Project Name:	Logix Data (solar panels) - LOSS	**Start Date:**	2022-05-01
Project Number:	2216	**Completion Date:**	2022-10-31

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Cost ($)	(not set)	(not set)	No
Performance (W/m2)	200	250	No
Snow load (kg)	(not set)	(not set)	No
Windload (km/h)	(not set)	(not set)	No

The following example is based on the Tax Court of Canada judgement, LOGIX DATA PRODUCTS INC.,and HER MAJESTY THE QUEEN, May 14, 2021.

1] The issue in this appeal is whether expenditures the Appellant, Logix Data Products Inc., incurred in its taxation year ending June 30, 2013 qualify as “SRED”.

The Appellant is an information technology services company.

2] The activity in question is work the Appellant undertook to develop what it describes as a dual purpose solar shingle – that is, a solar panel that could replace shingles. The concept is that the solar shingle would serve as a source of power and be mounted directly on the roof so that shingles would not be necessary.

Company Background:

28] The Appellant is an information technology services company that develops microcomputers, including for the fast food restaurant business (its original business), provides IT services (including computer hardware and software sales, network administration, and development of software and computer systems20), and provides internet services across Canada (i.e., is an internet service provider (ISP)).

29] Robert Baird is the President and CEO of the Appellant. In the early 80s, Mr. Baird started working in technology, initially as an employee of Pizza Pizza but then on his own as a sole proprietor, before incorporating the Appellant in 1986.

Initially the Appellant’s business was microcomputers but it expanded its offerings over the first decade of operation to include the other computer technology services it provides today.

The Appellant is not in the power business or the solar panel business. So how did the Appellant decide to pursue the development of a solar shingle?

Background to the Solar Shingle Project

31] Silfab S.r.l. (“Silfab”) is an Italy-based solar panel manufacturer that decided to establish a manufacturing plant in Canada. Mr. Baird explained that the Appellant was engaged by Silfab to work with it in an IT capacity, to develop Silfab’s IT infrastructure for its Canadian manufacturing plant.

The Appellant’s work commenced when the Silfab building in Canada was empty and carried on until Silfab produced its first solar panel in Canada.

Mr. Baird said that the Appellant continues to provide IT services to Silfab. Silfab produces solar panels for utility power generation at that plant.

32] Mr. Baird said that it was through the IT work with Silfab that he learned a lot about the design and production of solar panels, “basically how they work and what they are used for”.

Field of Science/Technology:

Electrical and electronic engineering (2.02.01)

Project Details:

Intended Results: Develop new processes, Improve existing materials, devices, or products

Project Name:	Logix Data (solar panels) - LOSS	**Start Date:**	2022-05-01
Project Number:	2216	**Completion Date:**	2022-10-31
Work locations:	Research Facility		
Key Employees:	Robert Baird (Logix Data) (computer science - n/a (1986) / President)		
Evidence types:	Samples, prototypes, scrap or other artefacts; Design of experiments; Records of trial runs		

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

Experience of People involved in the Solar Shingle Project

35] Mr. Baird said that he and three other employees of the Appellant were involved in the Solar Shingle Project.

36] Mr. Baird describes himself as a computer engineer. He holds certifications from several manufacturers of computer hardware and software systems but these are vendor or product specific qualifications.

Mr. Baird has not taken any programs or courses at college or university.

Mr. Baird has not taken any courses or training in engineering (including mechanical or electrical engineering).

Mr. Baird did not explain what it was about his experience working on the IT installation project that gave him the requisite knowledge.

37] Two of the other three individuals Mr. Baird described as involved in the Solar Shingle Project are IT technicians. The third is a sales consultant.

67] Appellant's counsel asked Mr. Baird to describe the uncertainties the Appellant faced. Mr. Baird suggested the following: Whether the solar shingles could be placed directly on the roof in place of shingles?

The durability of the solar shingle, i.e., would a smaller solar panel without a frame break because it had less rigidity and would moisture leak into the edge?

How would the power be "bussed out" of the shingles because smaller panels (i.e., shingles) required more panels to cover the same area as traditional solar panels requiring more connectors?

Whether the smaller panels (shingles) could achieve a target power yield of 250 watts per square meter given greater (non-productive) space needed to connect them together?

Whether the solar shingle could be scaled up in size and achieve the same results?

(i) What was the knowledge in the industry at the time?

74] What is particularly troubling is that the Research Summary suggests solar shingles did exist.51 Mr. Baird also described seeing Tesla advertisements for solar shingles. He said he did not believe they were available for purchase at the time, but rather were in development, expressing the view that the advertisements were intended to create demand in advance of the shingles actually being available.

Mr. Baird also suggested the picture in the Tesla advertisement implied a flexible solar shingle that, he said, is not as efficient as solid solar cells. He said when the Appellant commenced the Solar Shingle Project in 2011, there was no viable commercial product, though some enterprises were talking about it.

Technology or Knowledge Base Level:

Activity #1-1: Activity 1 (Fiscal Year 2022)

Methods of experimentation:

COMMENTS BY JUDGE:

107] The test description documents lack significant detail. None specifies the purpose of the test (what is the problem or technical uncertainty the test seeks to address) and none states a hypothesis. None states the observations made in, or conclusions drawn from, the prior version of a test which led to the revision.

None includes an explanation about why the proposed revision might assist with solving the observed problem.

108] There is no explanation of why the particular test equipment was selected, where measurements were to be taken, why the test was set up the way it was, how many times it was to be repeated,79 or over what period it was to be done.

109] In each case, the description of the test procedure lacks precision. Let me give some examples.

110] The list of equipment for Revision 1 and 1.1 of the thermal performance test includes volt meter, amp meter, resistor and digital thermometer.

None of this equipment appears on the schematic for the test, yet the test procedure instructions state little more than: set up test as outlined in drawing; using amp, volt meters and thermometer measure power output and temperature at 15 minute intervals until the single temperature ceases to increase; report results.

Nowhere does it specify how or where the measurements are to be taken.

Mr. Baird testified they discovered the shingle was hottest in the centre and so they decided to measure the temperature there, but that is not specified anywhere. Revision 1.1 (aluminum mesh) states nothing more than “Re-run tests using aluminum/rubber mesh backing sheet.” The details of that backing sheet are not described.

117] The wind resistance test equipment list includes edge clamps and a wind meter. Neither appears in the schematic yet the procedure refers to the schematic for test set up. The test procedure provides for testing at several wind speeds, but nowhere are the wind speeds indicated.

The test procedure does not specify the placement of the fan (distance from the shingle and/or centered or otherwise along the shingle edge).

In testimony Mr. Baird said that the schematic for the wind resistance test was not the correct perspective. If this is so, where is the set up explained? The test procedure states that effects on the shingle should be measured at the 0-25 mm gaps with the vernier. The nature of the measurements is not specified, although the vernier suggests deflection.

139] Finally, I note that the jurisprudence indicates that the documentation should be contemporaneous. The reasons are obvious. I confess that my impression is that the schematics and test descriptions the Appellant provided were not prepared before the tests were conducted, and as revisions were made, but rather subsequently when the CRA asked the Appellant for supporting documentation.

I have a similar impression of the Testing Summary. It appears to “lift” many of the point form notes from the meeting minutes and is undated. It was provided to the CRA after several requests for documentation. I am not convinced it was prepared in 2013 as the work was done.

Results:

Analysis of Expert Witness report:

14] The Amended Report is stated to be the expert’s “independent expert opinion on whether Project 1 constitutes scientific research and experimental development.” The opinion expressed is that:

Project 1 constitutes experimental development in the field of mechanical engineering specific to the semi conductor and photovoltaic industries that was performed by a competent researcher in this field.

15] With respect, this is not the purpose of an expert report. ...the expert’s role is limited to providing the court with a set of prescription glasses through which the technical information may be viewed before being analyzed and weighed by the trial judge.

16] Report states several opinions without explaining the facts and assumptions on which those opinions are founded8 or the reasons for the opinions expressed.

Nowhere in the Amended Report are the relevant facts and assumptions described. The Amended Report consists largely of conclusory statements - statements without explanation, context or support.

19] An expert has an overriding duty to assist the Court impartially. They must be independent and not be an advocate for a party.

Conclusion:

75] Mr. Baird acknowledged he did not contact Tesla or look at any online engineering forums to see what might have been developed or have been under development by Tesla or otherwise. He did not speak with the manufacturers, suppliers or installers of the solar shingles referred to in the Research Summary, any other manufacturers of solar panels, or any other experts in the field of solar energy.

The only people he said he spoke with were employees of Silfab, an enterprise that was neither manufacturing, nor interested in manufacturing, solar shingles.

His description of those conversations did not suggest a particularly robust inquiry about technological issues.

141] The Appellant bears the burden of establishing that it conducted activities that constituted SR&ED by leading evidence to rebut the Respondent's assumptions. It has failed to do so. Accordingly, the appeal is dismissed.

142] Costs of the motions and the appeal are awarded to the Respondent.

Documentation:

- Offline Documents: docs