

Submission to Expert Panel on Federal Research and Development Spending

Submitted by: J.D. Irving, Limited

J.D. Irving, Limited (“JDI”) has a 50-year history of conducting applied research independently as well as with government institutions and academia across the company’s vertically-integrated forest products businesses. Research has spanned a broad range of topics from forest productivity, forest protection and ecosystem function through to improvement of industrial processes and innovative products. Over the past several years, the Company’s Woodlands Division has invested over \$1.5 million annually in forestry-related research and development. The Company is a recognized leader in forest management and land stewardship and is the largest forest land owner in Canada. As a testament to the company’s commitment to sustainable forest management, Mr. K.C. Irving started a tree planting program in 1957 which has resulted in the planting of over 800 million seedlings across lands the company manages. This led to development of a large-scale tree improvement program over 30 years ago aimed at improving the genetic quality of seedlings planted and other genetic resources issues. In the past decades development of improved processes, products, and infrastructure have enabled the Company to weather unprecedented economic challenges resulting from the global economic downturn. The Company’s long-term view has enabled the development of research that will deliver benefits across the short, medium, and long term.

JDI’s commitment to increasing productivity as well as environmental stewardship has frequently required development of new knowledge and acquisition of in-house research expertise as well as cultivating collaborations. These collaborations range from national and provincial research organizations (FERIC, NRCan-Canadian Forest Service, NSERC Centres of Excellence- Sustainable Forest Management Network, SERG-Spray Efficacy Research Group, Forest Protection Limited, New Brunswick Tree Improvement Council, Nova Scotia Tree Improvement Working Group, and others) and universities (University of New Brunswick, Université de Moncton, Carleton, Laval, University of British Columbia, University of Alberta, University of Maine). In addition to benefitting from results

of successful collaborations and internal capacity building, JDI has also gained extensive experience from research efforts related to funding and incentive programs developed by the Federal and Provincial governments to encourage corporate research and development (NSERC, ACOA, IRAP, SR&ED etc.). With this background in mind, JDI would like to provide comments to the Panel on the Company's views and experiences on Federal research and development initiatives.

Scientific Research and Experimental Development Program (SR&ED)

The SR&ED program has been a valuable incentive program to help stimulate private R&D. It is a program that JDI has been familiar with for many years. While this program is a valued incentive to the Company, it may be underappreciated by industry in general. For incentives to be effective, the results need to be predictable, claims need to be processed on a timely basis, the process needs to be transparent, and claim process and audit must be cost-effective. Our experience with the SR&ED program has been that the results of the claims are not predictable and the process is not timely or transparent. Our completed claims usually exceed 800 days from filing the claim to receiving the notice of reassessment. We have many claims that have been outstanding for more than 2,500 days.

Another potential hindrance to the effectiveness of the SR&ED program is unevenness of the scientific assessment of individual projects. Science auditors are assigned to files based on the geographic region of claims filed rather than the field of science or industry of the claimant. This often means science auditors who have little knowledge of the industry, or even the field of science or technology in question, are conducting the audits. The result is that additional time is necessary to explain the technology employed and it often results in increased difficulties in having claims accepted.

Natural Sciences and Engineering Research Council (NSERC)

NSERC programs can be very helpful when JDI has an engaged university partner. It is fairly rare for the Company to be involved with a partner for Strategic- or

Discovery-type NSERC programs. This is largely because there are relatively few university and industry collaborators who are interested in or willing to commit the time and engagement to form an effective collaboration which would meet the criteria for this type of grant. Often the calls for projects are far too short for this type of collaboration to be developed, and in some cases the competitiveness of the process provides too much uncertainty relative to the resources required to develop a competitive proposal. Another issue with these types of programs is that funding is limited to the university; this does not work in favour of true collaboration. When JDI has been involved in strategic partnership projects, it has usually been more on the side of basic research - but the project needed to demonstrate a connection to our main areas of interest. It is not clear to JDI how strategic directions related to our resource sector are identified and how other values such as societal benefits to rural economies or environmental benefits are incorporated into identification of sector needs.

Some the more industrial-type NSERC programs are quite effective to enable specific pieces of research to go forward. JDI has been closely involved with CRD, IPS, and IRDF projects. While these again limit funding to universities, they can be a good fit, particularly within the framework of a larger collaboration between JDI and the university. The programs all require industry to make cash contributions, so the type of project must have very strong relevance to the Company to proceed.

A concern related to some of the NSERC programs relates to timeliness and quality of reviews. JDI has found fairly long delays in dealing with CRD applications (6-12 months). This can be an important factor in timeliness of proceeding with research when often there is a seasonal component of the work. This is exacerbated in the forestry part of the business where research tends to be lengthy to get results. A larger concern is related to the difficulty of obtaining credible reviews, especially when the science is very new. We have experienced difficulty in the past in this type of situation, and we have not found the NSERC internal process for addressing conflicting reviews to be very transparent. At the same time JDI clearly appreciates the critical value of peer review as long as it is

competent and transparent. It is also not clear to JDI how aspects of 'Benefits to Canada' are incorporated into project evaluations.

Industrial Research Assistance Program (IRAP)

This has been one of the most important programs over time which has led to innovations with a considerable degree of risk. The grant component along with industrial contribution has allowed R&D to proceed in areas of innovation with potentially high gain but also high risk. JDI has been more advanced relative to most jurisdictions in Canada in the area of high-production forestry through genetic improvement, site mapping, and integrated pest management. In most cases, significant benefits to Canada are evident and the research is of the same caliber as other publicly funded research institutes. Research results have often been applied far outside of JDI and while the Company takes steps to protect intellectual property, a considerable portion of research results are published. In the past several years, JDI has been unable to access IRAP because of new and restrictive interpretations related to eligibility. These are difficult for resource-sector companies such as ours, where research is only one part of a large operation. It is the context of the larger operation that offers the best research outcomes and uptake. The absence of any direct research funding for JDI through IRAP and NSERC is a significant factor in slowing truly innovative R&D and maximizing synergy. In the resource sector, small- to medium-size companies will be unlikely to be able to absorb the long-term nature of research in areas especially related to forest productivity and integrated pest management. Further, the opportunity for the Company to obtain highly qualified personnel cross trained in industry is severely hampered by this approach.

Atlantic Canada Opportunities Agency – Atlantic Innovation Fund

The ACOA- AIF program has been used by JDI, and the Company was successful in securing support during the second round of funding in 2002. The project involved research related to improving tolerance of spruce trees to attack by the spruce budworm. The research conducted has subsequently proceeded through the first stage of commercialization. This was a first-in-the-world research project with patents pending. The funding provided was in the form of a conditionally

repayable loan, which JDI has begun to repay. This research is leading-edge and as previously noted, the work would be of similar quality and innovation as much of the applied research conducted by publically funded research institutes.

Conclusion

JDI has outlined above its familiarity and experience with Federal research and development funding, with observations on a range of programs. While the SR&ED program is very valuable, we have made observations regarding some of its limitations. Outside of IRAP, there are very few programs with any granting component and in JDI's view, this limits some very innovative and high-risk research at the industrial level. Access to IRAP has been restricted to companies with fewer than 500 employees, and the long-term nature of forest-management-related research will make it unlikely that this resource sector will be served. NSERC focused programs such as CRD, IPS, and IRDF can be very useful to drive applied research forward as well as train highly qualified graduate students; however, they require solid and usually long-term collaboration between the company and academia to meet the needs of the team. The difficulty of ensuring fair and credible third-party review of proposals is identified in an industrial R&D setting as opposed to an academic one, including how 'Benefits to Canada' are integrated with scientific evaluation.