Work Stream 6 on Capacity Building in
Science, Technology and Innovation (STI) for SDGs

Case study on public procurement for innovation - PPI: Energy efficiency in Norland

In 2008, the Norland Government launched the Norland Technology Procurement Program (NTPP) to exploit the national potential for improving energy-efficiency and to counter the trend of increasing national electricity consumption.

The NTPP aimed to reduce national demand for electricity by 7.5 TWh by the year 2025. This implied a reduction from 50 TWh that Norland was generating annually by burning fossil fuels, to 42.5 TWh.

Of the several energy-efficient technologies identified to meet this target, Norland chose energy-efficient refrigerators-freezers.

Refrigerators-freezers' electricity consumption represents 30% of total residential appliance consumption. The market for refrigerators-freezers in Norland is divided equally between the publicly owned and managed rental properties, and the private sector.

A purchasing group was formed between:

- NAPD (National Agency for Property Development) which owns and manages multi-family housing,
- SchoolTek, which purchases white goods and ICT equipment for all public housing, public schools (including vocational schools) and public (state) universities,
- the National Association of Housing Cooperative (NAHCoop),
- the Norland Board for Consumer Policies, and
- the Norland National Energy Corporation.

NAHCoop participation is voluntary and opportune as it is an NGO/cooperative but sees price and negotiating advantages in purchasing together with NAPD.

Thus, the PPI process aims to support innovation both as a buyer and as a catalyzer, in interaction with manufacturers and importers, as well as with NAHCoop.

Consultants-experts on contract with the NAPD, with support from organizations from the purchaser group, proposed that purchased products would need to be 40% more efficient than average existing products installed.

However, the current suppliers (national manufacturers and importers) propose refrigerators-freezers that are only 25% more efficient than the average installed refrigerators/freezers. These were calculated estimate based on the technical specification of the equipment "as-new", while in reality their energy efficiency is probably much lower.

The most efficient refrigerator/freezer on the market consumes about 1 KwH per year, while the average installed equipment in property under NAPD management consumes 1.3 KwH annually.

A request for proposals was circulated locally and internationally, followed by a declaration from the NAPD guaranteeing the acquisition of 5,000 units for their rental properties, while NAHCoop took on option to buy 1,500 units, provided these met technical and price criteria and the committed to regularly buying the chosen finalist product. The first purchase was granted a 30% subsidy by the NTPP to the NAPD and NAHCoop.

Five manufacturers submitted proposals of which three fully met the criteria and were accepted for evaluation in June 2010.

The winning company, Electroland SA, proposed a refrigerator/freezer that consumed only 0.80 kWh annually. The purchaser group selected this design due to its performance and price, as well as because of its use of standard materials and technologies. The other two manufacturers, which were not finally selected, were awarded $20,000 as a goodwill compensation for their participation.

In December 2010 a prototype called the EL-RF2010L was tested and by September 2011 it was available on the market. The prototype used conventional technology and was 33% more efficient than the most efficient model available, 44% more efficient than the most popular model, and 60% more efficient than the average model in use in Norland households.

Not only did the purchaser group's order amount finally to 7,320 units, but an extra 3,350 units of EL-RF2010L were also sold between 2011 and 2015 in individual private purchases, highlighting the immediate impact that the original purchase created in the domestic market. Exports to Europe started growing after Electroland SA successfully completed certifications in 2013.

Cumulative energy savings between 2011 and 2015 from new and more efficient Electroland refrigerators-freezers alone were more than 1 GWh. NTPP estimated that annual savings would be about 1 TWh by 2025, all at a cost to NTPP of significantly less than half a million dollars.

Questions for reflection:

1. What were the main objectives of the Norland Technology Procurement Program (NTPP) in relation to energy efficiency?

2. How did the purchasing group in Norland aim to support innovation in the procurement process for energy-efficient refrigerators-freezers?

3. What were the key factors that led to the selection of the EL-RF2010L refrigerator/freezer design by Electroland SA by the purchaser group?

4. What were the immediate and long-term impacts of the procurement of more efficient Electroland refrigerators-freezers on the domestic and international markets, and what were the estimated energy savings achieved?

Questions for mentimeter/slido

How did the Norland Technology Procurement Program use public procurement to promote innovation?

A) By directly funding research and development in new technologies

B) By supporting the use of foreign technology in public projects

C) By leveraging bulk purchasing power to encourage manufacturers to produce more efficient and innovative products

D) By imposing penalties on companies that failed to meet energy efficiency targets

What was the main goal of the Norland Technology Procurement Program?

A) Increase national energy consumption

B) Promote the import of foreign technology

C) Reduce national electricity demand by 7.5 TWh

D) Replace all old refrigerators-freezers in Norland households

How innovative do you think the NTPP strategy was in promoting energy efficiency in Norland?

A) Very innovative – it effectively combined public procurement with market incentives

B) Somewhat innovative – it encouraged energy savings but had limited impact

C) Not very innovative – it relied on conventional technology and existing products

D) Not innovative at all – it focused only on subsidies without fostering real innovation

How useful do you think a public procurement policy like the NTPP would be in your country?

A) Very useful – it could significantly reduce energy consumption and promote local innovation

B) Useful to some extent – it might work but would need strong government support

C) Not very useful – private sector initiatives are more effective for driving energy efficiency

D) Not useful at all – such programs would face too many challenges to be successful here