NGen Next Generation Manufacturing Canada

Automotive Zero-Emission Manufacturing Challenge Project Application Guide

Version 1.5: September 21, 2021

Key Information on Supercluster Project Funding

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OVERVIEW

The automotive industry is currently undergoing one of the most significant transformations in its history, shifting from fossil-fuel-based powertrains to low/zero-emission powertrains. This transformation will usher in prime opportunities for regional markets, OEMs, and suppliers to lead the revolution.

The North American production of traditional powertrain components will decrease significantly over the next 10 years. Production of EV powertrain components, on the other hand, is expected to grow from $6B USD in 2019 to $26B USD by 2030.

The next few years will define Canada's role in this transformation. Building on Canada's research, technology, and manufacturing strengths, creating new materials and components, together with advanced manufacturing practices, processes, and technologies, promise many new business and investment opportunities. There will be many positive social and environmental impacts as well, such as driving down GHG, particulate, and VOC emissions, creating sustainable materials, reducing land degradation and water use, improving energy management, and reducing manufacturing footprints - all of which will enhance the position of Canadian companies in the automotive supply chains of the future.

Next Generation Manufacturing Canada (NGen) is committed to building world-leading advanced manufacturing capabilities in Canada. NGen will invest up to $20 million in projects with an industry match of at least 50%, resulting in at least $40 million of new advanced manufacturing innovation spending for the automotive industry.

THE CHALLENGE GOALS

NGen is looking to invest in innovative, business-led, collaborative projects that strengthen Canadian capability and develop Canada's supply chain for battery and fuel cell electric vehicles.

Projects must target the manufacturing scale-up of technologies for road-based vehicles.

Advanced manufacturing is the key to unlocking Canada's potential in this globally competitive market. Production capabilities must be at the cutting edge, the most efficient, the highest quality, and the greenest to enter this market, gain market share and stay competitive.

THE CHALLENGE GOALS

NGen focuses on the development and deployment of advanced manufacturing processes to improve and scale up production capabilities. Projects must focus on these advanced manufacturing capabilities and are expected to:

- Create jobs.
- Create value for the Canadian economy.
- Develop new processes for Zero-Emission Vehicle value chains, from crushing ore, mineral refinement, materials development, manufacturing scale-up of components, systems, and final assembly, and recycling.
- Develop new clean and ethical processes to manufacture EV products that create a competitive advantage for Canada.
- Reduce the overall cost of manufacturing EV products in Canada.
- Increase the quality of the products being manufactured.
- Reduce overall operational emissions.
- Build flexibility into production processes.

The deadline for submitting a project for screening is 7th October 2021 5:00pm EDT

WHO IS ELIGIBLE TO APPLY?

Any organizational member of NGen (Canada's Advanced Manufacturing Supercluster) may apply for project funding or apply to be considered as a partner or co-investor in projects.

Register as an NGen member at **www.ngen.ca/join**.

Recipients of Supercluster funding must be incorporated in Canada.

Funding recipients must be either for-profit organizations or not-for-profit organizations that facilitate and fund research and development and whose funding is received primarily from private-sector organizations.

Other publicly funded not-for-profit organizations, post-secondary institutions, federal Crown corporations, and government departments or agencies are not eligible to receive Supercluster funding directly. However, they may contribute to projects or be sub-contracted by funded recipients to carry out project activities.

WHO IS ELIGIBLE TO APPLY?

International organizations (offshore companies and research organizations without an incorporated presence in Canada) may also participate in Supercluster projects, but any project activity undertaken by these organizations will not be eligible for Supercluster funding.

PROJECT ELIGIBILITY CRITERIA (SCOPE)

NGen will invest up to $20 million in projects with an industry match of at least 50%, resulting in at least $40 million of new advanced manufacturing innovation spending for the automotive industry.

NGen projects must be focused on developing new Advanced Manufacturing capabilities.

The projects must be transformative, applied, enduring, and collaborative and meet the scope criteria areas below:

- **Transformative**, involving the development of advanced manufacturing capabilities with the potential to confer a significant global competitive advantage to Canadian industry.

- **Collaborative**, projects need to demonstrate meaningful collaboration with a minimum of two Canadian partners – a lead and a partner – developing industry relationships, building trust, and sharing knowledge, risk, investment, and the resulting benefits. At least one small or medium-sized (SME) company with fewer than 500 employees globally must be included as a partner. Collaboration with other companies, academic and research organizations is also encouraged. Companies outside the automotive sector that can bring technical expertise and knowledge to a consortium are also welcome to participate.

- **Enduring**, leaving a legacy in skills development, tools, testbeds, intellectual property, and/or business knowledge for Canada's advanced manufacturing ecosystem beyond the partners and timeline of the project.

- **Applied**, focused on solutions, with the potential to generate significant commercial and economic benefits, including jobs maintained and created.

PROJECT ELIGIBILITY CRITERIA (SCOPE)

Project Areas

NGen will invest in innovative, collaborative advanced manufacturing R&D projects for road-based Battery and Fuel Cell Electric Vehicles.

The challenge is aimed at supporting the development of manufacturing capabilities in the following areas only:

1. Processing, refinement, and production of critical minerals and materials for electric vehicles,
2. Traction battery including associated components and systems,
3. Power electronics and associated components and systems,
4. Electric machines and associated components and systems,
5. Fuel cell (Full system),
6. Significant Vehicle Light Weighting,
7. Significant system efficiency gains to achieve increased vehicle range and performance.

Assessments will be conducted by panels of independent industry experts, with projects ranked in order. NGen funding is limited. NGen aims to fund the highest quality projects based on an independent assessment of industry experts. NGen reserves the right to take a portfolio approach across the challenge scope areas.

Project Requirements

All projects must demonstrate the development or application of an advanced manufacturing technology or process.

Projects must be incremental to the regular business undertakings of the applicants. Applicants must demonstrate that the proposed project is new or that the funding will be used to expand the scope or scale of the proposed project. Use Question 7 in the application to describe how the project is incremental.

Projects must demonstrate that they are Collaborative, Transformative, Enduring, and Applied.

Projects must be developing advanced manufacturing capabilities for road-based Battery and Fuel Cell Electric Vehicles in the following areas:

1. Processing, refinement, and production of critical minerals and materials for electric vehicles,

2. Traction battery including associated components and systems,
3. Power electronics and associated components and systems,
4. Electric machines and associated components and systems,
5. Fuel cell (Full system),
6. Significant Vehicle Light Weighting,
7. Significant system efficiency gains to achieve increased vehicle range and performance.

Projects must target the creation of new manufacturing processes or manufacturing scale-up of technologies for road-based vehicles.

At least one SME partner needs to be involved (applicants are strongly encouraged to include more SME partners as well as academic and research partners). An SME is defined as an organization that has less than 500 employees globally.

Projects must have the potential to deliver significant commercial benefits and jobs both within the consortium and beyond.

The total amount of the project should be between $500K and $8 million. Eligible expenses will be reimbursed at a funding rate of 50%.

Projects are expected to last between 12 and 16 months. They must be completed and claims for eligible expenses must be made by the 17th of February 2023, with funding fully paid to partners by the 31st of March 2023.

Project participants must have robust project management processes in place, including a project plan that can demonstrate and convince the assessors that the project can be completed within the timeframe listed above, with final claims made by the 17th of February 2023. Project plans need to show well-defined work packages, milestones, timelines, and estimated costs.

Projects are expected to demonstrate a clear path to commercialization. Projects with a vehicle manufacturer (VM) or a tier 1 business (one supplying components or services directly to a VM) that can support this activity would strengthen project proposals. Support would ideally be as a formal collaborative partner or providing in-kind support. Also, consider providing a letter of support, demonstrating a relationship and an in-principle agreement to commercialize the outcomes should the project be successful.

PROJECT ELIGIBILITY CRITERIA (SCOPE)

Projects out of scope are:

- Projects that focus primarily on product development or the design of products themselves. The project must focus on the development and/or scale-up of advanced manufacturing capabilities. ***Please note:** An amount of product development, testing, and validation is allowed within a project as long as it can be demonstrated as being required to support the achievement of the advanced manufacturing goals. – No more than 20% of the funding allocation can be related to product development.

- Projects related to off-highway vehicles, including mobile off-road vehicles. This challenge will focus on road vehicles.

- Projects related to experimental or theoretical work without any direct commercial application or use. Projects must demonstrate a strong commercialization strategy.

- Production activities themselves or activities that subsidize full-scale production.

- Capital investment for purposes not related to the project. Capital investment must demonstrate new advanced manufacturing capabilities for the organization.

- Activities that could be viewed as anti-competitive.

- Projects where benefits accrue to a single firm or organization

- Projects that would be undertaken at the same scale or scope and within the same timeframe without Supercluster funding.

- Any routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements.

It is recommended that the project be submitted for screening early on the NGen portal so that the NGen project team can review the project for eligibility before completing a full application.

To do this Join NGen and click the following link **www.ngen.ca/join**

If in doubt about the project scope and eligibility of a project idea, the NGen project team is available to provide support throughout the application process **ev-challenge@ngen.ca**

FUNDING

Projects must involve at least two Canadian industry partners contributing to project costs.

Projects may range in size. NGen will reimburse 50% of eligible project costs up to a maximum of $8 million of total costs per project. Projects with total costs over this amount will be accepted; however, funding will be capped at $4 million.

NGen will reimburse up to 50% of total eligible project costs incurred by industry partners.

Eligible project costs are defined in the **Project Finance Guide.**

This challenge will support organizations to create new advanced manufacturing capabilities. Therefore, capital expenditures of up to 45% of the total project costs will be allowed. Capital equipment expenses need to be for new advanced manufacturing equipment that creates new capabilities within the organization. The expenditure needs to support the project goals and create world-class manufacturing capabilities.

Any capital expenditure exceeding $1 million will require pre-approval through NGen by Innovation, Science, and Economic Development Canada.

The total amount of sub-contracted or consulting costs cannot exceed 35% of total project costs, and the work must be performed in Canada.

Project partners cannot also be sub-contractors for labour services or consultants within the project.

No individual partner may receive more than 80% of NGen funding.

All eligible project expenses must be incurred in Canada.

NGEN ADMIN FEE

NGen is a not-for-profit organization. Project administration fees are applied to projects as a condition of funding. The fee is a one-time, non-refundable project administration fee payable to NGen equal to 2.5% of the total cost of the project. Payment of the fee is a non-negotiable condition of project funding. The fee enables NGen to support projects through its project monitoring and claims management process.

CHALLENGE TIMELINE

Project development webinar – Challenge requirements, the application process, and finance rules: the **30th of August, 2021 -** recordings can be found here: **https://www.ngen.ca/funding/challenge/azemc**

Register as an NGen member **www.ngen.ca/join**, only organizational members can apply for funding.

Two application deadlines must be met to submit a compliant proposal.

1. The first is a mandatory submission for screening so that NGen can ensure the project is in scope and complete financial due diligence. Deadline: **7th October 2021 5:00pm EDT**

    - The screening includes a summary of the project intent, the partners, and the high-level financials.
    - Failing to meet this deadline will mean the proposal will not be considered for funding.
    - Members can apply for funding through the **member portal (https://portal.ngenconnects.ca/opportunities)** under funding programs the portal will be open to receive project registrations by the **2nd of September 2021**

2. The second is the final application deadline for projects that have been successfully screened: **20th of October 2021 5:00 pm EDT**

Applicants notified of results and contracting begins: the **5th of November 2021**

Projects are expected to complete contracting and launch by the 1st of December 2021. It is recommended that project teams review the Collaboration Agreement and the Master Project Agreement drafts on the NGen website before applying.

All projects complete and claims filed by 17 February 2023.

APPLYING FOR PROJECT FUNDING

A dedicated portal for applications can be accessed by NGen Member organizations on the 30th of August following the Challenge webinar. A tutorial will also be made available at this time. The portal is required to enter the project information.

NGen Support for Project Applications

NGen's project team may assist in the development of Supercluster project applications prior to their assessment. NGen staff may assist by:

- Providing high-level advice and guidance with respect to scope criteria, funding rules, eligible activities, and project requirements, and draft responses to the 10 questions.
- Identifying potential project partners.
- Identifying other sources of funding for project activities.

Resources are limited, and the support will be provided on a first-come, first-serve basis. Support can be requested by e-mail at **ev-challenge@ngen.ca.**

Emailing confidential or sensitive documents is not recommended. NGen can support the review of project information through the secure portal with Hockeystick or via a Sharepoint secured folder.

Partner Collaboration Portal

NGen has set-up a collaboration portal that will support projects in finding partners.

Companies can post information related to the project and the types of partners they are looking for.

The portal can be accessed through the Challenge main page: **www.ngen.ca/funding/challenge/azemc**

Project Screening

NGen will screen all proposals to ensure they meet basic eligibility requirements for Supercluster projects.

Projects must submit for screening by **7th October 2021 5:00pm EDT.** Failing to meet this deadline will mean the proposal will not be considered for funding.

Applicants will be asked to:

• Complete an Application Agreement – **template here.**

• Certify that they have read, understand, and are willing to comply with NGen's project requirements.

• Describe the purpose of their project and how it contributes to new advanced manufacturing capabilities in Canada.

• Indicate that their project is collaborative and identify lead private sector partners.

• Certify that private sector partners looking for funding are incorporated in Canada and that the project will be carried out in Canada.

• Certify that their project would not be undertaken in the same form without Supercluster funding.

• Provide an estimate of project costs and indicate that they are willing to invest in the project within the timelines of NGen's Supercluster funding horizon.

• Certify that they have adequate financial means and project management capabilities to carry out the project.

• Agree to provide information necessary for NGen to conduct Financial Due Diligence.

Financial Due Diligence

NGen will undertake a financial assessment of each participating project partner to ensure they will be able to support their commitment to the project for its entire duration.

Factors that will be evaluated include but are not limited to Profitability, Liquidity, Leverage/ Indebtedness, and Cashflow.

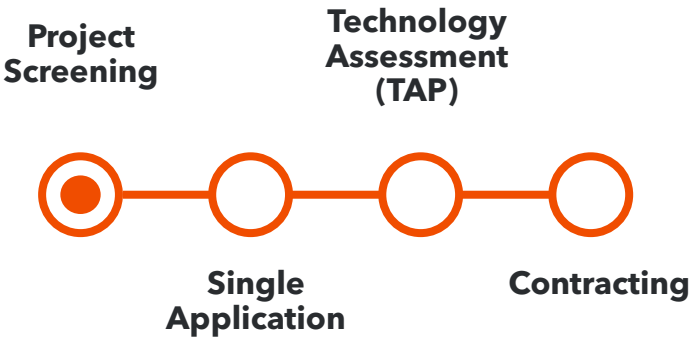
In the event the supporting financial information provided by the applicants is insufficient to demonstrate the ability to complete the planned project as proposed, NGen Canada will:

- Request additional information from the participating member.

• Reject the proposed program because the project team does not appear to have the ability to fund the proposed project to completion, or

• Approve the project for a reduced amount of NGen funding until such time the participating members can provide further assurances on liquidity.

The Application Approval Process



Applicants who meet eligibility requirements as part of Project screening will be invited to apply.

The application consists of:

Answers to ten Questions - maximum 900-words per question.

To ensure that the level of information provided is fair for all applicants:

- Any information provided above 900 words will not be sent out to the assessors.
- No external links are allowed.
- No additional information such as reports are allowed to be submitted to the appendices.
- Please include any information in the application ten questions and if appropriate cite a suitable reference.
- Consider utilizing graphs and charts as they will not count towards the total word count. Text-heavy tables will count towards the question word count.

APPLYING FOR PROJECT FUNDING

The questions can be answered within the portal or by providing answers on this **template here** and uploaded to Appendix 4.

Five (5) appendices

1. Project Plan (DOC, XLS, MSP, PDF)
2. Risk Register (DOC, XLS)
3. IP Strategy (DOC, PDF)
4. Question Appendix (DOC, PDF) and letters of support.
5. Financial Workbooks – one for each partner

Templates for the Project IP Strategy, Template Tables, Financial Workbook, and Application Agreement are available **here**.

There are no templates for the Project Plan or Risk Register; it is expected that the company uses the project management tools available within their company.

Each project application will be assessed based on 10 questions by up to 5 independent assessors.

Responses are equally weighted in assessments.

Applications will be scored out of 100 marks (10 marks per question) by independent experts.

The assessors will answer two yes/no Gateway questions.

- Is the project in scope for funding for this challenge?

- Is the project recommended for funding based on the overall application and in particular the business case presented?

If the majority of assessors answer no to either gateway question the application, regardless of the overall score out of 100 will not be considered for funding. It is recommended throughout the application process that advice is sought from the NGen project team to ensure the project meets the scope criteria.

Independent Expert Assessment Panels

All project proposals will be subject to an independent assessment process undertaken by up to five external experts selected by NGen. The expert assessment panels will ensure that approved projects are of high quality, meet NGen's strategic objectives, and are selected fairly. These panels may also include Government representatives.

NGen's external experts include former CEOs of manufacturing and technology companies, former senior manufacturing, engineering, and technology executives, senior personnel at universities and colleges, and executives from business consulting organizations.

The identity of experts participating in individual project assessments will be kept confidential. Assessors will sign non-disclosure agreements as well as conflict of interest disclosures to ensure independence and confidentiality.

Acceptance or Rejection

Following an Assessment and Recommendation from the Independent assessors, NGen staff will advise all applicants directly if their project has been successful or not.

Feedback

Applicants whose projects are not recommended for approval at the initial proposal or full application stage will be given a summary of how their project was evaluated, outlining the reasons why they were not approved, and given recommendations to strengthen their applications.

ASSESSMENT QUESTIONS

To satisfy these requirements, project applicants must answer ten questions that will inform the assessment process.

To the best of your ability, please address the guidance provided for each question.

Please include any other pertinent information not covered in this guidance.

This guidance is intended to be answered by all applicants and not just the lead partner, so that the impact and anticipated benefits that will accrue are well defined.

Throughout the application, where possible, provide evidence for your statements.

ASSESSMENT QUESTION

1. What is the opportunity the project addresses?

RESPONSE GUIDANCE

- Outline the big-picture motivation and the overall advanced manufacturing objectives that the project intends to achieve.

- Describe the Electric Vehicle project area (pg 6 area 1-7) that this application is targeting and explain what specific part of the supply chain this project is addressing. For project areas 6 & 7, quantify the expected impact that the project will have in terms of weight-saving or efficiency gains.

- Outline the opportunities that will arise from developing an electric vehicle supply chain in Canada and how the project addresses these opportunities.

- Provide an overview of the project considering both technology and business impacts, highlight other strategic benefits

- Outline what the project team needs to do to successfully achieve the project objectives within the desired timeframe and budget. What are the specific challenges, research questions, or technical complexities that need to be addressed within the timeframe of the project?

- Describe the nature of the challenges facing you and your potential customers, along with the potential market challenges and barriers to entry that the project addresses.

- How will the outcomes of the project overcome these challenges?

- Clearly describe the project partners and how the partners will collaborate towards achieving the overall opportunity the project addresses.

ASSESSMENT QUESTION

2. What is the overall project and risk management plan?

RESPONSE GUIDANCE

- Describe the Project and Risk Management approach, identifying key project management tools and mechanisms (e.g., Quality Management Systems) that will be implemented to provide confidence that sufficient control will be in place to minimize project risks.

- Describe how you are going to measure the success of the project.

- Provide a brief written summary of the overall project plan, including work-package descriptions.

- Describe the key milestones and deliverables either in the written part of Question 2 or add a table to Appendix 1 that explains each key milestone.

- Provide a detailed project plan consisting of a Gantt chart (Appendix 1) that details the Work Packages, tasks, timelines, milestones, deliverables, dependencies and resource allocation for all partners.

- Describe the resource and management requirements for successful project completion, including how the work will be shared among project partners

- Provide a comprehensive risk analysis including a Risk Register (Appendix 2) identifying the key risks within the project.

- Consider at least the:
  - technical,
  - commercial,
  - managerial
  - financial risks
  - intellectual-property

- Other risks to consider (and are not limited to) include: Resource, Freedom to Operate, Safety, Regulatory, Legal, and Environmental risks.

- Provide appropriate analyses of the likelihood and impact of each of the risks along with appropriate mitigation strategies.

- Assessors will be looking to see that all the main risks are identified and that there are sufficient risks within the project to warrant NGen funding and that these risks are appropriately controlled.

ASSESSMENT QUESTION

3. What is transformative about the project?

RESPONSE GUIDANCE

- Clearly define the transformative Advanced Manufacturing aspects of the project and what new knowledge of advanced manufacturing is being created by each partner organization.

- Outline the current state-of-art manufacturing processes and technologies for your industry (or sector) and describe how this project pushes the boundaries in the context of Advanced Manufacturing.

- Identify the extent to which the project is transformative and innovative both technically and commercially. Explain how the project has the potential to transform or support the transformation of each partner organization. Provide evidence for these statements.

- This could include the results of:
  - patent searches,
  - competitor analyses,
  - literature surveys.

- If applicable, you should also outline your background intellectual property rights, as related to the project.

- The transformative impact of each project will be assessed on the following considerations:
  - Will the project lead to technological and business advantages that will allow

Canadian companies to leapfrog global competitors and become world leaders in the application and production of advanced manufacturing technologies?

  - Will the project provide an enabling platform for further technology development, application, and scale-up in Canadian manufacturing?

  - Will the project be recognized globally as conferring or strengthening Canadian leadership in advanced manufacturing?

- If appropriate, describe any novel research that will be undertaken as part of the project. Highlight and explain the timeliness and novelty of these research aspects of the project in an industrial context.

- Are the technologies new, or are you looking to apply existing technologies to develop unique transformative manufacturing solutions?

- What is the plan and rationale for the protection of IP and sharing of IP among your consortium partners and, beyond this, with other NGen members? (IP Strategy Appendix 4)

Elements of product development are eligible for funding under this challenge, and the novel transformative aspects of the product or technology can be described in response to this question. These other novel aspects are important to provide context. It is essential to note that the assessors will be awarding marks based on what is transformative for advanced manufacturing.

ASSESSMENT QUESTION

4. What is the nature and size of the potential market the project will address?

RESPONSE GUIDANCE

- Describe the market(s) that you are entering with the development of a new advanced manufacturing technology OR describe the existing market that you are operating within and how this advanced manufacturing opportunity will enhance your competitive position within the market

- Consider including details of:
  - the target market, including the size, margins, market leaders, key competitors,

price competition, barriers to entry
  - adjacent markets where the new knowledge could be commercialized
  - dynamics of the market quantifying its current size, including historical and projected growth rates
  - the specific target product, platform and service applications underpinning the market
  - the expected share of market to be captured as a result of this project
  - the opportunity timeline and when you expect benefits to be realized
  - the impact of the project on existing or future customer relationships

- Provide evidence for your statements about the market opportunities your project opens-up and outline your strategy for developing market share.

ASSESSMENT QUESTION

5. What sort of economic benefits is the project expected to deliver to those inside and outside the consortium, and over what timescale?

RESPONSE GUIDANCE

- Identify the economic benefits the project will have for participating project partners and other suppliers/partners both inside and outside of the project. Consider the impact over the short (1-3 years), medium (4-7 years), and long-term (8-10 years).

- For each of the project partners (and appropriate suppliers) provide an analysis of:
  - the expected additional revenue that can be generated.
  - the number of direct jobs created and safeguarded.
  - the number of indirect jobs that can be created within the supply chain – consider referencing multiplier effects based on direct jobs
  - expected exports
  - the economic impact of new market opportunities or new expanded value chain opportunities

- Quantify any indirect economic benefits that might be achieved. Examples might include the potential cost savings associated with:
  - Reduced downtime
  - Reduced manufacturing footprint
  - Positive environmental benefits

  - Reduced material usage
  - Higher quality output
  - Reduced scrap and warranty.

- Outline the economic benefits each partner will see, and over what timescale.

- How does the partnership help each individual partner achieve greater economic growth?

- Define the economic benefits that the project can have on the whole Canadian supply network upstream and downstream.

- Will the project enable a more localized supply of material or components? What are the spill-over economic benefits that this might achieve?

- Will the project create spin-off business opportunities (new businesses, new or expanded supplier or partner relationships) in Canada?

ASSESSMENT QUESTION

6. What is the impact on the broader advanced manufacturing ecosystem?

RESPONSE GUIDANCE

- Broader Ecosystem - Leaving a legacy in Advanced Manufacturing

- Projects must demonstrate a significant and lasting impact on the development and capacity of Canada's Advanced Manufacturing ecosystem.

- Describe how the project will create a widespread positive impact, leaving a legacy for Advanced Manufacturing in Canada for the partners and beyond (considering how the project impacts beyond the partners and throughout the supply network).

- To highlight this, consider some of the following:
  - Workforce Development:
    > How will the project encourage the engagement of women and under-represented groups in the workforce?
    > Outline the opportunities for attracting, training and developing a highly skilled talent pool (both existing and new staff).

- Industry knowledge:
  - > Will the project serve as a model or learning platform in Advanced Manufacturing for others? For example, providing tours, or use cases on best practises.
  - > Will the project generate intellectual property that others can use to accelerate technology applications or scale-up of manufacturing in Canada?
  - > Will the project influence the activities of colleges, universities or research institutes to support advanced manufacturing education, resulting in the diffusion of this knowledge back into Industry?

- Infrastructure support:
  - > Will the project help to develop or support the use of tools, testbeds, or data platforms that will foster future technology development, adoption, scale-up, and commercialization activity in Canadian manufacturing?

- Collaborative Networks:
  - > Will the project further enhance the ability of industry partners, post-secondary education institutions, research centres, and other private and public organizations to work together to strengthen advanced manufacturing in Canada?
  - > Describe how the project could build greater capacity / provide opportunities and capabilities supporting Small and Medium Enterprises.

ASSESSMENT QUESTION

7. How does NGen add value and what additional benefits will be achieved?

RESPONSE GUIDANCE

This question is split into two parts. Both parts must be fully addressed in the application.

- Part 1:
  - Clearly describe and provide evidence that NGen support is essential to achieve the project goals; this is a critical requirement in the program.

  - Questions to consider:
    - How has the project's technical or commercial scope changed due to NGen support?
    - Why is NGen funding critical to undertake the project as proposed?
    - Does NGen funding allow the project to be undertaken differently (more quickly, at a larger scale, with more partners)?
    - Would the collaborative partnerships been formed without the project?
    - Is the project too risky for commercial investors?

- Part 2:
  - Describe the Social and Environmental benefits that this project enables for each partner.

Social Benefits

- Describe any expected social impacts, for example:
  - Diversity and inclusion, including activities that will be undertaken to ensure that women and underrepresented groups are meaningfully represented in, and benefit from the project
  - Enhanced quality of life
  - Social inclusion/exclusion
  - Public empowerment
  - Health and safety

Environmental Benefits

- Outline the environmental improvements and impacts as an outcome of this project. Examples that can be considered:
  - GHG, particulate matter reduction
  - Process and resource efficiency
  - Better energy management
  - Reduced volatile organic compounds
  - Reduced land degradation
  - Reduced water usage
  - Footprint reduction
  - Reduced emissions due to more efficient and optimized transportation and distribution within the supply chain
  - Use or creation of sustainable materials

  - Reuse, recycle, and remanufacturing
  - Other life cycle benefits
  - Other sustainability opportunities

- Describe any other benefits that might be achieved as a result of this project. (Regulatory, certification, standards development, regional and policy benefits etc).

ASSESSMENT QUESTION

8. How will the results of the project be commercialized?

RESPONSE GUIDANCE

- The response should highlight the new potential business opportunities for each partner in collaboration and individually.

- Describe the activities that will be undertaken to ensure the sustainability and continued growth of the project outcomes beyond the project end date.

- Outline the commercial spill-over opportunities, demonstrating how your activities will contribute to the wider industry and other sectors.

- For each partner, describe the activities that will be undertaken to ensure the sustainability and continued growth of the project outcomes beyond the project end date, including:
  - expected project outputs that will be commercialized - including new or improved products, services, processes, capabilities, and manufacturing technologies.
  - the route to market:
    > the position within the value chain,
    > the organizations necessary to access the road vehicle market,
    > the commercialization channels that will be exploited to gain customer traction,
    > identify specific channels being targeted and the timeframe. Identify the Vehicle Manufacturers or tier 1's that would be involved as a commercialization route. Provide letters of support demonstrating a relationship and an in-principle agreement to commercialize the outcomes should the project be successful – upload to appendix 4 in

the project documents section of the Hockeystick portal.

- measures for protection, exploitation and dissemination of project outcomes
- other market opportunities (considering adjacent markets) that will emerge as a result of this project
- opportunities to commercialize the Intellectual Property, include a licence to manufacture, licensing of IP, manufacturing or direct sales (IP Strategy Appendix 3)
- the plan and rationale for the protection of IP and sharing of IP among your consortium partners and, beyond this, with other NGen members. Including a patent filing strategy for domestic and foreign jurisdictions, changes to business models or processes, research, and development (R&D), manufacturing services (IP Strategy Appendix 3)

ASSESSMENT QUESTION

9. Describe the collaboration and the partner skills, experience, resources, and access to facilities to deliver the identified benefits?

RESPONSE GUIDANCE

- Describe the collaborative nature of the project and how the consortium working together will achieve more than if they were working individually.

- Describe how the project partners will:
  - develop relationships and build trust
  - increase knowledge sharing

- Describe any additional collaborative activities related to suppliers, sub-contractors, academic or research organizations involved in the project.

- Consider using the IP Strategy (Appendix 3) to demonstrate the nature of the collaboration in terms of the licensing and access to background and foreground IP during and after the project.

- Describe the track record of the project team members in undertaking and exploiting the results of research and development projects to show your capability to develop and commercialize the technology.

- Consider whether:
  - the project team has the right available mix of skills and experience to deliver the project successfully. Provide a high-level description of the partner's track record in achieving similar manufacturing R&D projects.
  - appropriate governance structures between the consortium partners are in place to manage and deliver the project, consider providing a high-level diagram
  - the make-up of the consortium, along with their knowledge and experience, will help improve the capabilities of the Canadian supply chain during the project and beyond
  - there is appropriate access to facilities and resources, including identifying and allocating appropriate space and infrastructure for the project to be successful (consider floor space, specialized equipment needs, specialized resources, etc.)

ASSESSMENT QUESTION

10. What is the financial commitment required for the project?

RESPONSE GUIDANCE

- Indicate the anticipated project cost, making clear the level of contribution from any project participants and the level of funding required from NGen. This information should be provided in the financial workbooks.

- Supporting information and explanation for project costs should be provided in this section. For each partner explain how the funding will be used and why it is required for each of the main cost categories in the finance workbook:
  - Labour,
  - Subcontract,
  - Equipment,
  - Materials,
  - Travel.
  - Other eligible costs.

- Ensure that all key points relating to the finances are described. For example:

Labour:

  - Justification for the use of specialized labour or labour with especially high rates.

Subcontractor:

- the reason for, and use of, subcontractors, their impact on the project, and why they are not formal project partners.
-

Equipment:

- This challenge has increased limits for capital and subcontract compared to NGen's regular funding initiatives. It is essential that:
  - > the equipment being purchased is directly linked to the project goals,
  - > is linked to the R&D capabilities supporting the creation of a new advanced manufacturing capability. This can include pilot production where the project team proves out the advanced manufacturing capability. It cannot subsidize full production.
  - > is creating a new capability that does not already exist within the organization
  - > it is not the purchase of multiple similar pieces of equipment that would be seen as subsidizing future production activities
- Considering the points above, please describe the capital required in detail with a justification of why it is necessary to achieve the advanced manufacturing goals of the project.
- A justification for any pieces of capital equipment exceeding $1M (NB: these costs require Ministerial approval in advance)

Materials:

- the reason for large amounts of material or the use of expensive materials. Projects are not intended to subsidize production; the amount of material listed should be for the purposes of the project's R&D aspects. It should be linked to the prove out of the advanced manufacturing capability, where there is high material usage due to experimental/pilot production runs this should be explained.

- Provide a breakdown of the costs per work package, showing how it aligns with the project plan.

- In evaluating the project, the assessors will consider the following questions:
  - has a realistic budget breakdown been provided and is the budget realistic for the scale and complexity of the project?
  - is a financial commitment from other sources demonstrated for the balance of the project costs?

ASSESSMENT QUESTIONS

  - have the costed work package breakdowns been described and justified adequately?

- Describe other private sector co-investment/financial contributions that this project will attract in the short, medium, and long-term, identifying any potential follow on funding.

- Outline other government funding, including stacking limits, that this project has secured or plans to secure against the project.

- Describe how the project can help attract or retain and promote industry investment and product mandates in Canada.

- Assessors will consider the above aspects as well as a determination of the value for money for NGen funding, considering the total potential impact and return of the project against the amount of funding being requested.

DOCUMENTS REQUIRED FOR ASSESSMENT

Compliant projects that have provided the following information will be sent for assessment if documents or information is missing NGen will not assess the project.

- Signed Application Agreement template in PDF – **template available online**.
- Answers to all ten application questions
- A Project Management Plan
- A Risk Register
- An Intellectual Property Strategy
- Financial Workbook template in Excel – one for each partner – **template available online**.

Templates for the assessment will be made available for **download here**.

UPON AGREEMENT

Upon the final recommendation of the independent assessment panel, NGen will conclude a Master Project Agreement (MPA) with selected funding recipients detailing project requirements, reporting, and NGen's compliance obligations.

There must be a Collaboration Agreement in place among the members of project consortia defining the roles of project partners and joint risk management provisions.

The Collaboration Agreement must also set out how foreground IP arising in projects will be shared among project partners. In addition, project participants must indicate the types of foreground IP they would be prepared to share with other members of the Supercluster, to whom, and on what conditions.

RESOURCES

Templates

Financial Workbook
Application Agreement
Project IP Strategy Template Tables

References

NGen Intellectual Property Strategy
Project IP Strategy Guide for Applicants
Finance Guide

NGen Next Generation Manufacturing Canada

NGen is founded on the principle that the transformation to advanced manufacturing will enrich the lives of Canadians, delivering better products and good jobs while generating the economic growth essential to a better future.

www.ngen.ca

175 Longwood Road South, Suite 305, Hamilton, Ontario, Canada L8P 0A1