



## Discussion on Alternative Innovative Energy from Material Flow Cost Accounting

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### Alternative Innovative Energy

The use of the traditional energy has caused the deterioration of global environment and exhaustion of resources. And there are two ways to deal with this problem globally, one is to discover the new energy like green energy and new species of minerals, and the other is to develop energy saving technology or approach like green design and material flow cost accounting. Although material flow cost accounting (MFCA) does not create new energy substantially, its implementation can reduce the energy use or increase productivity and reduce the environmental shock, so it also can be regarded as another innovative energy.

### MFCA Emphasizes why

As the ultimate cost of product, the processing costing system in cost accounting is used to accumulate the expense of the products through various departments, but it ignores the balance between input and output of materials or energy, while MFCA emphasizes that input equals to output, which means that the materials used for production should be equal to the product material plus the surplus material and waste material. It records the consumed material and surplus material in each stage in details, and calculates the cost of labor, material and energy etc. derived from the waste materials, provides information to the design or production and manufacturing personnel as the improvement basis, and it is thought that the waste material, i.e. the material loss equals to the waste of resources, and the production personnel should try to reduce the generation of waste materials.

### ISO 14051 International Standard

MFCA was originally freely promoted in various production causes, and later, upon the suggestion of Japan, ISO upgraded MFCA as an

international standard (ISO14051), but only announced the structure and declared that ISO 14051:2011 is not indented for the purpose of the third party certification. Throughout the complete structure, it is found that MFCA is centered on the delicate cost calculation of each department; strictly speaking, this should belong to the internal management information, if taken as internal profit and loss report, it should still belong to the financial accounting. Furthermore, on which conforms to the material or energy input and output standard, the detailed work process or calculation standard are not within the scope of ISO 14051 structure. We do not know whether new sections will be increased, and based on the current structure, it is difficult to help reduce the cost and environmental shock in the process of production.

### Green Design Interference

Actually, whether MFCA is successful does not lie in the information it provides, but in the challenge of engineering department, and it is the onsite engineer who is really responsible for promoting the waste reduction. According to the concept and technology of green design, to product more products with fewer resources, save energy while reducing waste materials, reduce the total cost and start from the end processing to pollution prevention, the product must be designed for environment at the very beginning. Take InnoLux Corporation, the first company in Taiwan obtaining the global first ISO 14051 certification, at first, it emphasized the material input and accurate calculation of loss of each production line, and later it developed and innovated "material saving" thinking to reduce the final waste material and reduce processing cost; the company improved the production waste from the manufacturing end and design end, evaluated the data collected in manufacturing and converted them to the losses, find out the hidden resource waste and improved it, so as to create a win-win situation of "environmental protection" and "economy".

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