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6 ENGINE-FRIENDLY FUEL

SECOND-GENERATION biodiesel does not cause corrosion or coking problems in engines or fuel injectors, and does not shorten the life of motor oil either.

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REFINE IS **NESTE OIL'S** QUARTERLY MAGAZINE FOR INVESTORS, CUSTOMERS AND OTHER STAKEHOLDERS. PUBLISHED IN FINNISH AND ENGLISH.

OSMO **KAMMONEN**, SENIOR VICE PRESIDENT

COVERING ALL THE BASES

WE AT NESTE OIL are committed to extending and reducing the cost of the feedstock base we use, both in our conventional petroleum products and our biofuels. Our NExBTL Renewable Diesel is the best in the field, thanks to the flexible range of raw materials that can be used to produce it – virtually any vegetable oil or animal fat, in fact. NExBTL also wins hands down in terms of quality. Other biodiesels are typically based on a single vegetable oil input, normally oilseed rape in Europe.

DESPITE the excellence of our NExBTL technology, we don't intend resting on our laurels in terms of the advantage we currently enjoy, as we want to further extend the range of raw materials we can use, and eliminate potential competition with food producers. That's why we recently launched a project with Stora Enso and VTT Technical Research Centre of Finland to enable us to use logging residue as a raw material for renewable diesel fuel in the future.

USING forest-derived biomass in this way is only the beginning, though, as it won't be sufficient to replace crude oil to a sufficiently significant degree. As a result, we're also now beginning to look at sources offering a faster rate of renewal, such as algae, bacteria, and microbes. Making use of these resources is still a long way off, however.

WE ALL SHARE a common concern about climate change. A rapid way to make an impact here is to switch to diesel. At Neste service stations starting this fall, you will be able to fill up with top diesel quality also if you want bio.

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"Thanks to our refining expertise, we can produce cleaner fuels from a wider range of cheaper feedstocks," says **Juha-Pekka Kekäläinen**.

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Rail carries crude thousands of kilometers from beyond the Urals or even as far as Kazakhstan.

A LUBRICANT FOR **ALL SEASONS**

1 **EVERY ENGINE HAS ITS LUBRICANT.** Traditional wisdom used to recommend frequent oil changes and be happy with a lubricant that did its job as well as could be expected and did not leak. Products capable of surviving cold snaps without freezing solid and breaking an engine's moving parts were more the exception than the rule. Well, things have changed a lot over the last 15 years.

"One and the same automotive manufacturer can specify as many as 12 different types of motor oils for the vehicles it produces today," according to **Aapo Niemi**, a technical specialist with Neste Oil.

A number of factors have contributed to this range of lubricants, both technical and commercial. Manufacturers are keen to market marque- and model-specific approvals to oil companies.

"Oil change intervals have grown dramatically. It's very typical for an oil change interval to be anywhere between 20,000 and 30,000 kilometers today. In the case of some models, it can be as long as even 50,000 kilometers."

2 **THINNER IS BETTER.** "Manufactures want ever-thinner, lower-viscosity lubricants for their engines, as this means less friction and lower fuel consumption," continues Niemi.

The sulfur and phosphor content of lubricants has also been reduced in recent years as a result of tougher emission norms, and additive packages better tuned to enhance low-emission performance.

The use of lower-viscosity lubricants and the trend towards longer oil change intervals means that lubricants need to be topped up at regular intervals.

"As a result of the long intervals between oil changes today, drivers sometimes have to add as much as twice the volume of lubricant in their vehicles in the form of top-ups. This shouldn't be seen as a problem, though, it's just a necessity."

3 **NO COMPROMISE ON QUALITY.** Tougher product liability legislation has also had its own impact on automotive manufacturers.

"Importers and manufacturers are very specific about what they want to put in their vehicles today. Some vehicles even feature systems that can reveal whether a manufacturer's recommended products have been used or not. Unless they have, a manufacturer can void the terms of its warranty, for example."

People can make mistakes with the lubricants they choose even inadvertently, as requirements have changed a lot in a relatively short space of time.

"Even car manuals don't always tell you the whole story. And that's why we provide a comprehensive lubricant advice service, by phone or via the Internet. |

See: www.neste.fi → services → recommended lubricants

MINERAL OILS

When producing a mineral oil, the refiner removes harmful contaminants such as sulfur and paraffin wax, and splits the hydrocarbon chains into fractions, based on their molecular size. Paraffin hydrocarbons make by far the best lubricants.

VHVI AND EHVI BASE OILS

VHVI (Very High Viscosity Index) oil, refined from crude oil, can offer almost the same properties that a synthetic oil can. The waxes contained in the paraffin hydrocracked fraction are removed using solvent extraction. Neste Oil's EHVI (Extra High Viscosity Index) base oil is based on catalytically isomerizing and hydrogenizing hydrocarbon molecules, which results in better stability and low-temperature performance than can be achieved by VHVI oil.

SYNTHETIC BASE OIL

This product, produced chemically, represents the best possible lubricant and is completely free of unwanted components. PAO (polyalphaolefin) is the most widely used component of modern motor lubricants.

"Oil needs to be topped up a number of times with oil change intervals of up to **50,000** kilometers."

Neste City Pro 5W-40

Neste City Pro 5W-40, a fully synthetic general-purpose motor oil, was updated last fall. Particular priority was given to further improving its low-temperature performance.

Neste City Pro 5W-40 meets the requirements of the BMW Longlife 2004 and Mercedes Benz 229.31 standards. It also meets the new ACEA C3 and A3/B4 standards, which makes it ideal for a large number of modern gasoline and diesel vehicles.

Alongside Neste City Pro 5W-40, Neste Oil also offers numerous specialty lubricants, including Neste City Pro W 5W-30 for Volkswagen, Audi, Seat, and Skoda, Neste City Pro A5/B5 for Volvo, Neste City Pro LL 5W-30 for Opel and Saab, and Neste City Standard 5W-30 for Ford models.

MINERAL OR SYNTHETIC?

Neste Oil imports many of the base oils and additives used in its lubricants. In-house production has focused on premium-grade PAO and EHVI base oils, which are produced in Belgium and at Porvoo in Finland.

Mineral-based oils produced from base oils are on the way out as lubricants, as they are incapable of meeting all the requirements of modern engines.

Synthetic oils, based on synthetic hydrocarbons, operate better at high and low temperatures. Synthetic lubricants can be used to replace mineral oil-based lubricants, but not the other way around.

Selecting the right viscosity, or SAE rating, is important when choosing a lubricant. Too viscose an oil can cause problems at low temperatures. The smaller the SAE number, the lower its viscosity. API and ACEA classifications are used to define which lubricants are best suited to which engines.

Both mineral and synthetic base oils can be used to produce lubricants, and mixing the two produces a partially synthetic lubricant.

CLEANER ALL THE WAY

NExBTL Renewable Diesel reduces the pollutants in vehicles' tailpipe emissions, thanks in part to its high cetane number.

TEXT OLLI MANNINEN | **PHOTOS** MIRVA KAKKO, ARTO WIIKARI

A diesel fuel with a high cetane number, like NExBTL, will ignite rapidly in the high temperature and pressure found in the cylinder of an engine as it turns over. But how does it do that and what really happens in an engine running on a fuel produced from vegetable oil and animal fat?

When we start a diesel engine, the pistons rise in their cylinders, increasing the pressure in them as a result. During the compression cycle, the pistons compress just air, but when the air begins to heat up, fuel is injected in the form of a fine mist, causing it to evaporate and ignite.

"Rapid ignition is important in a diesel engine, to keep noise levels and tailpipe emissions down," explains **Seppo Mikkonen**, an engine and fuel specialist at Neste Oil's R&D Unit at Porvoo.

NExBTL's high cetane number makes the new fuel a very competitive alternative. NExBTL's cetane number of between 80 and 100 compares very favorably with the 50+ typical of a conventional diesel fuel.

"The rapid ignition typical of NExBTL is particularly valuable when starting in the cold. The other positive properties offered by NExBTL are longer-term."

Unlike first-generation biodiesel, which are typically methyl esters, NExBTL does not cause any corrosion or coking problems in fuel injectors or engines generally, and does not shorten the life of motor oil either.

"NExBTL'S HIGH CETANE NUMBER MAKES THE NEW FUEL A VERY COMPETITIVE ALTERNATIVE."

f a new fuel. Part 2: Production technology. **See the Web edition:** www.nesteoil.fi → media → publications → Refine Online

"THE RAPID IGNITION TYPICAL OF NExBTL IS PARTICULARLY VALUABLE WHEN STARTING IN THE COLD."


SEPPO MIKKONEN

"Most automotive manufacturers have been quite cautious in respect of first-generation fuels because of the problems associated with them."

NExBTL Renewable Diesel can be used in any diesel vehicle, and offers even better-quality performance than conventional fossil-based diesel fuel.

LOWER EMISSIONS. Diesel engines impose a smaller burden on the environment in terms of greenhouse gases than equivalent gasoline engines, as they are more fuel-efficient.

"A gasoline engine uses 1.4 times more fuel than an equivalent diesel engine," says Mikkonen.

NExBTL also generates lower levels of tailpipe emissions. In addition to being sulfur-free, NExBTL is also aromatics-free. The lower the aromatics content of a fuel, the lower the levels of compounds hazardous to health there will be in tailpipe emissions.

"If a vehicle is run 100% on NExBTL, it will generate 30% less particulates. That's as big a reduction as if 30 vehicles out of every 100 were to be taken off the roads," says Mikkonen.

As any diesel vehicle can use NExBTL, the greater the potential there will be to cut overall vehicle-related emissions, the more people switch to the new fuel.

NExBTL's cold-temperature performance easily outperforms that of first-generation biodiesel. This will eliminate the type of problems that have been experienced in northern Sweden, where use of this fuel has had to be stopped completely during the coldest part of the year because numerous trucks simply refused to run. In southern Sweden, the amount of biodiesel blended with conventional fuel has been reduced from 5% to 2% because of poor performance.

What about consumption figures? Will engines need less fuel if they are run on NExBTL?

"Data collected by automotive manufacturers and VTT Technical Research Centre of Finland have shown that the NExBTL combustion process is more efficient than that of fossil diesel," says **Sami Oja**, responsible for NExBTL sales and marketing.

"Of course, actual mileage depends on how an engine's electronic fuel injection system performs. Different fuels behave slightly differently in different engines, depending on their specific engine characteristics."

Thanks to its superior properties, blending NExBTL with either fossil diesel or first-generation biodiesel will improve their performance.


SAMI OJA

"This opens up interesting prospects for exporting NExBTL to countries where first-generation diesel fuel has already established itself."

LOOKING AT ALGAE. Oil extracted from seaweed and algae could be one of the feedstocks used in producing NExBTL Renewable Diesel in the future. Neste Oil experts are already studying the potential of these materials and others.

Algae is proving particularly interesting because of the impressive yields it offers.

"A hectare of oilseed rape, for example, produces about a ton of vegetable oil, while a hectare of palm oil trees will produce around five tons. Algae, in contrast, has the potential to produces tens of tons," says Sami Oja.

Another factor that makes algae an attractive raw material is that it can be cultivated on an industrial scale, alongside an oil refinery, for example.

Research on algae is progressing rapidly, but up until now no solution has been found for producing oil from algae on a commercially profitable basis.

"In addition to algae, *jatropha*, a plant that grows in Africa and Asia, is also another potential source of raw material for fuel. It's not an edible crop, so we wouldn't be competing with food manufacturers for the same material," continues Oja.

As the volumes of biodiesel produced from renewables increases, we can expect the debate about the wisdom of fuel producers, food manufacturers, and animal feed companies competing with each other for the same commodities to intensify.

"THE NExBTL COMBUSTION PROCESS IS MORE EFFICIENT THAN THAT OF FOSSIL DIESEL."

Kai Sipilä, a researcher with VTT, says that fuel market needs have already increased the price of food and cereals in the US. Longer term, this is not a welcome trend.

"It's all about choosing the most sensible way forward. Brazil, for example, produces sugar cane for both food manufacturers and fuel use. Using sugar cane to produce ethanol has become a profitable industry there, without the need for agricultural subsidies."

PRIORITIZING PROGRESS IN THE EU. The biofuel strategy adopted by the EU is intended to encourage member states to focus on feedstock that will help reduce greenhouse gas and tailpipe emissions, and that will be cost-effective and contribute to a more sustainable future, says Kai Sipilä.

"Oilseed rape does not meet all these criteria, and is certainly far from ideal for second-generation biofuels, let alone third-generation ones. Field-grown cereals are also not sufficiently cost-effective or attractive in terms of their contribution to the greenhouse balance, either."

Instead, he sees forest industry byproducts, industrial recycled fuels, and other cultivated plants as likely to be the main raw materials for biofuels in the future.

Land across the EU not used for food production could well soon be growing crops for bioenergy needs.

"Growing bioenergy crops offers farmers a better return that cereals do. Reed canary grass, willow, and other plants can all be grown to produce raw material for biofuel production, and as fuel for heating purposes."

Municipal and industrial waste represents another resource that has largely gone untapped so far in Europe.

"Some 200 million tons of biodegradable waste, which could be used as a source of energy, is currently sent to landfills in Europe every year at the moment." |

EUROPE'S **CLEANEST PUBLIC** TRANSPORT

THE HELSINKI Metropolitan Area Council (YTV) is aiming to switch as many as half of the buses in Greater Helsinki to using NExBTL. A three-year trial that will begin this coming fall promises to result in Europe's cleanest metropolitan public transport system.

Cooperation between YTV and Neste Oil represents a major step forward in reducing the particulate and nitrogen oxide emissions released into the atmosphere by public transport. As much as 90% of the fine particles in the air in Greater Helsinki come from the diesel vehicles used in public transport and by distribution and haulage companies.

It will be possible to reduce the particulate emissions generated by public transport by tens of percent using NExBTL Renewable Diesel.

Reijo Mäkinen, head of the public transport services unit at YTV, sees the NExBTL project with Neste Oil as an important step forward, and one that will help YTV be among the front runners.

"Sustainable development is one of our basic values, and we're keen to see public transport become more environmentally friendly."

YTV and the bus companies in Greater Helsinki have high expectations of the three-year trial. Switching to NExBTL will not require any special investments, either.

"It's important that the project won't generate additional capital investment needs," says Mäkinen.

Neste Oil experts hope that the government will support the project by offering tax relief in 2007. New legislation due to come into force next year will require fuel distributors to blend 2% biofuel content into their traffic fuels, and this will increase to 4% in 2009 and 5.75% by 2010.

THE AIM OF THE TRIAL being coordinated by YTV and Neste Oil is to include hundreds of buses and tens of waste disposal trucks fuelled either on 30% NExBTL or 100% NExBTL.

This will see between some 5,000 and 10,000 tons of NExBTL Renewable Diesel used annually, equivalent to 15-30% of the fuel used by buses and waste trucks in Greater Helsinki.

When buses switched to City Diesel some years back, this had a major impact on sulfur emissions in Greater Helsinki, and NExBTL will build on this achievement by reducing particulate and nitrogen oxide emissions.

"NExBTL will enable public transport to make a rapid transition to a cleaner future. We're also interested in other ways of promoting a more sustainable foundation for public transport generally," he continues.

YTV's vision of the future also involves introducing hybrid buses on the streets and roads of Greater Helsinki, equipped with a small diesel engine running on NExBTL and a supercondenser-based electric engine that would use vehicles' brake fluids during acceleration.

HIGH **EXPECTATIONS**

We asked four people about their expectations of NExBTL Renewable Diesel, due to hit the roads this coming fall

1 **Pekka Puputti,** Managing Director, Association of Automobile Importers in Finland

"We see reducing traffic-related carbon dioxide emissions as essential. Using biofuels will help achieve this. We believe second-generation fuels, such as NExBTL Renewable Diesel, that meet the requirements of both automotive manufacturers and the EU, as a better alternative than the others on offer. The number of diesel vehicles is growing all the time, and Neste Oil's new fuels are playing their own part in pushing this development forward. We can only hope that the costs of new fuels remain reasonable and that it will prove possible to develop new raw material alternatives alongside vegetable oil and animal fat."

2 **Osmo Reen,** Technical Director, Veolia Transport Finland Oy

"The upcoming NExBTL trial in Greater Helsinki will see buses and waste trucks using the new product, as part of efforts to significantly reduce the harmful components contained in tailpipe emissions. This is a very positive development and will enable a lot of people to benefit from the advantages of biodiesel. The project has been structured so that bus companies will not have to pay a higher price for the new fuel. Looking further ahead, though, it seems pretty certain that fuel prices will rise, and this will be reflected in ticket prices, inevitably. Introducing biodiesel will help achieve the emissions targets that the EU has set for traffic."

3 **Günter Kleinschek,** Fuel Specialist, Scania CV AB Product Development

"NExBTL appears a very promising fuel, as it will enable traffic-related emissions to be cut, as required under the EU's biofuel directive. It's a high-quality product that can be blended with existing diesel. It can be produced from a variety of raw materials and still guarantee consistent quality; and can be used in Scania's existing engines and new ones under development without any modifications."

4 **Kari Latvanen,** private driver

"Current diesel technology has come a long way, and NExBTL looks set to take it further. It's not likely to have any personal impact for me just yet, though, as I intend continue to run my gasoline-powered car for some time. I've always been a bit skeptical about cars because of their impact on the environment, not only in terms of their emissions but also their impact across their entire life cycle. I have a relatively new car, but I don't drive it an awful lot, and mainly use public transport. I welcome any project that will help us reduce the impact traffic has on our surroundings."

NEWSWEEK magazine has ranked Neste Oil among the 100 best companies worldwide in adapting to climate change.

The ranking was based on an analysis of 1,800 companies from 16 countires by business-ethics magazine Corporate Knights (www. corporateknights.ca) and research firm Innovest Strategic Value Advisors. The companies were ranked on how effectively they manage environmental risks and opportunities relative to their industry peers.

2,000 VOLUNTEERS BEHIND THE NESTE OIL RALLY

A TEAM of 2,000 volunteers behind the scenes will help ensure the safety of the some 200,000 visitors expected at this year's Neste Oil Rally in central Finland at the beginning of August.

"This year we'll be paying particular attention to ensuring that spectators remain within designated areas and keeping the number of people moving unescorted from one special stage to another to a minimum," says **Seppo Harjanne**. One of the organizers today, Harjanne was navigator for **Timo Salonen** and **Tommi Mäkinen** on six rally victories.

Although the majority of safety and security personnel are old hands at the event, everyone goes through three-stage safety training every year.

"We went over general procedures and issues at sessions during a couple of days this April. After this, we'll go through field operations, and in June we'll review the special stages."

PROPANE IS **THE BARBEQUE** FAVORITE

LPG, or propane as most people know it, is an environmentally friendly, safe fuel ideal for summer barbeques.

Users should always remember, however, that barbeque equipment intended for outside use should never be used inside, says **Veijo Kokko**, of Tehokaasu. Equipment should also be inspected regularly.

"Damaged gas lines should be replaced, as well as pressure regulators."

The bleed valves fitted to propane bottles intended for domestic use are designed to release excess pressure in the event of a fire or similar situation. Equipment designed for indoor use should be fitted with a flame guard to cut off the flow of gas from the burner should the flame go out.

Propane bottles should always be stored in an upright position. They can be placed on their side for short periods, however, when transporting them, for example, if the valve guard is in place and if the bottle is supported to prevent it rolling about.

Neste Oil will take part in a safety campaign organized by the Finnish Oil and Gas Federation this spring that will see fire services personnel providing advice to dealers and consumers on safety issues.

BRAND IN GOOD SHAPE

A STUDY carried out on the Neste Oil brand in January and February this year confirmed that quality, reliability, and expertise continue to be seen as Neste Oil qualities – and as integral to the brand, which has continued to go from strength to strength.

The study was based on telephone interviews with members of the general public and representatives of Neste Oil's stakeholders. A total of 250 private individuals were interviewed, together with 18 investors, 22 politicians, and 10 media representatives.

Preparing to celebrate **50 YEARS!**

NESTE OIL'S Naantali refinery will celebrate its 50th anniversary in **August**. Intended to help secure Finland's fuel supply, the investment also marked a commitment to new technology in a country that had based its industry on forest products to a large extent up until then.

Naantali proved a good location, as it already had a harbor and was rail-connected. Construction work on the refinery began in spring **1955**, and the first delivery of crude arrived on July 26, **1957**. Production was ramped up during the rest of the summer and early fall, and the refinery was running at full capacity by October the same year.

NESTE OIL AND STORA ENSO **JOIN** FORCES

NESTE OIL and forest products giant, Stora Enso, are to jointly develop new-generation biofuels from wood-based materials, as a means of reducing our reliance on fossil fuels and cutting greenhouse gas emissions.

The project will draw on both companies' expertise, as well as that of VTT Technical Centre of Finland. A pilot plant will be built at Stora Enso's Varkaus Mill for commissioning in 2008. Output will be refined at Neste Oil's Porvoo refinery into commercial-grade renewable diesel.

SHIPPING AWARD FOR **ERKKI KOTIRANTA**

The Finnish Maritime Theme Award for 2007 was presented to Neste Shipping's Erkki Kotiranta on board the m/s Silja Serenade at the 22nd Theme Day event in early March.

Kotiranta's wide-ranging maritime expertise and the contribution that he has made to the industry as a teacher, a leading figure in the harbor and port business, and as a shipowner representative were among the many credits that led to the award. Kotiranta has also been extensively involved in international activities, and is particularly well-known for his Russian contacts.

JUKKA-PEKKA KEKÄLÄINEN

Senior Vice President, Corporate Development | Born: 1962 in Helsinki **| Education**: M.Sc.(Eng) **| Career**: Joined the company in 1987 to write his student dissertation. He then went on to serve 10 years in the component business, three of them in the US. Prior to his current position, he worked in term sales and business development for Oil Refining. **| Motto**: Things have a habit of sorting themselves out **| Family**: Wife and three children, aged 9, 6, and 2 **| Hobbies**: Being a family man with young children, his opportunities for hobbies are limited, but he still enjoys films and reading.

TARGETING major markets

TEXT KIRSI RIIPINEN | **PHOTOS** KAISA RAUTAHEIMO

Imagine for a moment that you are a fly on the wall when a busload of small investors arrives at Neste Oil to meet Juha-Pekka Kekäläinen. He was chosen to host the visit, because, as the company's Senior Vice President, Corporate Development, he if anyone should know Neste Oil's current and future strategies inside out.

Where would you start when profiling Neste Oil to potential new investors if you wanted to give a short but to-the-point presentation, Juha-Pekka?

"Without doubt, I'd begin with our updated strategy, and in particular our emphasis on extending our feedstock base. This sums up the essentials. Building on our in-depth refining expertise, we're aiming to produce ever-cleaner fuels from an ever-wider base of cost-effective feedstocks."

Kekäläinen emphasizes that, thanks to its expertise and innovative technology, Neste Oil can already handle some of the industry's most 'difficult' feedstocks. Being difficult, they are also cheaper, which gives Neste Oil a better margin.

PUTTING A BRAKE ON CLIMATE CHANGE. "Renewables are the subject of increasing interest on the feedstock side," continues Kekäläinen. "The EU has set some very challenging targets in this area. Biofuels are clearly one way forward on the road to combating climate change."

Since traffic levels are increasing all the time, there is a need to cut carbon dioxide emissions.

"Fuels have developed a lot in recent years, and we've eliminated sulfur from our gasoline and diesel fuel completely, for example."

"There are a lot of opportunities in the oil industry for companies with the drive to succeed," according to **Juha-Pekka Kekäläinen.** "And Neste Oil really has something new to offer."

”WE’RE VERY ENTHUSIASTIC ABOUT BIOFUELS, AND WE’VE GOT THE TECHNOLOGY AS WELL.”

Carbon dioxide emissions continue to be a problem, however, and are directly linked to how much fuel is used. Increasing our use of biofuels has the potential to have a faster impact than changes introduced in vehicle technology.

“Replacing oil on the roads is more difficult than in a number of other areas. One of our key criteria in developing fuels produced from renewables has been to take sustainable development into account throughout the chain.”

Ensuring that biofuels can be produced at reasonable cost has been at least as important. Drivers should be prepared, nevertheless, for fuel prices to rise somewhat in the near future. On the other hand, people want to do their bit in combating climate change, says Kekäläinen, and numerous nations have committed themselves to being part of these efforts.

A PIONEER. Neste Oil has invested in its technological know-how for many years to generate new processes and products. This commitment has been reflected in the company’s new NExBTL Renewable Diesel.

The work that has been done on this technology has given Neste Oil a clear lead on its competitors.

“We’ve succeeded in building precisely the properties that automotive manufacturers want into our new renewable diesel. This is important, as manufacturers have traditionally been wary about the first generation of biofuels.”

The quality of early-generation fuels has been far from consistent, and they have proved incapable of providing the lower emissions that were hoped for. Storability has also been an issue.

“We’ve solved these problems. As a result, there’s strong demand out there for NExBTL, and we’ll be able to start meeting this demand when our new plant at Porvoo comes on stream this summer. When our second identical unit will start up at the end of 2008, we’ll be producing even more.”

Neste Oil also has plans under way to build another plant in cooperation with Austrian-based OMV.

“We intend building a number of these NExBTL plants, and possibly ones with a significantly larger nameplate capacity and outside Europe as well.

“We’ve amassed some valuable synergies as well, by building alongside existing refineries. As we move forward, we’ll be looking harder at where the end-user markets are for this type of product, as we’re planning to operate globally in the world’s key markets. No detailed decisions on this have been taken as yet, though.”

GOING FOR POLE POSITION. Neste Oil committed itself to low-emission traffic fuels back at the beginning of the 1990s. As a small and nimble company in oil industry terms, Neste Oil has the potential to respond rapidly to changes in the market. Environmental issues have also been prioritized for at least as long.

Juha-Pekka Kekäläinen believes that investors need to know that Neste Oil believes very much in diesel.

“It’s a great fuel from a climate change point of view as well, as diesel engines are so efficient. Diesel vehicles are becoming increasingly popular in Europe, and over half of the new car registrations in Europe last year were diesels. In the Finland, this figure is somewhat lower, at around 20%.

“Trials have shown that our NExBTL Renewable Diesel generates lower levels of emissions than conventional diesel fuels – and its properties are at least their equal, if not better.”

Virtually any vegetable oil or animal fat can be used to produce NExBTL.

“Our intention isn’t to replace oil completely with renewables-based fuel, but we do intend to seek major growth from this area. Within 10 years, we aim to be the world’s largest producer of premium-quality renewable diesel.”

GREEN WITH A CAPITAL G. Does an oil refiner have to go green in today’s world?

“Some might want to present themselves as ‘green’ out of necessity. But our commitment to biofuels is genuine. And it’s also based on a solid base of in-house technological expertise – one that gives us a clear competitive advantage.”

The changes that are taking place in the marketplace played a key role in the work that Neste Oil did on its strategy last year.

The updated strategy that resulted is more ambitious than any in the company's history, says Kekäläinen, and Neste Oil is very serious about turning it into reality.

MAKING THINKS WORK. When planning Neste Oil's future direction, you no doubt had to review the possible threats facing the company. What sort of threats are we talking about?

"One challenge is that we could identify a new opportunity but aren't able to take advantage of it sufficiently rapidly, and it passes us by."

The biggest threats facing a company like Neste Oil, however, are to be found on the feedstock side of things.

"The refining margins and competitiveness of alternative fuels would really be put under pressure if the price of crude oil were to drop from today's 60-70 dollars a barrel to say 20 dollars a barrel. It's very unlikely that this will happen, though, as the demand for oil is growing all the time."

And what would happen if the world were to run out of oil?

"The current estimates are that there is sufficient oil for another 40 years at existing levels of consumption. More will be discovered when the price is sufficiently high, as high prices encourage people to explore for and produce oil in increasingly challenging locations.

"We want to offer sensible alternative solutions that will work for our customers today, while continuing to research and develop new fuels into the future."

Does that help make Neste Oil a good investment?

"I'm not in a position to give investors that kind of advice, but I would say that Neste Oil is well-placed to succeed as we move forward. We're also a very enthusiastic company, and one that believes in its future." ❙

BIODIESEL PRODUCTION RAMPS UP

DELIVERIES of raw materials for the new biodiesel plant at Neste Oil's Porvoo refinery have begun, and the pretreatment unit has been started up. Pipework installation at the NExBTL plant and tank farm continued alongside the partial startup.

Excavation work on the site of the second NExBTL plant will continue until the end of May.

NORWEGIAN ENVIRONMENTAL AWARD

NORWEGIAN banking group, Storebrand, recently awarded Neste Oil 'Best in Class' recognition for its social accountability, based on an analysis of oil and gas companies carried out in 2006. Companies recognized in this way are approved as socially responsible investments (SRIs) by the bank. Neste Oil received particular praise for its environmental management.

DIESEL PROJECT MOVES FORWARD

THE START-UP of the new diesel production line at Porvoo is progressing well, although a fire in February has slowed the timetable slightly.

Production will ramp up on a phased basis during the summer, and the line will begin to benefit the Group's refining margin from the third quarter onwards.

TEXT MINNA TAKKUNEN | PHOTOS KARI HAUTALA, JUHA METSO

The fact that the Finnish and Russian rail systems share the same gauge simplifies transporting crude by rail a lot. Most trainloads of Russian crude destined for Neste Oil travel by night. Border inspections are particularly strict.

A RAIL pipeline

toimiala

A heat shimmer can be seen above the train standing at St. Petersburg's Finland Station, where passengers are waiting for it to depart, surrounded by their luggage and the bustle of the station.

A preserved steam locomotive housed under glass reminds everyone of one of the highpoints of the route's history, as it pulled the train that carried Lenin, disguised as a railway employee, from Helsinki to St. Petersburg in 1917 to set the fuse to the Russian revolution.

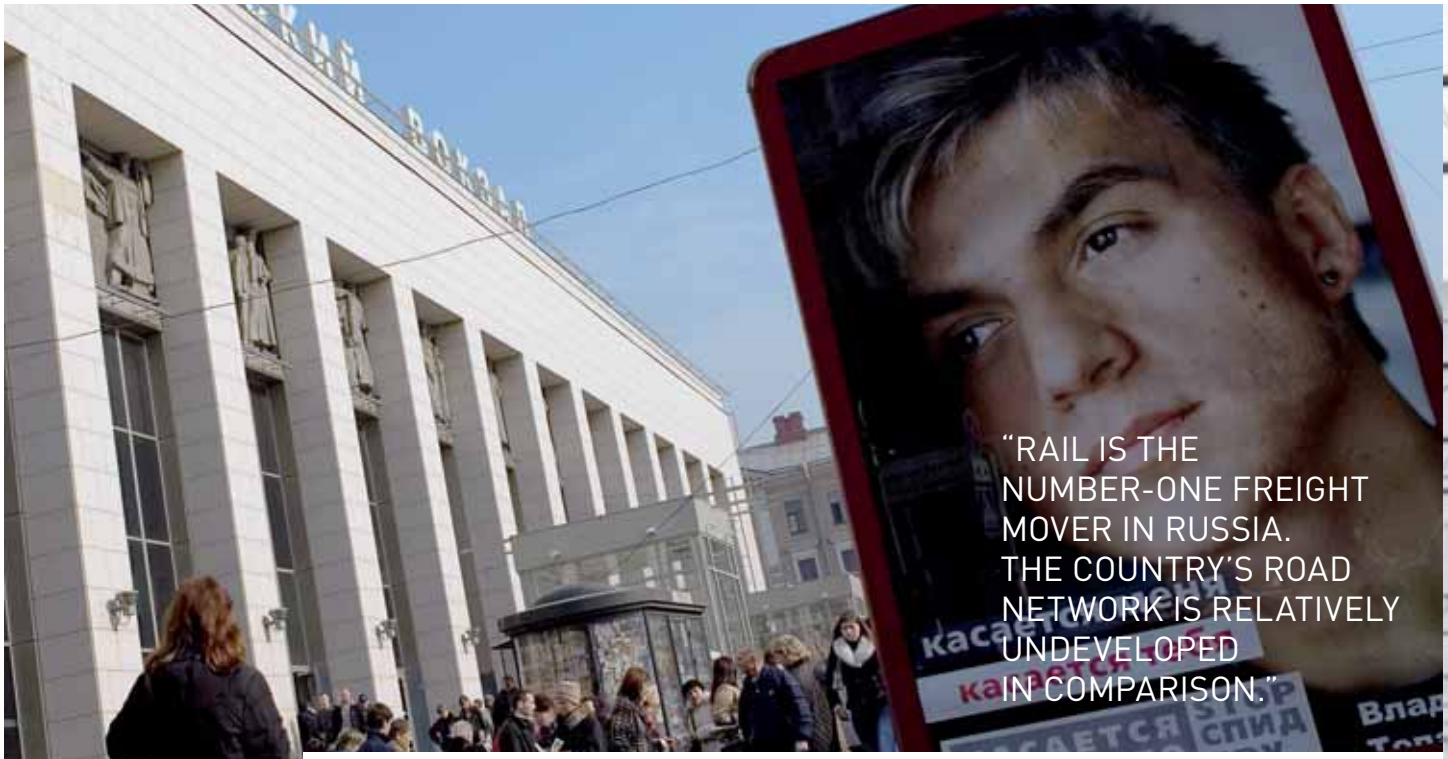
The Finnish-crewed Sibelius leaves for Helsinki in the afternoon, passing the Repin going in the other direction, while the Tolstoi, the other Russian-crewed train on the route, runs on to Moscow. The journey between St. Petersburg and Helsinki takes five hours, and travelers on the Sibelius can enjoy a glass of Sibelius sparkling wine with classic Russian zakuski hors d'oeuvres as the train eats into the miles.

RUNNING TO TIME. People are used to trains running whatever the weather, according to **Hannu Pekkola**, an engineer with VR, Finnish Railways. Wet leaves in the fall and ice and snow in the winter bring their own challenges, however, he says.

Crude is typically carried in 900-meter-long consists, comprising 50 tank cars. Most of these are privately owned in Russia today, although the rail network itself continues to be state-owned.

"Thanks to privatization, the quality of rolling stock in Russia has improved significantly over the last 10 years," says **Juha Petäjäniemi** of VR.

Although rail cannot compete with marine shipments in terms of the amount of crude carried, it is still a sizeable business in Finland. Crude imports account for between 70% and 80% of VR's oil business. Rows of tank cars are often to be seen stretching for hundreds and hundreds of meters in sidings close to the Finnish-Russian border.



The oil they carry has often traveled thousands of kilometers, from beyond the Urals or even as far as Kazakhstan.

"Rail is the number-one freight mover in Russia," says Petäjäniemi. "The country's road network is relatively undeveloped in comparison, which makes rail an essential artery. The rail network also provides access to other suppliers than the pipeline network."

CLOSER COOPERATION. Petäjäniemi has worked with Neste Oil since the beginning of the 1990s, and says that cooperation between the company's purchasing organization, train dispatchers, and the Russian and Finnish railways has grown steadily closer over those years. This has been reflected in better time-keeping on freight runs, for example.

The relative profitability of shipping oil by rail for Russian suppliers tends to fluctuate, depending on changes in customs and rail tariffs. Anticipating these changes is difficult, and volumes vary as a result.

For train passengers, border formalities en route to Finland take place on board in Vyborg, the last major town before the Finnish border. The actual border crossing is at Vainikkala, where there are normally rows and rows of consists awaiting their onward journey: autoracks, boxcars, tank cars, and flatcars.

All freight consists, including oil shipments, are subject to thorough inspection at the border. Visual and aural inspection is critical, explains Pekkola, as an experienced inspector can hear possible wheel or bearing problems very clearly.

INSPECTING THE LOAD. Cars are individually weighed, subject to a radiation check, their truck bearings checked for excessive temperature, and the level of their content noted.

"Any cars with even a drop or two more than's specified have to be cut out of a consist and returned," says Pekkola.

A consist's locomotives need to be switched at the border because of the different overhead supply voltage used in Finland and Russia. First on the list for a Finnish engineer taking over a train at the border is to check his brakes and the makeup of his load. The latter is covered by strict regulations. Different types of hazardous materials need to be separated from each other by barrier cars.

VR uses the same locomotives on its freight and passenger services, so Pekkola can some- →

KING OF **THE RAILS**

Eastern Finland is home ground for train engineer **Hannu Pekkola**, who has been in the business since 1978.

Based nowadays at Kouvola, Pekkola works both passenger and freight trains, typically in three-week shift patterns. His timetables are very exact, and he often knows where he will be one or two months ahead.

WITH HIS MANY YEARS on the rails behind him, Pekkola also serves as a trainer, and is kept particularly busy in this capacity in the spring and fall. Pekkola concentrates on areas such as training engineers to run their trains as cost-effectively as possible. An engineer can save a lot of electricity when he knows how to get the best out of a track's topography. Pekkola is also involved in training new engineers.

Slow-moving oil consists travel mainly at night, something that Pekkola is more than happy with.

"Night runs are great, particularly during the light summer nights, when you can enjoy seeing nature waking up for a new day. A locomotive is also a great vantage point for spotting forest animals, and those parts of a route passing through largely unpopulated areas bring some welcome peace."

Locomotives and engineers are switched when trains reach Vainikkala in Finland.

times find himself taking a passenger train from Kouvola to Vainikkala and returning on the same locomotive with a freight load to Kotka on one and the same shift.

Safety is a critical issue, and trains carrying hazardous substances are restricted to running at a maximum of 60 kilometers an hour in Finland. Engineers also need to remember that a heavy load like an oil consist translates into longer braking distances than lighter passenger trains.

Environmental issues are also a priority.

"The days when we might have turned a blind eye to a car leaking a bit are long gone, and we now have a facility at Kouvola where we can cut out and collect any leaking cars."

The temperatures of the bearings in the trucks under tank cars are automatically checked every 50 kilometers on the way to Neste Oil's refinery at Porvoo. There is also a dense network of leak sensors as well.

"Developments in monitoring and measurement systems like this have been one of the major factors in improving rail safety," continues Pekkola. |

A VALUABLE TRANSPORT DIMENSION

A TOTAL of 1.5 million tons of crude arrived by rail at Neste Oil's Porvoo refinery in 2006. Cost-effective rail shipments will continue to be important into the future, says **Jarmo Lottanen** of the company's transport function. Rail routes are also often more direct than those offered by rail and ship combinations. Shipping by rail is also good in terms of the environment, he says.

"Generally speaking, rail is very safe, although we do sometimes have derailments. The fire services in Finland are highly trained to respond if one should occur, though."

The most important development contributing to higher safety and environmental standards, according to Lottanen, has been the change that has taken place in people's attitudes.

"Nothing is so urgent that it's worth compromising in these areas. We always prefer to tell a customer that a train's going to be late, if it would mean taking even a small risk to get it there on time."

Night trains can keep people living alongside tracks awake, particularly during still winter nights.

"Most people who have lived close to a line are used to this, but I'm sometimes surprised when new residential areas are zoned close to a line.

"People living near the Porvoo refinery are obviously concerned about what we carry, which is why VR, Neste Oil, and the fire services arrange information events every so often for residents to update them on developments. These have proved popular."

Shining bright!

The project that led to the building of Finland's first refinery at Naantali 50 years ago was an interesting mix of a desire to secure the country's fuel supplies, ideology, foreign policy, technological and industrial policy, and national, regional, and local politics.

The decision to build the refinery generated a lot of passion, particularly among its opponents. As Professor and MP, **Nils Meinander**, says:

"Rarely has such a large bull been seen in a china shop."

Meinander believes that an inside agreement between the main parties in the government of the time was decisive behind the go-ahead for the project, pointing to the influence of prominent Finnish politicians from that time such as **Urho Kekkonen**, **Penna Tervo**, and **Väinö Leskinen**, as well as Neste's own **Uolevi Raade**.

The Tanner family also played a part. The renowned politician **Väinö Tanner** was a major force in the Finnish energy industry, and his son, **Mikko Tanner**, was the first head of the Naantali refinery.

Neste had originally planned to build its refinery in the region's capital, Turku, but the local city fathers were reluctant to guarantee the water supplies needed. Neighboring Raisio and Naantali saw their chance and set up a joint municipal water company, which guaranteed to provide sufficient water for the new facility.

A combination of national industrial policy and local enthusiasm resulted in a refinery that has continued to be a major factor in the regional economy to this day, contributing an important source of revenue and acting as a dynamo for local development. A small facility by international standards, the Naantali refinery has turned its size to its advantage and remains a dynamic factor in Neste Oil's refining base.

PHOTOS PASI LEINO, ESKO KESKI-OJA

MIKKO RÖNNHOLM,
CHAIRMAN OF NAANTALI TOWN COUNCIL

On the high seas

TEXT MAARIT KAUNISKANGAS | ILLUSTRATION JOHANNES EKHOLM

NESTE Oil transports between 35 and 40 million tons of crude oil and refined petroleum products annually. It buys the majority of its crude from Russian suppliers, and ships the bulk of this flow by sea, with rail accounting for the remainder.

"We generally buy crude by the tankerload, in others words 100,000 tons at a time, and ship it from the North Sea or more often from the Primorsk terminal north of St. Petersburg," says **Marja Mäki**, Neste Oil's Chief Officer, Risk and Compliance.

A total of 60 million tons of crude was shipped out of Primorsk last year, of which six million tons went to Neste Oil's Porvoo and Naantali refineries. The terminal is connected by pipeline to fields in Western Siberia and the southern Russian Federation. Prior to Primorsk, which was completed in 2001, Russia lacked a full-scale terminal of its own in the Gulf of Finland – and since its opening, the amount of tanker traffic in the area has increased dramatically.

TO OWN OR TO CHARTER? Neste Oil mainly carries its crude in its own tankers or time-chartered vessels. Freight capacity is also sold to third parties. It pays to use the company's own fleet as much as possible when the overall economy is strong, and use more outside capacity during economic downturns. →

With the increase in the volume of oil being carried by sea in the Baltic, the number of tankers competing for the business has increased. Price is obviously a factor, but **the importance of experience should never be underestimated.**


CHECKLIST OF THE VETTING PROCEDURE → Certification and documentation → Crew → Navigation systems → Safety and security management → Protective gas system → Pollution prevention systems → Structural condition → Cargo and ballast tanks → Anchors and mooring winches → Communications equipment → Machinery and control systems → Overall impression

MARJA MÄKI

PAAVO WIHURI

"CHARTERERS AND THEIR VETTING SYSTEM HAVE ALSO PLAYED AN IMPORTANT PART."

"The choice is always dependent on what capacity is actually available, of course," explains Mäki.

What to do when the company's own tankers are busy and all its time-chartered vessels as well?

"Then it's time to see what capacity's available on the open market."

Rotterdam is a good place to look. Given the ice-bound nature of the Gulf of Finland in winter, making the right choice of ship is critical.

"FREIGHT COSTS HAVE FALLEN, PROPORTIONALLY SPEAKING, AS OIL PRICES HAVE RISEN."

PUTTING SAFETY FIRST. Neste Oil generally only charters tankers that are ice-classified to 1A or 1A Super standards. Tankers must also be double-hulled, as single-hull tankers have not been allowed to carry crude in the Baltic since spring 2005. The International Maritime Organization (IMO) is set to introduce a new regulation in the near future that will require the use of double-hulled tankers for carrying other oil cargoes as well.

The value of double hulls was highlighted this winter when a Greek-registered tanker ran aground in the Gulf of Finland, and no spill occurred.

Paavo Wihuri, who is responsible for safety and security issues at the Finnish Maritime Administration, highlights the contribution that legislation requiring the use of double-hulled vessels and the introduction of an advanced vessel traffic service (VTS) system have made to enhancing safety at sea in the Baltic.

"Charterers and their vetting system have also played an important part," he says.

The vetting system, which reviews vessels and the companies operating them, was set up by oil companies at the end of the 1980s following a wake of accidents at sea involving oil tankers, to supplement statutory regulations and the work of classification bodies. Over 50 oil companies today belong to a joint international forum, the Oil Companies International Marine Forum or OCIMF.

If a potential charterer cannot locate up-to-date information on a ship from the OCIMF's database, or no information on it can be found, a company sends a vetting officer to check the vessel in question. Neste Oil has two ship masters working on vetting duties.

"Freight costs have fallen, proportionally speaking, as oil prices have risen," continues Marja Mäki.

"It's worth paying more for a good ship and an experienced crew, as this will help to ensure that a shipment stays on schedule and that a ship will be able to weather the difficult ice conditions often found in the Gulf of Finland, or storms come to that."

GOOD ENOUGH FOR THE GULF OF FINLAND? Not just any ship can sail in the Gulf of Finland, partly as a result of the Paris MOU –


HEIKKI TUOMINEN

or Paris Memorandum of Understanding on Port State Control – signed in the early 1980s. This includes 25 national maritime administrations and covers the waters of the Europe's coastal states and the North Atlantic between North America and Europe.

"The Paris MOU requires member states to inspect 25% of the foreign ships visiting their waters," explains Paavo Wihuri. "A Port State Control directive has been developed in Europe on the basis of this, and the Finnish Maritime Administration is responsible for these inspections in the case of Finland."

A ship in poor condition can be stopped and detained. Only eight ships were stopped in Finland last year out of 2,000 that were inspected, says Wihuri. Finnish ships have been stopped the least of all in recent years, which has seen Finland climb to the top of the Paris MOU's White List.

The Port State Control system works well in Russia as well, according to Wihuri, which is important, given the major growth in tanker traffic in the Gulf of Finland. Russia exported some 135 million tons of oil to countries other than Finland via the Gulf of Finland last year.

SIGNING ON THE DOTTED LINE. If there is no problem with a ship's vetting data, the ship is fixed and a Charter Party issued. This Contract of Carriage is based on the details of the respective Oil Sales Contract. The details of delivery terms in the Oil Sales Contract are covered by international Incoterms, defining the roles of buyers and sellers when arranging the transportation of merchandise. The Carrier usually also issues Bill(s) of Lading, a document giving title to the cargo carried.

In order to use its own tonnage, crude oil is generally bought FOB – or Free On Board – explains **Heikki Tuominen**, General Manager at Neste Shipping's Asset Management Unit. Under this, the risk associated with a cargo and the title to it pass to the buyer once it is on board. The buyer is also responsible for arranging shipment.

Neste Oil sells its petroleum products under CIF – or Cost, Insurance, and Freight – contracts, under which the title and risk of a cargo pass to the buyer when delivered on board a ship by the seller, who pays for its transportation and insurance to its destination. Neste Oil, nevertheless, retains control over its marine shipments, which also ensures product quality throughout the chain.

So if you find an open ship in Rotterdam, for example, that passes all the Paris MOU vetting requirements, and fits your Sales Contract schedule, you can sign the Charter Party and have it sail to Primorsk, take on 100,000 tons of crude in 24 hours, and be back at sea on the way to its destination. Now, where were we going again? |

GLOSSARY

OWN VESSEL → Wholly owned by Neste Oil.

PART-OWNED, JV VESSEL → Owned by Neste Oil together with one or more partners.

TIME CHARTER, T/C → Time-chartered vessels are chartered for a specific period of time, during which the owner pays for maintenance and operating and crew costs, while the charterer pays for harbor fees and fuel. Capital costs are also included in time charter charges.

BARE BOAT CHARTER, B/B → Charterers only pay for the use of the vessel, and are responsible for maintenance and crew costs.

VOYAGE CHARTER → Covers a specific delivery or a number of sequential deliveries. Charges cover use of the vessel, maintenance, crew, and fuel costs, and capital costs.

COA, CONTRACT OF AFFREIGHTMENT → Covers a specific volume of freight to be transported within a specific schedule, or a specific number of journeys during the course of the contract.

CRUDE TANKER, CRUDE CARRIER → Tankers capable of carrying 100,000 tons of cargo are generally used in the Baltic. Cargo tanks are typically unpainted or only partially painted. The world's largest crude carriers can carry cargoes in excess of 300,000 tons. The larger can carry up to 400,000 tons.

PRODUCT TANKER, PRODUCT CARRIER → These carry petroleum products or chemicals, and their cargo tanks are specially coated or fabricated from stainless steel. Neste Oil's smallest product tankers weigh in at around 5,000 dwt, and its largest at 75,000 dwt.

[GET THOSE MOWERS GOING]

Fall often seems to take gardeners and boating enthusiasts by surprise. People often store away their equipment and boats for next year's season 'as is', without even a cursory wipe over, let alone a service. And in the spring everybody is surprised when their chain saw, mower, or outboard refuses to start.

1 Forgot to do a fall service?
The first thing to check is how much fuel is in the tank. If there is only a little left, top it up. Remember to give the canister a shake before your pour out the fuel, as this will recombine the fractions that have evaporated over the winter.

Check your throttle and feed lines, and swap out any filters if they are clogged. Any leaks in lines will cause problems when you come to try and start the engine. And if you are all thumbs when it comes to things like this, get a specialist to deal it with for you.

2 Past its sell-by date?
If stored well, fuel will last around a year in a metal jerry can or an approved plastic container. If your gasoline is over a year old, there is no need to throw it away, though. Just add a thirds-worth of new gasoline and everything should be fine.

Regular plastic canisters are unsuitable for storing or transporting fuels, as the material in them is porous and lets air in. The more often you open a container, the more the best fractions in terms of startability will evaporate, so use a separate container for day-to-day fill-ups.

If you are using two-stroke fuel, always shake the contents before filling up.

3 What fuel is best?
Neste Oil produces a gasoline specially designed for small engines, Futura Green, equivalent to 98-octane fuel. Although this is slightly more expensive than regular gas, it avoids the needs for any separate additives and eliminates engine stalling. Its use is especially recommended for winter storage.

It always pays to read the instruction manual that comes with a mower or other piece of equipment and follow the manufacturer's recommendations.

Small engines are normally high-revving, and 95-octane fuel can sometimes cause piston damage as a result. Premixed chain saw gasoline is always 98-octane.

INFORMATION provided by **Reino Karlsson** of the Product Advice Unit

greenoffice
TOGETHER WITH WWF FINLAND
for a living planet®

GREENING YOUR OFFICE

- Use video conferences instead of traveling to meetings
- Ensure that space is devoted to efficient waste management and recycling
- Use green electricity where possible
- Use ecological office supplies that prioritize recycling and refilling
- Monitor paper consumption, how much mixed waste is generated, and how much energy people use traveling to and from work and on business trips
- Use durable, environmentally friendly equipment, materials, and fittings

THE GREEN OFFICE

A major vision behind the offices of the future is to ensure that they are practical, functional, and healthy places to work. **Minimizing energy use wherever possible will also be a priority.**

TEXT MATTI VALLI | **ILLUSTRATION** PEKKA HOLMSTRÖM

OFFICE BUILDINGS, both inside and out, are often emblematic of a community's or a society's dynamism. They are also an integral feature of companies' corporate image.

"Buildings need to be able to adapt to a number of different uses over their life," says **Erkki Karonen**, an architect with Gullichsen Vormala Arkkitehdit, which designed Neste Oil's new Head Office, currently under construction. "They must be able to stand the test of time, both aesthetically and technically."

The right environment provides valuable support for an organization, and needs to be able to change as it changes. Space needs to be flexible enough to be used in a number of configurations, particularly for teamwork. This calls for creative spatial thinking and adaptability, and for ensuring that furniture and fittings can be moved easily to accommodate changes. →

MAKING THE NEW HEAD OFFICE A GREEN OFFICE

Neste Oil's new Head Office, currently under construction, has been designed to be an environmentally friendly building from the outset.

"We're aiming to apply for the WWF's Green Office classification for the building," says Development Manager **Timo Karttunen**.

The smart systems being built into the structure will switch off the lights in rooms that are empty and keep a close check on temperatures. The electrical consumption of computers in the building will also be closely regulated. The building will also feature a modular ceiling approach to lighting, air conditioning, and heating. Fire and safety standards will be enhanced compared to the existing building.

Office service providers will also be selected on the basis of how well they operate in line with the building's environmental principles.

Personnel are due to move into the new Head Office in spring 2008. Prior to that, unnecessary paper-based archives will be eliminated and furniture and fittings that become surplus will be recycled.

Better ways of working. "One of the ideas behind the Green Office idea is to give people the opportunity of making their own impact in areas such as energy use and the environment," explains **Helka Julkunen** of the WWF.

This includes giving people more control over whether they use disposable mugs and plates or normal dishware, and whether they read documents on screen or in the form of printouts.

"The Green Office goal is also to ensure that environmental thinking is 'built-in', and that people with clear environmental responsibilities are appointed and that they have clear job descriptions. This may sound all very formal, but we're really talking about quite practical things in the end.

"It's been very rewarding to work with Neste Oil people on the project so far, as they've proved enthusiastic in looking for new solutions."

"ONE OF THE IDEAS BEHIND THE GREEN OFFICE IDEA IS TO GIVE PEOPLE THE OPPORTUNITY OF MAKING THEIR OWN IMPACT IN AREAS SUCH AS ENERGY USE AND THE ENVIRONMENT."

→ "It's also important to take people's individual work needs into account. It makes more sense, ultimately, to focus on developing people's everyday working surroundings rather than areas devoted to customer meetings or entertaining guests."

Developments in the world of communications are changing people's workplaces at a growing pace. Networks are getting broader, and teams are being created made up of people at locations around the world. Links between people are becoming less place-dependent and more and more time-dependent.

"In addition to offices, people's workplace environment also extends to how they travel to and from work, and their homes as well."

ENABLING PEOPLE TO GENERATE RESULTS. An open and communication-driven workplace based in pleasant surroundings is always likely to be more successful than one with a negative atmosphere located in depressing surroundings.

People are spending an increasingly shorter part of their day at their own desk and more and more time in meetings and traveling to and from them.

"Trying to fit too many people in too small a space in the name of lower costs can easily result in dissatisfaction and inefficiency. Work that calls for concentrating on specifics should be done in separate 'quiet rooms' or even outside the office altogether. If possible, people or groups with a high 'volume index' should be allocated their own space," suggests Erkki Karonen.

From an architectural and construction point of view, the most important development trend in office design is multipurposing. By dimensioning space effectively, it can be adapted to a variety of uses and functions.

"The spread of knowledge-based work and digital storage is reducing the need for conventional archives and storage. This also makes it easier to shift responsibilities from one team to another, for example, without major logistics reorganization."

MOVING TO THE SUBURBS. The inefficiency of much city center office space is driving many offices out into business parks on the edges of cities. The move from city centers, with all the services they offer and the history they contain, can often be experienced as a step back by employees, however.

"Areas based around parking lots and buildings solely devoted to work often only really come to life when people arrive in the morning and leave in the afternoon or evening. Services are minimal and there's not much in the way of social interaction."

Buildings that sit well in the environment and take it into account, in contrast, help an area come alive and improve its service structure.

"Layering different types of activity is a prerequisite for a vital and stimulating environment," continues Karonen.

GOOD AIR CONDITIONING WILL PAY OFF. Focusing on well-ventilated, well-heated, and well-cooled office buildings represents a new trend in construction, and one that is likely to encourage better working conditions, better business, and a better workplace atmosphere as well. Healthy indoor air has been shown to yield concrete benefits in terms of how people enjoy their work, and cuts the number of sick days people take as well.

District cooling is now available in Helsinki and Turku in Finland, alongside district heating, and brings a range of parallel benefits. A single unit can handle the cooling needs of tens of premises, 24/7 and 365/365.

"HEALTHY INDOOR AIR HAS BEEN SHOWN TO YIELD CONCRETE BENEFITS."

The trend towards more efficient insulation often means that heat is 'trapped' inside, both in winter and summer. The amount of heat is also growing, as computers and IT systems generate surprising levels of heat that no one considered as recently as 30 years ago, when many buildings' ventilation and air conditioning systems were originally designed.

NEW WAYS WITH CEILINGS. New modular concepts for internal ceilings mean that the tangle of wires, cables, and pipes needed by today's buildings can be hidden from view. One such system in Finland has been used very successfully, according to Marketing Manager **Kalevi Hyvärinen** of YIT Kiinteistötekniikka.

Pekka Paijakkala of VTT Technical Research Centre of Finland is optimistic that Finnish companies will be well-placed to export this type of approach for lighting and heating needs.

"Office construction is on the increase in Finland and neighboring countries, as well as further afield in Europe. More and more people are putting a premium on new buildings that are better designed and equipped, and avoiding older ones that lack these features."

Check out the online version of the article at:
www.nesteoil.fi → media → publications → Refine Online

Get ready for *Summer Sounds*

If you like making new musical discoveries, the XXII Avanti! Summer Sounds Festival in Porvoo could be just right for you.

TEXT MINNA SILTALA | **PHOTOS** KAISA RAUTAHEIMO

Cast your mind back to the Helsinki of 26 years ago and you might have bumped into a group of young classical musicians and conductors looking for restaurant with a quiet corner for a chat. They ended up in Bulevardia, a place with something of a legendary reputation in Finnish musical and artistic circles.

The musicians in question – **Olli Pohjola**, **Esa-Pekka Salonen**, **Jukka-Pekka Saraste**, **Kari Kriikku**, and a number of others – went on to found a new orchestra, Avanti!, and set out on a voyage of discovery that has lasted to this day.

BLOWING OFF THE COBWEBS. Clarinetist Kari Kriikku remembers that the group had had enough of the popular view of classical music that it was the preserve of the elite and something that had come to the end of its life anyway, to all intents and purposes.

"We created Avanti! to offer something different from the conservative and uninspiring programs on offer at the time. We wanted to bring classic music out into the streets."

A new wave in classical music emerged at around the same time, underlying the fact that dissatisfaction with the 'establishment' went far beyond the group behind Avanti!.

Major changes were also under way on the wider international stage. **Mikhail Gorbachev** was beginning his reform of the Soviet Union, **Mathias Rust** landed a light aircraft in the middle of Red Square in Moscow, **Ronald Reagan** was busy developing his own personal star wars, Greenpeace was growing as a force to be reckoned with internationally, Live Aid concerts were getting under way, and Apartheid in South Africa was beginning to crumble.

Things were also beginning to happen elsewhere in the Finnish arts world. An old cable factory once owned by Nokia was beginning to be transformed into a dynamic new cultural center, Radio City and City-lehti, a new youth-oriented tabloid, were launched, and the theatre world was being shaken by a new generation of iconoclasts.

So the time was ripe in more ways than one for the new approach to classical music that Avanti! represented.

The orchestra's concerts were filled with a public that had no time for the niceties of formal evening wear and all that went with it. Instead, the audience took to climbing on to the windowsills during concerts, laughing, and clapping when the fancy took them.

A BIT ROUGH AROUND THE EDGES. The Avanti! team created a new summer music festival in Porvoo close to Helsinki in 1986. In the early years, concerts were held in Porvoo's medieval cathedral, but as audience numbers and the size of the orchestra increased, the 'Art Factory' took over as the main venue.

This 100-year-old brick building has had a checkered history, producing everything from plywood and tractors to horseshoes and steam boilers. The last Volvo tractor to be produced there went out the door in 1986, since when its activities have been purely artistic.

The Art Factory sums up the essence of the Summer Sounds Festival and Avanti! very well, believes Kriikku: a bit rough around the edges, but still very approachable and welcoming.

Other concert venues have been added over the years, including the church in nearby Pernaja and a hall alongside Porvoo's main square, which hosts an annual children's concert. This year, this will feature Saint-Saens' classic Carnival of the Animals, spiced up with a new narrative written by rock musician, **Heikki Salo**. Avanti! will play and actor

XXII AVANTI!
SUMMER SOUNDS

IN PORVOO, JUNE 27–JULY 1, 2007

- → Artistic Director, composer and conductor **Oliver Knussen**
- → 10 concerts in Pernaja Church, the Art Factory, and the Grand Hall
- → Guest artists will include cellist **Anssi Karttunen**, baritone **Esa Ruuttunen**, and soprano **Barbara Hannigan**
- → **For more information**, check out www.avantmusic.fi

Kari-Pekka Toivonen will narrate. This is expected to be popular, and two performances have been scheduled instead of the normal one.

The festival's tradition of musicians playing in the streets of Porvoo's Old Town will also continue this year. Concerts will return to the cathedral in 2009 after it has been restored after a recent arson attack.

STILL KEEN TO EXPERIMENT. 25 years on and the founders of Avanti! have themselves become part of the music establishment, and many have made a name for themselves internationally as well. But that has all been to the good, as it has given them an opportunity to shape concert programs on a much bigger stage.

True to its roots, Avanti! remains committed to offering its audiences something a little different. This summer, the angry young men of the 1980s will again hold a composition workshop for a new generation of musicians.

Kriikku believes that the basic format of the festival is still very viable, and that it is important to continue to offer a program that offers something different and unconventional.

"We want to focus on interesting new composers and works that have not been played to death elsewhere. We're also still keen to experiment, and we plan to offer more than just music at the concerts," he explains, pointing to the performance experiments that have sometimes featured in previous years.

THEME AND VARIATIONS. The programs at Summer Sounds have often been based around an all-embracing theme. One such theme a few years back was love. This year's is a little more abstract and goes under the name: Hall of Mirrors. This has been developed by the festival's first artistic director to come from outside Finland, the English composer and conductor, **Oliver Knussen**. The idea is to have works in one concert reflected in another, with an orchestral piece in one going on to be performed as one for two pianos in another, for example.

"In the future, our themes could be more concrete and even involve things like politics, only time will tell," says Kriikku.

Instead of 'famous names' guaranteed to fill seats, Kriikku is also attracted to the idea of experimenting with downsizing and basing the program just around Avanti! itself, as in the early days of the festival.

"That might set the cat among the pigeons a bit, offering a different way forward than just growth, growth, growth." ❙

AVANTI! is italian and means 'forward'! Clarinetist Kari Kriikku has been one of the key organizers of the Summer Sounds Festival for 22 years. **Check out the online version:** www.nesteoil.fi → media → publications → Refine Online

This series of articles will profile the various services Neste Oil offers its customers

SERVICES

NESTE OIL'S ORDER AND SERVICE NUMBERS

Heating oil orders +358 800 1 9002
(toll free)
Weekdays, 7.00 am – 6.00 pm
Fax: +358 800 1 9004

Lubricant orders +358 800 1 9000
(toll free)
Weekdays, 7.00 am – 4.00 pm
Fax: +358 9 698 7942

Neste Oil Info +358 800 196 196
(toll free)
→ 24 hours a day
→ Neste station faults
→ Neste station enquiries
asiakaspalvelu@nesteoil.com

Card customers +358 10 45 88480
Weekdays, 8.00 am - 5.00 pm

Lost Neste cards +358 800 196 196
(toll free)
→ 24 hours a day
→ Lost card reports

Corporate customers +358 800 120 120
→ Fuel orders/billing
→ Changes of address
→ Lubricant, chemical, and solvent orders
→ Neste Oil Corporate Card matters

TECHNICAL SUPPORT

Petroleum product advice +358 800 1 9696
(toll free)
Weekdays, 8.00 am – 4.00 pm
products.oil@nesteoil.com

Lubricant advice +358 10 45 854 10
Weekdays, 8.00 am – 4.00 pm
neste.voiteluaineet@nesteoil.com

CUSTOMER SALES SERVICE → orders → nearest outlet → card sales → extranet → fault reports

SERVING THE **CUSTOMER** WELL

Neste Oil provides its private and corporate customers with a wide range of electronic and personal services covering areas such as oil deliveries, storage tank cleaning, cards, and billing.

The company's customer service personnel book, market, and price customers' oil and lubricant orders – and can quickly help customers find their nearest Neste service station as well if they are running short of gasoline or diesel.

The phones are busiest during the winter, when people can find themselves caught out by plummeting temperatures and the realization that they have forgotten to order their heating oil.

"We always check the weather forecast in the morning early on, so we're ready for what the day's likely to bring," says Sales Officer **Suvi Pylvänäinen** of Neste Oil's Customer Sales Service. "Monday is always our busiest day."

Customer Sales also markets Neste Oil's company cards and responds to card-related enquiries. Answers to questions from customers and service station personnel are handled via Neste Oil Info, which also processes stations' fault reports.

In addition to telephone-based services, the unit also handles customer feedback received over the Web, and provides support for the extranet services offered to corporate customers. The volume of online feedback is growing all the time as people get more and more used to using the Internet.

[In a typical month, Customer Service]
Replies to some **26,000** contacts | Handles around **17,500** oil orders | Processes some **800** card applications | Deals with around **1,600** electronic enquiries | Records approx. **25,000** calls in its customer database. |

TEXT JATTA HYTÖNEN

Suvi Pylvänäinen and Nana Niskanen

MULTITALENTED. Customer Sales Service is an excellent place for personnel to develop their sales and other skills.

"Our customers are using our extranet services more and more, and we'll be focusing on our electronic offering to an increasing extent in the future," explains Sales Officer **Nana Niskanen**.

"We're aiming to minimize routine manual work. All the same, we still get a lot of orders and enquiries by phone. We have a call recording system that enables us to follow up issues where there's been a misunderstanding.

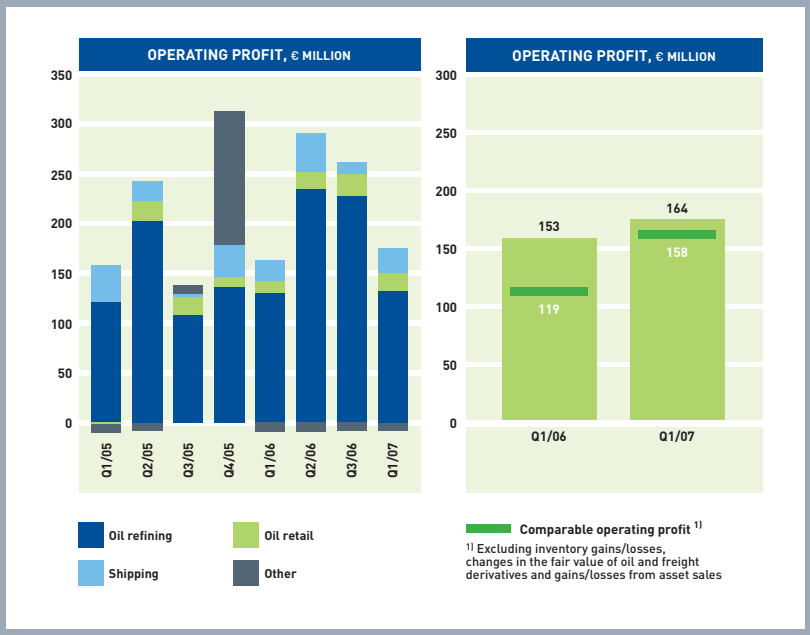
Most questions are linked to prices, payment times, whether the magnetic strips in cards have become damaged, discounts, and deliveries.

"Sometimes, customers ring simply to thank us for the good service we've provided, and that's always nice to hear. And sometimes they're not so happy, which is when we have to come up with solutions that address their concerns, while keeping calm and friendly at all times.

"We've succeeded in our job if both the customer and Customer Service are happy with the result, and the customer feels that they've got the service they were looking for."

[26,000 calls a month **]**

1–3/07



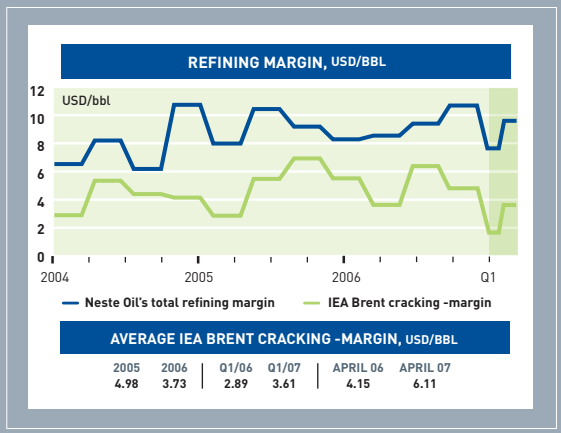
2x

A VERY GOOD FIRST-QUARTER.
Neste Oil's first-quarter operating profit in 2007 totaled €164 million (Q1 2007: 153 million). The Group's comparable operating profit increased by 33% to €158 million (119 million), driven by stronger refining margins, good sales of iso-octane in California, improved performance at the Group's joint venture, Nynäs Petroleum, and more favorable €/USD hedges than in Q1 2006.

Oil Refining's comparable operating profit in the first quarter totaled €134 million (94 million, Oil Retail's €11 million (12 million), and Shipping's €21 million (22 million).

Sales at Neste Oil overall totaled €2,457 million during the first quarter (2,796 million). Profit before taxes was €161 million, net profit was € 118 million (112 million), and earnings per share €0.46 (0.44). The rolling twelve-month return on average capital employed after tax (ROACE) as of the end of March was 15.9%, compared to 15.4% for the 2006 financial year.

High demand pushes up prices



THE FIRST QUARTER was dominated by an exceptionally strong gasoline market in the US, in particular. The seasonal increase in the demand for gasoline started significantly earlier than in previous years, resulting in stronger margins. Planned and unplanned refinery maintenance outages cut gasoline production boosted margins further. IEA Brent Cracking, used as the international reference refining margin in Northwest Europe, averaged USD 3.61/bbl (2.89).

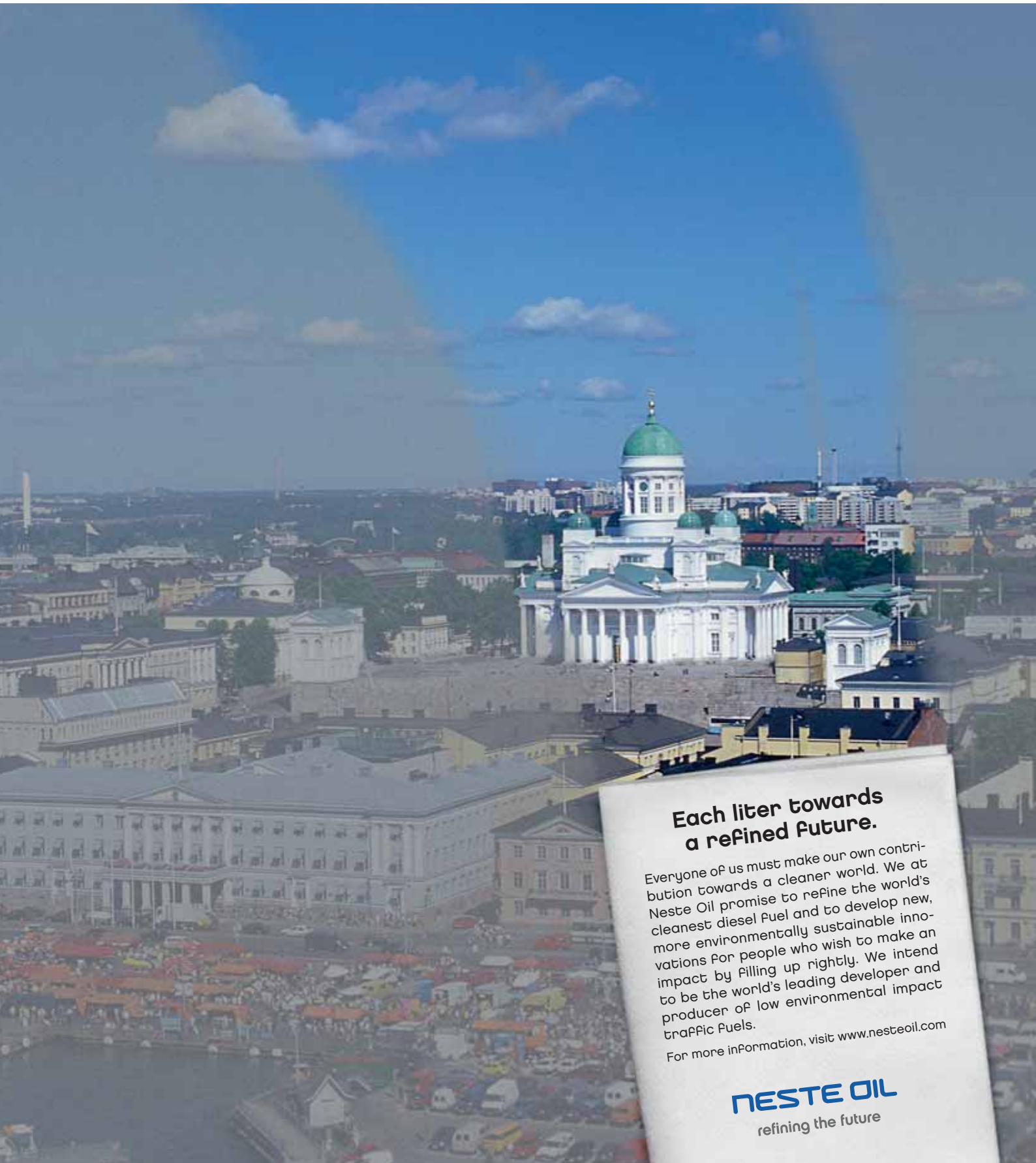
Crude oil prices were pushed up by stronger gasoline demand and increased political tension. Brent Dated averaged USD 57.75 /bbl (61.75). Demand for diesel and jet fuel remained healthy, and their price differential to crude stayed wide and steady.

Warm weather, high natural gas stocks, and low prices all held back demand for fuel oil. No shortages were encountered in high-sulfur fuel oil exports from Russia. The situation in the oil retail market has remained unchanged, with fierce competition in Finland and growth in the Baltic Rim.

KEY FIGURES € million, unless otherwise mentioned	1–3/07	1–3/06
Sales	2,457	2,769
Operating profit before depreciation	203	191
Depreciation, amortization, and impairment charges	39	38
Operating profit	164	153
Comparable operating profit*	158	119
Profit before income tax	161	153
Earnings per share, €	0.46	0.44
Capital expenditure and invesment in shares	100	112
Net cash from operating activities	-107	-150

	31 March 2007	31 March 2006
Total equity	1,959	1,606
Interest-bearing net debt	987	1,272
Capital employed	3,002	2,959
Return on capital employed (ROCE), %	22.4	22.7
Return on equity (ROE), %	23.3	28.0
Equity per share, €	7.63	6.24
Cash flow per share, €	-0.42	-0.59
Equity-to-assets ratio, %	43.6	36.5
Leverage ratio, %	33.5	44.2
Gearing, %	50.4	79.2

*Comparable operating profit
is calculated by excluding inventory gains/losses, gains/losses from sales of fixed assets, and unrealized changes in the fair value of oil and freight derivative contracts from the reported operating profit.


Each liter towards
a refined future.
Everyone of us must make our own contribution towards a cleaner world. We at Neste Oil promise to refine the world's cleanest diesel fuel and to develop new, more environmentally sustainable innovations for people who wish to make an impact by filling up rightly. We intend to be the world's leading developer and producer of low environmental impact traffic fuels.
For more information, visit www.nesteoil.com
NESTE OIL
refining the future

key indicators

The Annual General Meeting was held in Helsinki 21 March.

OPERETING PROFIT = Neste Oil´s operating profit comprises profit on the sale of products and services, profit from other busieness activities such as capital gains on the sales of shares and tangible fixed assets, and the company´s share from the profit of its affiliates and joint ventures. The changes in the market value of oil and currency derivatives are also included. Losses made on fixed assets and share sales are eliminated, as well as the costs, depreciation and write-downs.

COMPARABLE OPERATING PROFIT = Comparable operating profit is calculated by excluding inventory gains/losses, gains/losses from sales of fixed assets, and unrealized changes in the fair value of oil and freight derivative contracts from the reported operating profit.

Neste Oil recorded a comparable operating profit during the first quarter of 2007 of EUR 158 million, and an operating profit of EUR 164 million.

CONTACT INFORMATION

For more investor-related information, please contact IR manager **Juha Rouhiainen**, tel. +358 10 458 5132, email: juha.rouhiainen@nesteoil.com

FOR MORE FINANCIAL INFORMATION: www.nesteoil.com → investors

comments

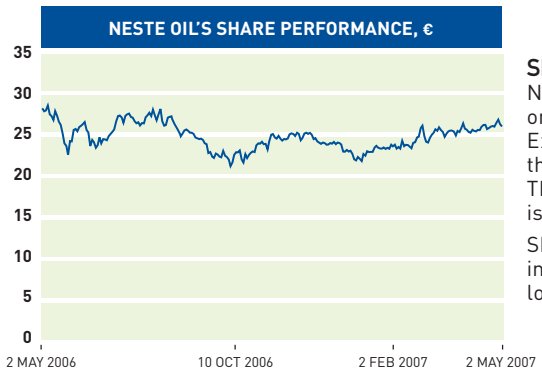
Strong refining margins beat market estimates

ANNA VIRKOLA-GABRAN
Equity Research
Kaupthing Bank Oyj

Neste Oil's first quarter result surprised the market positively; group comparable EBIT at 158 million euros, 17% above the Reuters consensus forecast of 134 million euros. Neste Oil's refining margins recovered robustly after a weak January, managing to improve 12% on last year to USD 9.62/bbl (8.58). This was mainly due to a very strong demand in gasoline, base oils and components.

WITH FALLING GASOLINE INVENTORIES and both maintenance shutdowns and production difficulties in the market, in addition to a early start of the gasoline season boosting demand, has lifted gasoline refining margins to near record levels close to USD 25/bbl. Furthermore, the market supply of high-quality base oils and components also fall short of demand benefiting Neste Oil's refining margins further. Demand for diesel is solid and margins stable at healthy levels .

THE OUTLOOK for Neste Oil's Oil refining business remains bright for the next quarters as the inventories are continuing to shrink and the gasoline seasonality strengthens towards the summer. Furthermore, as the new diesel-line starts up by May this will further support group refining margins, but more visibly in the third and fourth quarter of this year. One can expect the new diesel line to run at full capacity at the latest early 2008. Neste Oil is aiming to become world-leading in biodiesel production with the first production unit starting up in Porvoo during the summer.



SHARE =
Neste Oil is listed on the Helsinki Stock Exchange under the symbol **NES1V.** The ISIN code is **FI0009013296.**

Shares are traded in minimum lots of 50.