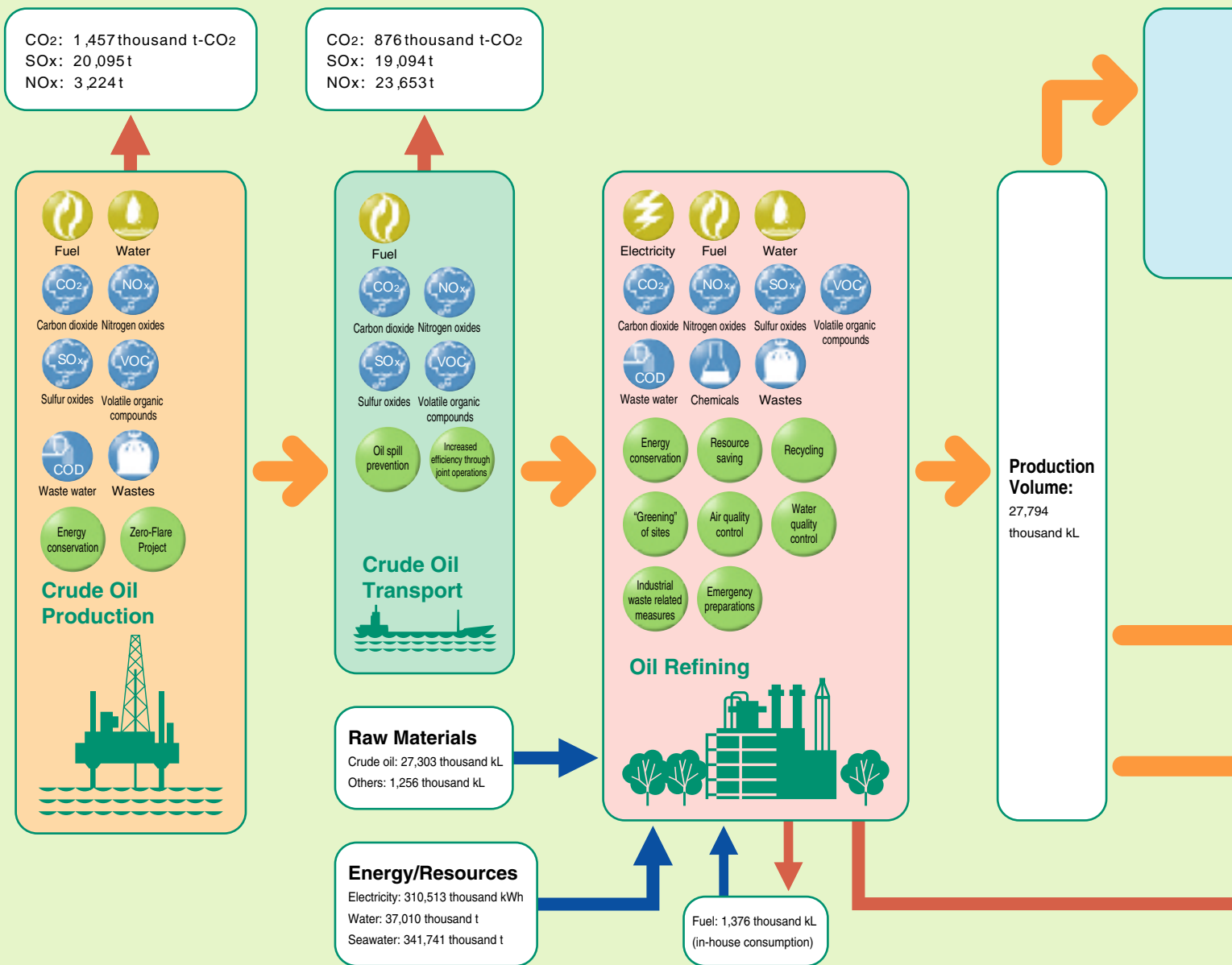


## Quantification and Effective Reduction of the Environmental Impacts from Business Activities

Cosmo Oil is engaged in business activities throughout the life cycle of oil, from oil field development and production in the producing nations, to crude oil transport, refinement and product transport to service stations (SS). To be able to provide products that have

less environmental impacts throughout their entire life cycle, including the consumption stage, it is important not only to work to reduce environmental impacts at each process, but also to assess what influence the activities in each process have on the



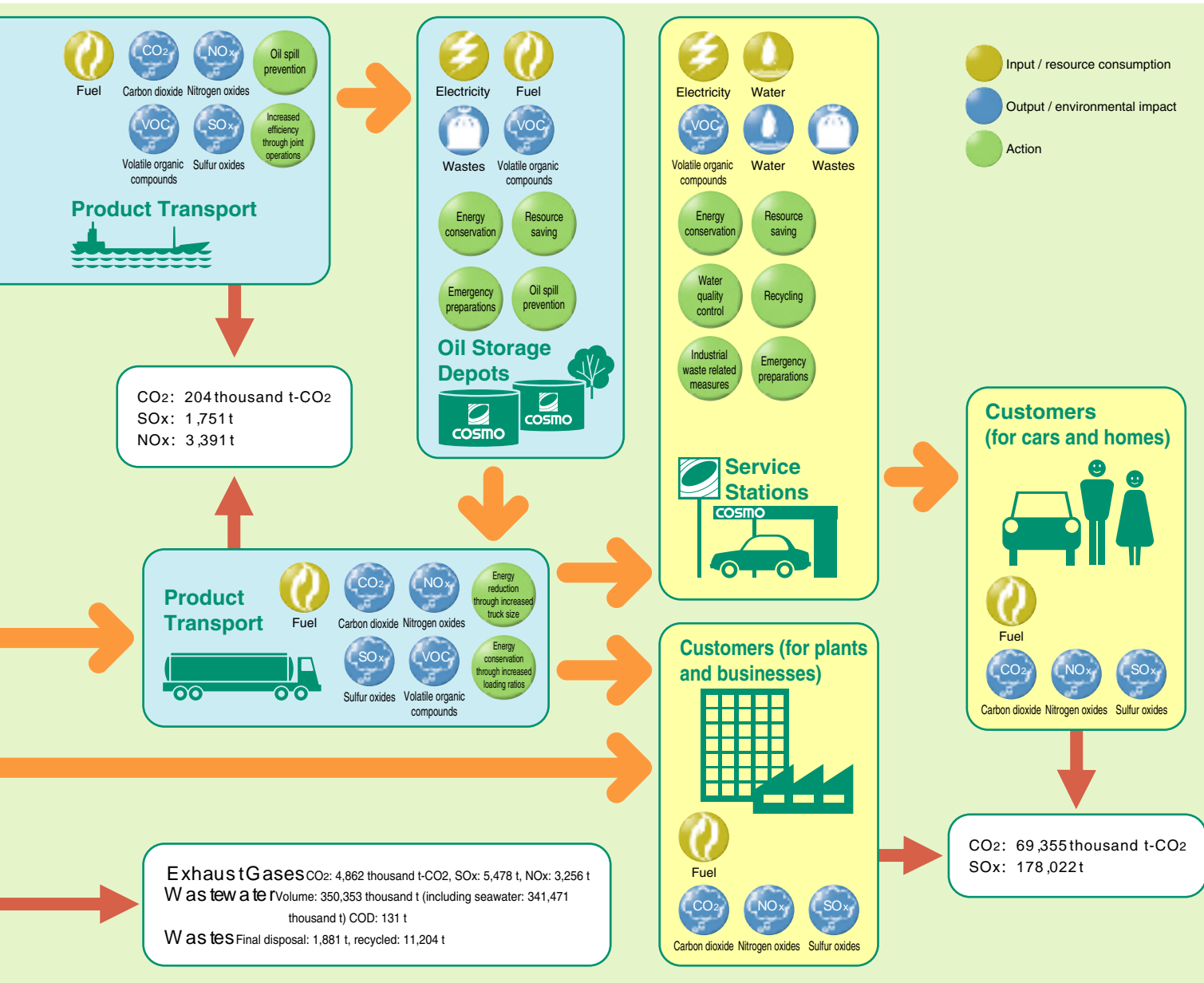
### Life Cycle Inventory (LCI) of Oil

	Crude oil production	Crude oil transport	Oil refining	Product transport	Product use	Total
CO <sub>2</sub> emission (thousand t-CO <sub>2</sub> )	1,457	876	4,862	204	69,355	76,754
SO <sub>x</sub> emission (t-SO <sub>2</sub> )	20,095	19,094	5,478	1,751	178,022	224,440
NO <sub>x</sub> emission (t-NO <sub>2</sub> )	3,224	23,653	3,256	3,391	—	—

- The figures are based on the production volume for FY 2001.
- The figures for "crude oil production", "crude oil transport" and "product transport" were calculated based on "LCI for Petroleum Products by Fuel and Environmental Impact Assessment for Petroleum Products", published in March 2000 by the Petroleum Energy Center.
- The figures for "oil refining" and for "product use" are based on the results of the environmental accounting. See "Environmental Accounting" for the method and basis for the calculation.
- Because the NO<sub>x</sub> emitted during "product use" is formed mainly from nitrogen in the air and products are used in a variety of forms, assessment of product-use NO<sub>x</sub> emissions is a difficult issue that remains to be addressed. Estimating the emissions of pollutants from oil storage depots and service stations also remains as a future task.
- Environmental impacts associated with plant construction are not included in the assessment.
- It should be noted that the environmental impacts of SO<sub>x</sub> or NO<sub>x</sub> such as photochemical smog and acid rain are regional impacts; therefore, unlike CO<sub>2</sub>, they cannot be assessed uniformly on a global scale.

other processes. For instance, a large amount of energy is consumed at oil refineries during the advanced refining process for product sulfur reduction thereby increasing environmental impacts; however, this reduces environmental impacts occurring at the

time of customer use. To support well-balanced, effective environmental protection activities, this year, we assessed the environmental impacts of each business process on a trial basis from a life cycle assessment (LCA) standpoint.



Proportions of Emissions of Pollutants throughout the Life Cycle of Oil

