Evaluating the impacts of energy-related R&D – NEDO's case

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New Energy and Industrial Technology Development Organization

Evaluation Department

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1. The Purpose and System of NEDO's Evaluation

What's NEDO?

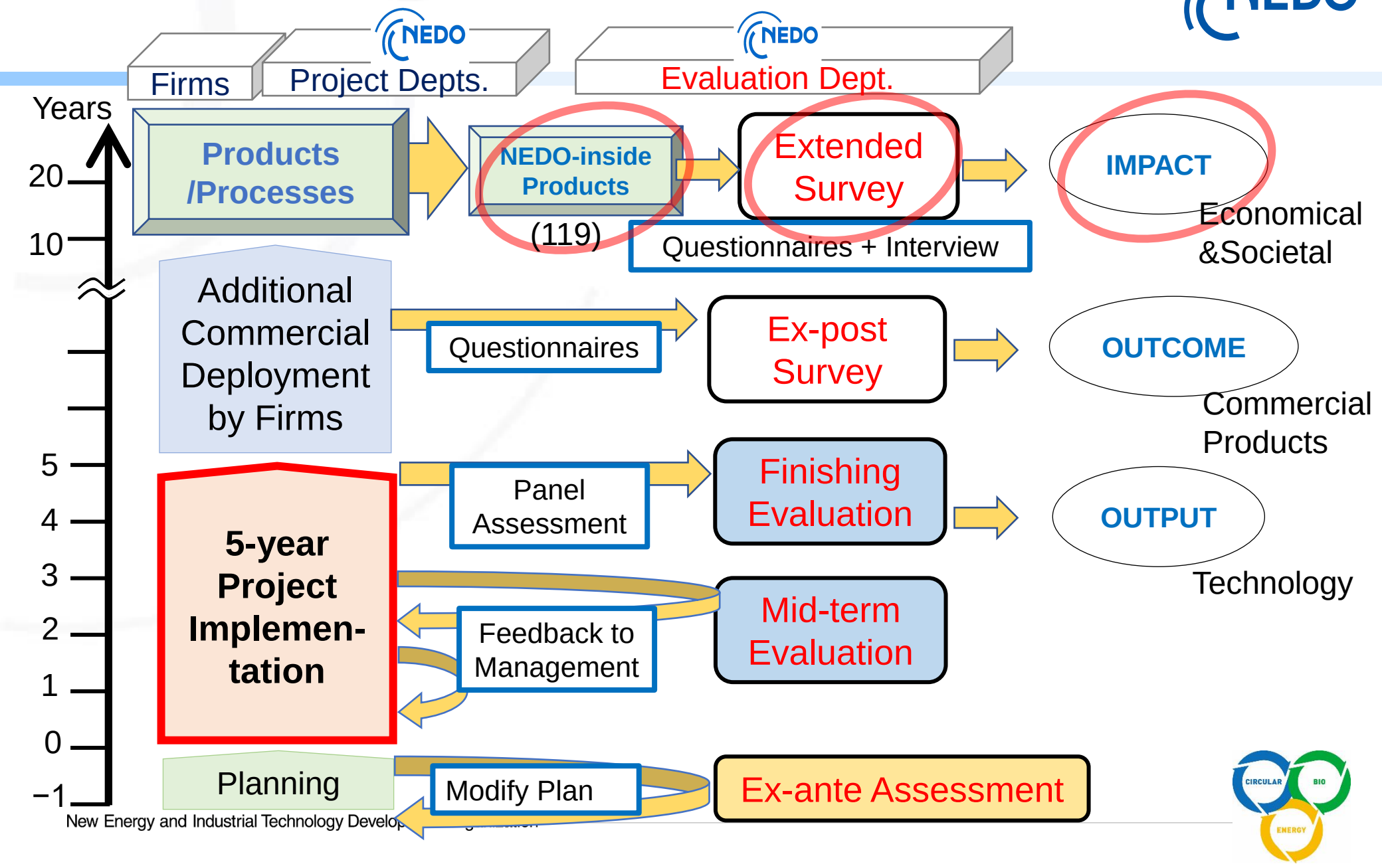
NEDO's Mission:

Maximize the outcomes / impacts through practical application of its projects.

Evaluation Department's Mission:

Assessment of the Outcomes / Impacts.

Outline of NEDO's Evaluation Scheme



2. “NEDO-inside” Products and Their Impacts

Economic Effect

Sales performance
(FY 2018)

41.8 billion US dollars

119 products

Environmental Impact

CO_2 emissions reduction
(FY 2018)

54 million tCO_2/year

31 products
relevant to government target

Energy-Saving Effect

Primary energy consumption reduction
(FY 2018)

3.3 million kL/ year of crude oil equivalent

19 products
relevant to government target

Sales performance
(From launch to FY 2018)

591 billion US dollars

*Calculated using data obtained from interviews with companies and from financial and industry association reports

Equivalent to approximately 4.4% of Japan's total annual emissions of 1.24 billion tons

*Reduction for 31 NEDO Inside Products relevant to government's target of 26% reduction by 2030

Equivalent to approximately 1.0% of Japan's total annual consumption of 340 million kL

*Reduction for 19 NEDO Inside Products relevant to government's target of 50.3 million kL reduction by 2030

3. Impact Assessment Methodology of Energy-Related NEDO R&D Projects

Step1. Determine the conventional method(reference product) and the base year.

Example of innovated / reference products :

- Domestic heat pump water heaters / conventional gas water heaters
- Power semiconductors (SiC/GaN) with more efficient converters / Si –base

Step2. Estimate the amount of energy saved per unit amount of product [kWh], amount of heat reduction [GJ], amount of fuel reduction [kL], etc.

Step3. Multiply this by the amount of use estimated in the survey, taking into account the annual operating rate and service life of the product.

The results are only for products used in Japan.
Values for global total estimation are not published yet.

4. Other Assessment

Other Economic Indicators (Results not open to the public)

(1) Economic ripple effect of NEDO projects
(2) Gross added value:
(3) Investment efficiency (gross added value / NEDO input cost)
(4) Employment creation

Summary

- NEDO estimates economic and societal impacts including energy saving using extended survey data for selected major products made by the projects.
- Energy saving amount is estimated by comparing selected products to conventional technology.
- Other indicators for economic impacts are under search.