Roche's Position on Energy[1]

Background

The preservation and evolution of modern life is dependent on a steady, reliable, safe, secure, affordable and sustainable supply of energy. Providing sufficient amounts of primary energy to meet the daily demand without adverse impacts on humans, the environment, and the economy is challenging. There are a number of issues and risks related to the supply and use of energy. In fact, energy-related issues affect seven of the 17 UN Sustainable Development Goals (SDGs), namely goals 6, 7, 9, 11, 12, 13, and 15. All energy resources have limitations that prevent their unconstrained utilization, be it finite fossil fuel and uranium resources, the competing use of arable land for energy crops, the limited number of suitable sites for solar, geo-thermal or hydro power facilities, imbalance between supply and demand for sustainable energy, lack of large-scale energy storage, resistance against all types of energy plants, as well as monetary constraints.

Coupled with ever-increasing world consumption – due to rising population and increasing living standards – energy shortages and rising energy prices are inevitable unless we significantly improve energy efficiency. The marked geographical and geopolitical imbalance between the world's net energy consumers and its net energy suppliers causes price fluctuations, supply interruptions and political tension as a result of unfavorable political and regulatory developments, unilateral economic measures and political instability or conflicts in various parts of the world. Energy supply can be hampered by plant outages caused by events such as technical failure, water shortage, loss of cooling, natural disasters, malicious or terror acts. In addition, unsteady energy supply coupled with fluctuating energy demand can produce grid instability.

From an environmental perspective, all energy activities (e.g. exploration, extraction, transportation, conversion and use) have either direct or indirect adverse impacts like the destruction of natural resources and habitats, damage of ecosystems and loss of biodiversity, the contamination of soil and water, (hazardous) waste landfilling, air pollution and depletion of water resources. Burning fossil fuels for energy generates harmful air pollutants such as carbon oxides, sulphur dioxide, nitrogen oxides and respirable dusts. Importantly among these, CO_2 emissions caused by human activities contribute to global warming and climate change. For more on this topic, see our position paper on climate change[2].
The interdependencies between water and energy are intensifying: energy production consumes or utilizes water and water processing and use consume energy; water shortage impacts energy supply security and energy shortage impacts water supply security.

[1] Pertains to SDGs 6, 7, 9, 11, 12, 13, and 15

[2] https://www.roche.com/dam/jcr:906a5aef-1035-4cc2-a011-dcf0e5b9f481/en/global_position_greenhouse_gases__climate_change.pdf

Incidents related to energy activities have potentially catastrophic and long-lasting effects on people, environment and business, such as large oil spills or nuclear incidents. Vast areas become devastated and contaminated with negative effects on local economies.
To address safety, environmental and supply security issues associated with energy activities, more regulations are introduced. These, in turn, further limit exploration, extraction and processing and have direct negative effects on energy costs.

Stakeholders' Expectations and Concerns

Different stakeholders have unique if not opposing interests.

- The private sector and industries expect affordable and reliable energy supplies.
- Industries and in particular the energy sector expect regulatory frameworks that ensure planning stability for their capital-intensive investments with long payback periods.
- Regulators define energy efficiency requirements, impose levies, limit emission allowances and establish frameworks and targets for sustainable energies in order to mitigate negative impacts.
- Investors expect companies to use energy economically and sustainably, as well as to manage all risks associated with energy supply, energy use and energy-related climate change.

We are all expected to collaborate in order to move towards a low-carbon and sustainable energy future. Companies like Roche are expected to continually increase their energy efficiency and finally switch to sustainable energies.

Roche Position

Like any company, Roche requires energy to operate. We use energy primarily to heat and cool production processes, run machinery and equipment, maintain controlled air environments, provide comfort heating and cooling and for transportation and business travel. In order to address energy-related issues, we have been acting towards a sustainable energy future for many years and continue to do so. Delaying actions would necessitate more dramatic, more disruptive, more expensive changes in the future.

We prioritize energy conservation and energy efficiency improvements as the most effective way to holistically address the many multi-faceted energy issues. This results in higher resource productivity – producing more with less impact on natural resources –, reduces costs and environmental impacts, addresses climate change, and reduces dependencies and risks associated with using energy. Roche's focus on energy conservation is in agreement with studies (e.g. the McKinsey study on global GHG abatement costs[3]), which conclude that investing in energy conservation and efficiency measures are the most cost effective.

[3] McKinsey & Company, "Pathways to a low-carbon economy"

Roche's long-term vision is to reduce energy intensity by 50% and substituting the remaining energy as to use nothing but sustainable energies by 2050. We invest in sustainable energy technologies such as solar and geothermal or purchase sustainable energy. However, substitution is only acceptable after energy efficiency has been optimized as far as feasible.
It is difficult to describe a detailed path towards these long-term goals, given the unknown and uncertain changes regarding the future of our business landscape, the product portfolio, new yet unknown emerging technologies and future legislation. Therefore, Roche pursues its long-term goals with a staggered approach by continually setting mid-term targets. These targets are based on the current situation and the foreseeable and anticipated changes and hence they can be well planned, managed and monitored. The current targets are published on the Roche webpage[4]. Roche aims to accomplish all its targets at source, i.e. by improving our own operations. The compensation of undue energy consumption is not accepted, as this would be a more costly option and place additional stress on finite energy supplies.

In 2006, we implemented an in-house Energy Directive (K18). It establishes a management framework and defines fundamental requirements to optimize energy use and hence minimize climate change. It covers all "energy consuming items" from motors through entire buildings, all processing plants and equipment. All decision-making shall consider the efficient, sustainable and cost-effective use of energy and enable the phase-out of non-sustainable energies.
To foster investments in energy optimization, we use "Life Cycle Analyses" that ensure the true balance of costs/risks and benefits of energy efficiency investments are being captured. The objective behind this approach is to direct investments towards the most efficient and financially competitive options.

Roche expects an increased shift towards low-carbon technologies and the transition to a sustainable yet stable and reliable energy infrastructure. The energy industry will need to provide reliable access to a well-balanced mix of technologies and geographically dispersed sustainable energy resources. In particular, solutions need to be developed to assure stable power grids and to store electricity to overcome the mismatch of unsteady sustainable energy generation and fluctuating energy demand. We believe that all promising options should be pursued, and technologies should be selected based on their human, environmental and economic impact.

This necessitates appropriate frameworks to support research and development, to encourage businesses to innovate and develop new technologies and to promote the utilization of low-carbon and sustainable technologies. Roche prefers voluntary action. Should regulations be introduced, Roche would welcome flexible frameworks that allow sufficient time and technical, organizational and procedural freedom for change and development. Given that energy projects are long-term investments, reasonable

[4] http://www.roche.com/sustainability/what_we_do/for_communities_and_environment/environment/our_she_goals_and_performance.htm?tab_id=tab1

transition periods are vital to enable appropriate action to be taken in the course of normal capital replacement cycles.

Energy is a global issue that needs to be addressed by all of us, on both a local and global scale. All must contribute to ensure the transition towards a sustainable energy future. We as Roche want the burden for action to be fair, and we expect regulations and sustainability rating schemes to acknowledge and take into account our prior achievements.

Roche continues to be committed to use of the earth's resources responsibly. Roche promotes greater environmental responsibility by supporting:

- The principles in UN Global Compact regarding climate;
- United Nations' Sustainable Development Goals;
- The Paris Climate Accord approved at COP21 by supporting the long-term goal to limit the increase in global average temperatures well below 2°C and to pursue efforts to limit the increase to 1.5°C;
- Adoption of a global framework (based on COP21) to address greenhouse gas challenges under which all major emitting countries are committed to emission reduction goals;
- Open and transparent reporting and the global harmonization of simple reporting schemes, which support good decision-making.

Outlook/Status/Current engagement and initiatives

With our management system, our goals and in particular with our highly committed employees, Roche has developed a successful strategy to deliver significant energy optimization results and maintain positive momentum towards the sustainable energy future by 2050. Based on our strategy sites are required to develop roadmaps towards the sustainable energy future long-term and establish and implement mid-term action plans to achieve the mid-term goals. The exchange of best practices in energy savings and emission reductions is encouraged through a variety of communication channels.
Roche's energy optimization activities are well perceived by the public and we frequently earn high scores in investor-backed sustainability rating programs. Roche is being ranked among the most sustainable healthcare companies in the Dow Jones Sustainability Index for many years.

Beyond the impacts of our own operations, Roche recognizes that there is a variety of indirect environmental impacts throughout our value chain. We want our business critical suppliers and service providers to also establish goals and action plans to reduce their environmental impact. They are selected not only on financial but also on sustainability criteria and they are actively managed for sustainability. Roche has also established a Product Stewardship (PS) program that is designed to reduce the ecological footprint of

our products, including resources consumed during product use (e.g. energy and water)[5].

We systematically analyze and evaluate risks associated with energy-related activities and take appropriate measures to reduce such risks to acceptable levels. This covers environmental, social, and economic as well as energy supply chain risks that could affect business continuity. To date, no significant non-covered risks to Roche's business have been identified. The diversification of manufacturing among different locations globally helps to reduce the potential impacts from an energy-related business interruption event.

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[5] For more detailed information on Roche's PS program see the PS intranet page: https://www.roche.com/dam/jcr:5afa4418-ead4-4b4a-b3e6-aa9fa1efea28/en/position_product_stewardship.pdf