloped countries and island states are extremely vulnerable to climate change. Anca helps build resilient communities by incorporating local needs and traditional knowledge.

[Learn more](#)

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## **ANDREW CRAIG**

Practice Leader, Flood Risk  
Management (New Zealand)

In this Q&A, Andrew outlines the importance climate hazard assessments have on the visitor experience and future-proofing of remote tourist destinations.

[Learn more](#)

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## **NICOLE FLANAGAN**

Climate Solutions Leader  
(Canada)

How will the Task Force on Climate-related Financial Disclosures framework impact you? Nicole shares her insights on the benefits of transitioning to a low carbon economy.

[Learn more](#)

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## **DEVYANI KAR**

Senior Climate Resilience Scientist  
(United States)

Climate-related natural disasters are now more commonplace. Devyani ensures climate analysis and risk assessment area a key part of resilience planning.

[Learn more](#)

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## **VIRGINA KING**

Senior Consultant  
(United States)

Virginia helps her clients align with the UN Sustainable Development Goals through natural capital and ecosystem restoration.

[Learn more](#)

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## **CHRISTOPHE LEROY**

Climate Solutions Leader  
(Continental Europe)

Island nations will be affected by sea-level rise, coastal erosion, increasing temperatures, and extreme weather. Christophe outlines how strategy and policy support resilience.

[Learn more](#)

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## **LUKE LONG**

Country Manager  
(China)

Social value is becoming a major regulatory component for new projects. Sharing best practices, Luke helps clients and investors navigate the ins and outs of ESG.

[Learn more](#)

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## **BRENDAN PLAYER**

Environmental Planner  
(United States)

Nature-based solutions help combat global climate change through carbon sequestration and action ESG goals. Brendan explores this topic further in his recent blog.

[Learn more](#)

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## **NORMAN SHIPPEE**

Climate Scientist  
(Canada)

What is the likelihood of something climate-related happening to my project? Norm talks about hardening your infrastructure through probability and consequence factoring.

[Learn more](#)

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## **NESLIHAN SÖNMEZ**

Business Development Director  
(Turkey)

Supporting the strategic development of the EU's renewable energy sector, Neslihan developed a roadmap to ensure continued growth for this sector.

[Learn more](#)

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## **YASMEEN SULTANA**

Principal, Environmental Services  
(United States)

GHG emissions reporting is becoming more stringent with events like COP26. Looking at recent changes in one state, Yasmeen talks about the benefits of acting first.

[Learn more](#)

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## **FRANCIS WIESE**

Science Director, Climate Solutions  
(Global)

Climate change is everywhere, all the time, affecting everyone. Francis brings the newest science and innovative approaches to tailor climate solutions.

[Learn more](#)

# City of Cambridge Climate Adaptation Plan

2019

PEOPLE · PLACE · PROSPERITY

## Our Projects

### CITY OF CAMBRIDGE CLIMATE ADAPTATION PLAN

Canada

Cambridge is known for its surrounding rivers – Grand and Speed Rivers – which help drive its economic prosperity. Throughout Cambridge’s history, they have learned to adapt to river flooding and other related emergencies. However, as our world faces the growing issue of climate change, Cambridge is expecting to face more intense and destructive spring flooding alongside longer and more intense summer heatwaves. As such, the City of Cambridge is taking the necessary steps to prepare itself for and adapt to the impacts of climate change with the development of their Cambridge Climate Adaptation Plan.

Stantec was instrumental in both helping the City of Cambridge access federal adaptation planning funding and undertaking the essential work to create their climate adaptation plan. This work was carried out over a year-long process of engagement with City staff and departments, research, climate data retrieval and future projections, and workshops to aid in the development of risk profiles for each City department. This resulted in the creation of a comprehensive list of action items that the City is tasked with implementing, a framework to organize their actions, and a set of guiding principles to support their advancement.

### CORPORATE SOCIAL SUPPLIER RESPONSIBILITY PROGRAM

Worldwide

Increasingly, companies are looking to their supply chains to better understand how manufacturing practices affect their ESG programs. This includes ensuring a well-run and safe workplace. However, international manufacturers do not have the resources to navigate this. Our work, through the Corporate Social Supplier Responsibility audit program (CSSR), aims to help with that problem.

As part of their ESG program, our client wanted to promote their ethical culture to their stakeholders by selecting only reputable suppliers, making sure that any merchandise produced (and displaying their brand) was beyond reproach. Through the CSSR, only manufacturers who have passed an audit are allowed to supply our client.

All suppliers are evaluated on health and safety performance, working conditions, social wages, and overtime records and policies. This tool has helped protect people employed in countries with poorer working conditions as well as preserved corporate image, brand, and reputation for clients. Additionally, the audits have made steps forward in protecting the environment, preventing social distress, reducing accidents, and keeping resilient against natural disasters.

Our team has conducted audits all across the world including over 150 in Europe, Middle East, and Africa, 40 in Latin America, 30 in India, and 280 in China.



## SUPPORT FACILITY FOR THE DEVELOPMENT OF INDCS FOR SUBMISSION TO UNFCCC

Belgium

In response to some countries in Africa that've expressed the need for assistance with the development of their Intended National Determined Contributions (INDC) for submission to the United Nations Framework Convention on Climate Change (UNFCCC), we've begun supporting 10 countries, with particular attention paid to Least Developed Countries and Small Islands Developing States, in their development of an INDC.

Through our climate advisory service offering, we provided support through a four-stage process involving diagnostics, support to institutions, mitigation or adaptation action plans and INDC drafting, and communication. We first begin with the development of an inception report that highlights key actions to be undertaken. This report guides our implementation of a diagnosis phase, literature review, and preparation of potential options. Next, we establish an inception workshop, organize consultation sessions, and support capacity-building of the local technical team. Following the first two stages, we develop mitigation potential projections and adaptation options to support the delivery of draft INDC outlines and the finalization of those drafts in line with established timelines. Finally, we provide feedback on the INDC elaboration process by documenting lessons learned, best practices, and feedback on the outputs and outcomes of the process.



## GREEN STAR, ADAPTATION & RESILIENCE PLAN

Australia

The newly completed Taronga Institute of Science and Learning facility (2018) was driven by Taronga's sustainability vision, increasing its capacity to help secure a shared future for wildlife and people. Stantec completed a Life Cycle Assessment (LCA) and Climate Adaptation Plan (CAP), along with achieving a 6-Star Green Star Design & As-built – v1.1 – World Leadership.

The CAP ensures the project responded appropriately to the projected impacts of climate change. The climate change scenarios were developed in accordance with CSIRO Projects, including the specific years of 2040 and 2060. The project site was classified to hold a 'medium' projected risk of impacts over the projected scenarios. In response to identified project risks, the following design initiatives were included within the project to address the projected impacts.

1. Inclusion of 67.2kW solar PV system to offset greenhouse emissions and provide operational energy savings, future proofing the building.
2. On-site rainwater storage capacity was included to offset potable water demand and ensure future-proofing in the event mains potable supply was impacted.

## 100 RESILIENT CITIES: ASSESSMENT OF THE ALA WAI FLOOD MITIGATION PROJECT

United States

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Like many locations around the world, the Hawaiian islands are feeling the effects of climate change. Water continues to be one of the main challenges for the island of Oahu. Understanding climate-related flooding is critical in order to protect residents and maintain the state's tourism economic engine.

The City and County of Honolulu (CCH) retained Stantec on a pro-bono basis to review proposed USACE feasibility study level designs and provide general support services, as part of the adaptation planning, including helping to identify opportunities for place-making and green infrastructure. Supporting adaptation and risk mitigation planning, our team worked closely with the CCH Department of Design and Construction to produce multiple alternatives for the design and location of canal areas, walls and levees, and park areas. Our designs also considered the incorporation of ongoing complete streets planning alongside CCH goals for multi-modal transport.

Concepts were provided for greening and increased safety for middle and upper watershed features. We also provided alternative conceptual designs to increase normal and higher frequency flood flows.

Our conceptual alternative designs and adjustments could reduce the risk to approximately 65,000 residents and an additional 200,000 transient daily visitors.



## FIRST NATIONS INFRASTRUCTURE RESILIENCE TOOLKIT

Canada

In Ontario, extreme weather continues to cause disruptions and damage to essential community infrastructure. The Ontario First Nations Technical Services Corporation (OFNTSC) worked with our team on developing a toolkit to help First Nations communities manage and mitigate future effects of climate change on their infrastructure and people.

The toolkit provides guidance on how to incorporate climate risks into sound asset management practices to better plan maintenance, repairs, and replacement of community assets. It was adapted from Engineers Canada's Public Infrastructure Engineering Vulnerability Committee (PIEVC) protocol to make it applicable to First Nation communities. By using Traditional Knowledge and available infrastructure data (ACRS and ICMS databases), the toolkit is scalable, adaptable, and can be applied to any First Nations communities throughout Ontario and beyond.

The toolkit was developed in collaboration with three First Nations communities: Mohawk Council of Akwesasne, Moose Cree First Nation, and Oneida Nation of the Thames, and won the Consulting Engineers of Ontario award of merit in 2019.



## SCOTTISH WATER BIO-RESOURCES STRATEGY - SUPPORTING GROWTH OF THE CIRCULAR ECONOMY

Scotland

Our client-centered approach to Strategic Environmental Assessment (SEA) provides strategic advice and technical inputs to maximize the effectiveness and sustainability benefits on emerging climate action plans and ESG strategies.

As part of M2, a joint venture of Stantec and Mott MacDonald, we undertook a comprehensive review of Scottish Water's National Sludge Strategy, originally published in 2006. Our review led to the development of a new bioresources strategy, which defines sustainable wastewater and water sludge management for Scotland to 2040. The strategy includes the formulation of regional and national bioresource treatment and recycling options that optimize climate action goals through transportation, treatment, energy generation, and sustainable recycling whilst balancing risk.

During the development of the bioresource strategy, we carried out a full SEA in accordance with best practice, national guidance, and the requirements of the Environmental Assessment (Scotland) Act 2005. This included the provision of all statutory reporting as well as general environmental advice to the client.

With the SEA process in place as a plan-making tool, Scottish Water was better positioned to address environmental effects resulting from the management and treatment of Scotland's wastewater. The next step? Supporting the growth of a circular economy.



## **FUNDING & ECOSYSTEM RESTORATION TO ENHANCE LAKE MICHIGAN COASTLINE HABITAT**

United States

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Warming climate, changing precipitation patterns, and invasive pests are degrading the ecological health of critical habitat needed for migratory and resident birds and wildlife throughout the Midwest. These challenges are compounded by existing fragmentation and historic loss of forest cover. To address these threats to coastal forests and riparian habitats, we're working with Lakeshore Natural Resource Partnership (LNRP) and various client, municipal, and non-profit partners to develop and implement climate adaptation strategies across sites on the western Lake Michigan shoreline.

Our strategy focuses on the installation of diverse tree species and controlling invasive species on publicly accessible conservation lands. The project will enhance forested habitat connectivity, support habitat for migratory birds, and maintain shading in riparian areas, where cold water streams are increasingly vulnerable to warming conditions. Our grant funding team played a key role in securing \$1.3 million for this project from two US Forest Service - Great Lakes Restoration Initiative grants and one grant from the Wildlife Conservation Society's Climate Adaptation Fund. These grants were leveraged to secure additional grant funding for several of the sites.

Once complete, this project will take great steps forward in restoring and maintaining Wisconsin's diverse and resilient natural communities.

## **KATI KI BEACH COASTAL RISK ASSESSMENT AND REPAIR TO HIGHWAY 1 ON THE OTAGO COAST**

New Zealand (cover image)

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Katiki Beach adjoins State Highway 1, sandwiching it between rail corridor and coastal cliffs with 20-metre drops. With difficult detour options, this 'lifeline route' is crucial to the local economy.

Taking into account various climate scenarios, we helped the New Zealand Transport Agency with data collection, risk management, improved road safety and resilience, and protection of this route.

We surveyed coastal regression and found that, on average, the cliffs retreat almost one meter closer to the road every 10 years. With this information, we triaged the beach length and identified 30 sites needing protection. We also worked with the Department of Conservation and the Historic Places Trust, to protect the beach's nesting penguins and Moeraki Boulders.

Using Light Detection and Ranging (LIDAR) survey data, we provided accurate regression modeling and detailed surface analysis for design considerations. Where erosion put the highway directly at risk, we installed rock protection from the foot of the cliffs to 3.5 meters above sea level.

Adapting and mitigating future climate-related challenges will ensure the long-term sustainability of the road, coast, and ecosystem.

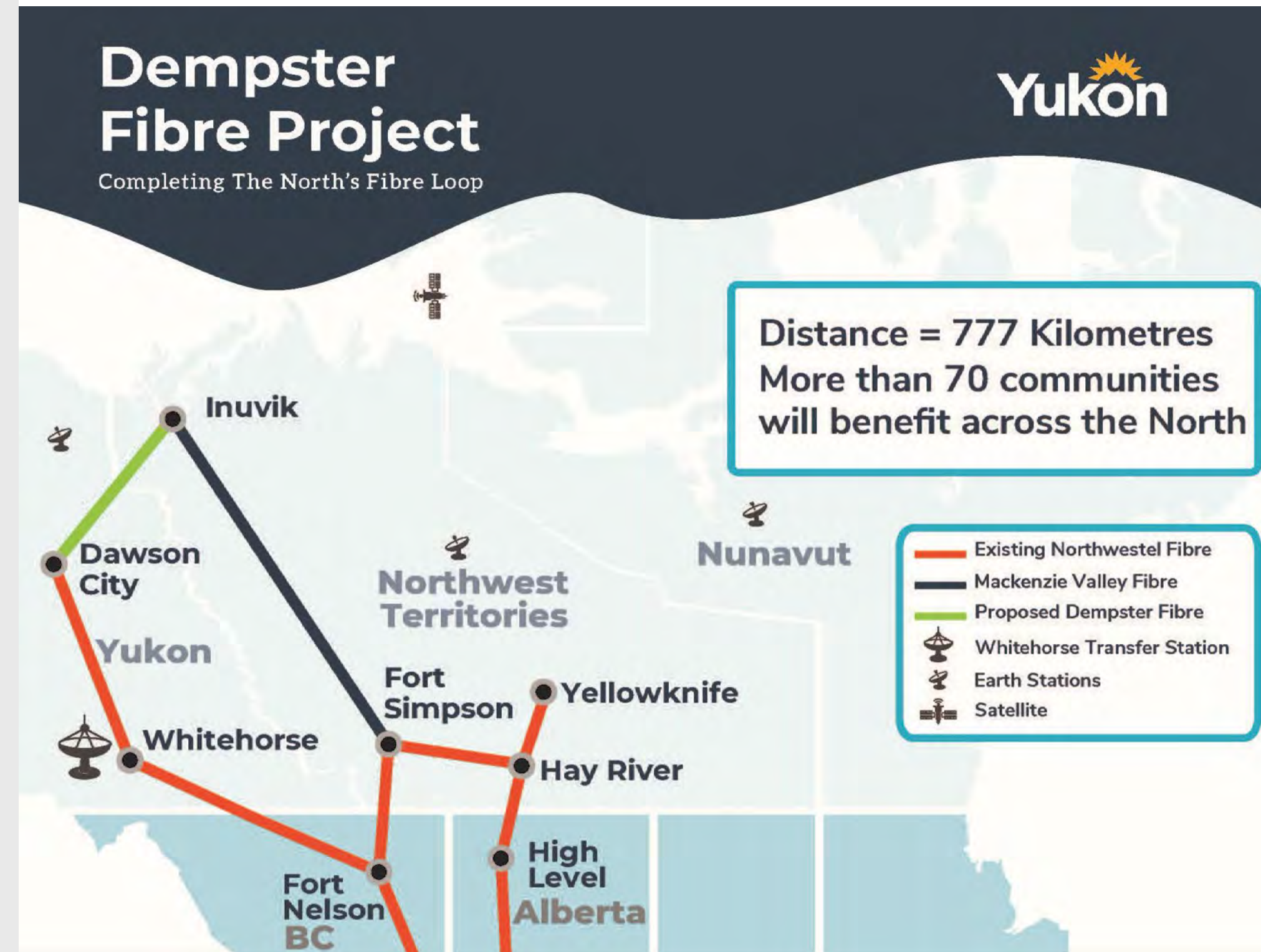
## DEMPSTER FIBRE LINK CLIMATE CHANGE RESILIENCE ASSESSMENT

Canada

The Government of Yukon, in partnership with NorthwesTel, is developing the Dempster Fibre Project, a 777 kilometer fibre optic line, which will follow the Dempster Highway from Dawson City, Yukon to Inuvik, Northwest Territories. Its development seeks to connect over 70 communities in the North with improved internet quality and redundancy. The proposed highway route is characterized by rapid changes in environmental conditions, from sporadic permafrost in the subarctic region in the south, to continuous permafrost towards the northeast.

Stantec was retained to provide a Climate Lens Assessment using Infrastructure Canada's Climate Lens General Guidance v1.1. The objective is to identify the climate risks to the project at a broad systems-level using a future climate scenario, and to assess the possible climate-related impacts that could affect the project over its construction and operational life.

This assessment identified ten climate parameters that could pose hazards to the project's systems. The results showed that extreme high-intensity rainfall, sustained rainfall, extreme high temperatures, dry spells, and increased mean seasonal temperatures posed the greatest risk to the fibre optic line.



## EU-CENTRAL ASIA ENVIRONMENT, CLIMATE CHANGE AND WATER COOPERATION (WECOOP)

Central Asia

The EU-Central Asia Environment, Climate Change and Water Cooperation (WECOOP) was created to help Central Asian countries move closer towards their sustainable development and circular economy ambitions, including promoting green investment in Central Asia.

The objectives of this initiative are to enhance environment, climate change, and water policies at national level and approximate them to EU standards. It's also aimed at promoting informed green investments in several sectors across the region, taking environment and climate change concerns into consideration. To facilitate policy dialogue, we support the preparation and organization of high-level conferences, meetings of the regional Working Group on Environment and Climate Change and national policy dialogue meetings. To promote green investments, we have prepared an investor guide, and helped set up and maintain an online Regional Knowledge Centre—we are now also assisting the identification and preparation of bankable projects.

With this work, we are helping Central Asian countries pave the way for a more sustainable, environmentally friendly future.



## **TURKISH RESIDENTIAL ENERGY EFFICIENCY FINANCING FACILITY**

Turkey

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As a result of new building energy efficiency legislation and the European Union Energy Performance of Buildings Directive, Turkey's residential building sector needs some support. As the country transitions toward energy conservation and renewable energy, the Turkey Residential Energy Efficiency Financing Facility (TuREEFF) is poised to help.

TuREEFF was developed by the European Bank for Reconstruction and Development (EBRD) and supported by the Clean Technology Fund (CTF) and the European Union (EU). The program combines \$270 million in loans to provide financing to residential consumers who wish to invest in energy efficiency and renewable energy measures in their homes. Our role? As part of our climate advisory services, we are supporting TuREEFF's climate action plan by helping prospective borrowers to identify and develop energy-efficient projects and prepare successful loan applications for submission to TuREEFF. This assistance is free of charge for the borrowers and is carried out with funding by the European Union.

TuREEFF has become a financing vehicle, operating in conjunction with the Government of Turkey's 'Urban Transformation Plan'. With financing options for sustainable energy measures, the benefits of energy efficiency and the expansion of renewable energy have never been more promising.



Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. This allows us to assess what's needed and connect our expertise, to appreciate nuances and envision what's never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

Stantec trades on the TSX and the NYSE under the symbol STN. Visit us at [stantec.com](http://stantec.com) or find us on social media.

**Design with community in mind**