

CARBON PROFILE: GRONTMIJ

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Commercial and environmental considerations are driving Grontmij to work on reducing its carbon footprint. **Margo Cole** reports.



COUNTING CARBON

The past five years have seen a massive shift in attitudes to carbon management at Grontmij, taking it from a standing start to a position as one of the UK consultants best equipped to measure and reduce its own carbon footprint.

According to Frank Price, the company's sustainability director, there has been a "fundamental change in the way people work and are encouraged to think" as a result the way the company now looks at carbon.

Grontmij's UK business first started measuring its carbon footprint in 2006. This year, for the first time, Price has collected information for the entire Europe-wide group. The results for 2008 show that the group's annual carbon footprint is 18,801t, with the UK/Ireland business accounting for 1,989t of that.

Carbon is not the only measure of environmental awareness available to the market, but it is a useful shorthand, according to Price. "People have been focused on energy efficiency for years, but the fundamental step we need to realise is that absolutely every-

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Frank Price, Grontmij

thing we do has an impact on the atmosphere," he says.

"It is the rise of CO₂ in the atmosphere that causes changes to the climate, which is what makes the metric of carbon so understandable."

Price says Grontmij has three good reasons for tackling its carbon footprint: its own corporate requirement to act responsibly, demand from clients and a desire to offer expertise in this field. Measuring and reducing the company's own carbon footprint addresses the first two on the list.

With the latest figures in his hands, Price can now set targets for carbon reduction across the business, with the two initial targets being to cut down on

electricity bills and travel.

"These are the areas we have most control over," he explains, adding that this year office managers will be given carbon budgets for electricity, and expertise area managers will get a carbon budget to cover employees' travel.

Those target budgets have been based on trends over the last two or three years and the Government's own carbon reduction targets, and will become key performance indicators for the year ahead. In many of its offices Grontmij is a tenant, so its hands are tied when it comes to choosing an electricity supplier. However, where it can, the company is reviewing its supply agreements with a view to sourcing from renewable suppliers.

Travel patterns are simpler to address, as the company already has detailed information on every flight, rail or car journey taken by staff through their expenses claims and from travel agency returns. Already in place is a rigorous procedure for booking flights, and a similar process for rail and road travel will be introduced later this year to ensure business areas do not

exceed their carbon budgets.

Other proposed carbon reduction measures include a "pay-per-use" system for printers and winding down the power rating on computers. As offices are refurbished they will be fitted with highly energy efficient lighting, and two of the offices already have motion-sensitive lighting.

All these measures should have a significant impact on the carbon footprint over the next two or three years, but Price accepts there is "a finite point where you say you're as efficient as you can be per head of staff".

At that point, he says, the company will have to rely more on renewable energy and purchasing offsets if it is to make any more significant reductions.

If that stage is to be reached, the first step is accurate measurement and target-setting. With an enthusiastic group board championing carbon reduction, and best practice being shared across Europe, that process is well under way.

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LOW COST EQUALS VERY LOW CARBON

Grontmij is helping its clients save money by cutting down their carbon emissions.

In addition to tackling its own carbon footprint, Grontmij is looking closely at how to take carbon out of the design and construction process.

"Our internal footprint is actually very small," says sustainability director Frank Price. "But in terms of what we manage – the concrete, steel, rebar, blacktop and remediated land – it's vast. We're trying to embed more sustainable design into what we do."

There is also a business incentive to this "sustainability by design" approach. "If we're going to be successful and come through this recession in good shape, we have to deliver services and skills and expertise into our clients that will help them manage their own sustainability," Price explains.

In the UK Grontmij's two biggest markets are the water

industry and transportation, both with huge potential for cutting carbon.

But how much influence can a consultant – involved in design and management – have over the choices that are made?

Price says that low carbon thinking is more prevalent in the water sector, where the price of carbon is built into Ofwat's regulatory framework.

But the extent to which it prevails is still dependent on the attitude of the client. Anglian Water, for example, has gone further than many other water companies by insisting all its suppliers measure and report their carbon footprint.

As part of the @one alliance – a group of seven companies responsible for designing and building Anglian Water's £750M capital expenditure commitments under AMP4 – Grontmij has developed a carbon calcu-



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lator that enables designers to calculate instantly the carbon footprint of any design option they consider using.

"We're very excited about that," says Price. "It's a very powerful tool that considers not just embedded carbon but operational carbon as well."

A recent interim advice note from the Highways Agency gives Price optimism that carbon is increasing in importance in road design and maintenance, as it indicated that the government wants the Agency to know the cost of carbon for all its major schemes.

This should soon filter through to contractors and supply partnerships, and Price is trying to get the message through to the contractors. Grontmij works with that the measurement process is a useful management tool rather than an extra burden.

"Contractors are, quite understandably, driven by cost," he says. "But often if you're building something that's lowest carbon it's also lowest cost."

All in all, Price is cautiously optimistic that the "low carbon" approach is becoming more widespread. "In our two biggest sectors these doors are at least open," he says.

One way Grontmij can ensure carbon reduction is considered in all its projects is through the company's integrated management system, which is currently being tweaked to include a sustainability element.

"It's about identifying what are the intervention points where we can make an innovative difference in our projects," explains Price. "It will be a database of ideas and clues to help people think outside the box."

The intention is for this innovative thinking to begin during

the bid stage, with evidence presented to the prospective client to demonstrate the process the company has been through to reach the proposal it is putting forward. If Grontmij then wins the job, it will have committed itself in writing to these key intervention points where there is another chance to look at the carbon issues.

"They will go into the project plan, so then the project manager will have to deliver what they said," explains Price. "It's part database – what people have done in the past – and also a chance for people to say when they did something different."

This idea is being picked up group-wide, so Grontmij's UK engineers will soon be able to draw on – and add to – the expertise of their colleagues throughout Europe to maximise their ability to "think outside the box".

GRONTMIJ: PROJECTS IN FOCUS

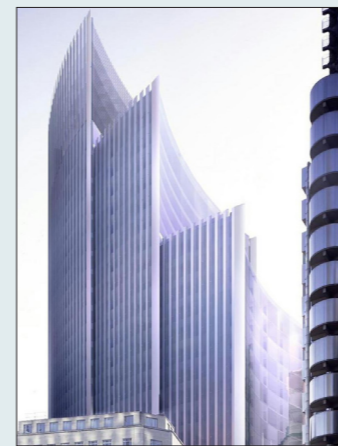
1

Trimpley pumping project

The Trimpley pumping project is part of an upgrade scheme to reinforce security of water supply for south Birmingham. As part of the scheme, 120M litres of water have to be pumped each day from Trimpley to Frankley, which requires three large pumps rated at 1.1MW each. The operational cost of pumping exceeds £1.2M a year.

Grontmij challenged the client's original selection of variable speed pumps, and carried out a detailed analysis using a whole life cost approach. As a result, the pump selection was changed to a fixed speed option, saving approximately £800,000 in operational costs over the life of the pumps.

This analysis also indicated that embedded generation, for example through the installation of turbines in pipes, could save around £1M over the 20-year life of the plant.



2

The Willis Building

Grontmij's M&E consultancy Roger Preston & Partners worked alongside Foster & Partners architects to design the mechanical and electrical services on the Willis Building in Lime Street, London. The building has been dubbed "London's latest skyscraper". Its tower incorporates cutting-edge energy efficiency features, including a triple-skin ventilated façade with motorised solar controlled blinds on the east and west elevations. The building has been awarded an "Excellent" BREEAM rating.



3

Scottish & Southern Energy framework

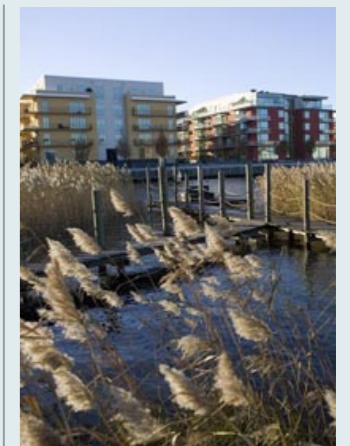
Grontmij has secured a framework agreement to provide sustainable energy consultancy services to Scottish & Southern Energy – one of the UK's largest developers and generators of renewable energy, including biomass, wind energy and hydro power. The framework includes advice on a broad range of issues from mechanical and civil engineering to energy efficiency.



4

Sustainable neighbourhood, Utrecht

Grontmij has been asked to help develop a "sustainable neighbourhood" in the Rijnenburg district of Utrecht, in the Netherlands. The objectives are to build a neighbourhood that generates energy, cleans the air and water, and improves biodiversity through providing suitable wildlife habitats. Proposals currently being discussed include break-proof dikes, building on terp mounds and the modification of ring dikes.



5

Gas conversion, Stockholm

By the summer of 2009, 90,000 properties connected to Stockholm's town gas network are to be ready for the transition from gas based on naphtha/light petroleum to biogas and natural gas, which produces lower emissions. Grontmij has been commissioned by Fortum Värme to manage the replacement of gas cookers and other gas appliances in connection with the changeover in the Swedish capital.

SUSTAINABILITY: GRONTMIJ

ACTION STATIONS

Grontmij engineers are helping to put its carbon reduction philosophy into practice with the consultant's key clients.

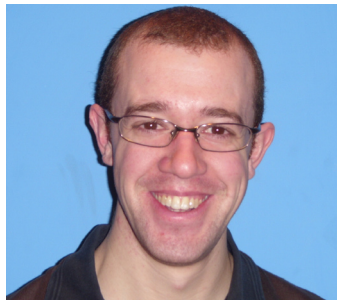
Grontmij's efforts to reduce its carbon footprint and introduce "sustainability by design" have to translate easily into action at the sharp end of the design and construction process if they are to make a genuine difference.

So what does it mean for the engineers on the ground?

"There's been a step change recently in how we deal with our carbon footprint, and it now takes much higher precedence," says Rob Mehmed, a mechanical engineer working in Grontmij's team within the @one Alliance delivering Anglian Water's AMP4 capital delivery programme.

Mehmed is in a team responsible for bringing "first time" sewerage to small rural communities. The schemes usually consist of connections from all the houses in the community to a small wet well, which is in turn linked by pipelines to the nearest treatment works or to an existing network that will feed into a treatment works.

Communities can be anything from eight to 500 houses, and they can be just 500m or 5km



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Rob Mehmed, Grontmij

away from the nearest connection point. All the schemes require sewage to be pumped from the wet well, but the low volume tends to result in the pipelines being very small diameter.

"You get the combination of

high head with low flows, so you're pumping a long way down long, skinny pipes," explains Mehmed.

His job is to specify the pumps, and his aim is to keep energy – and carbon – costs to a minimum. One option is to persuade the civils designers to go for larger diameter pipes, which improve the flow, and to create more storage capacity so the pumps are not working all the time.

This allows Mehmed to specify far more efficient pumps, resulting in massive energy savings. But additional storage can mean that chemical dosing is required – something that adds significantly to the carbon footprint. "It's a real juggling act," he says.

The entire alliance is now geared up to considering carbon at every stage. "We have regular intervention meetings where the stakeholders sit down and look at the overall issues, like design and budget," explains Mehmed.

"If you're in one of those meetings as a designer you've got to explain what you're doing to drive down carbon emissions."

Mehmed says he has "always

had a personal interest" in environmental and sustainability issues, and does what he can to keep his carbon footprint to a minimum. He cycles to work at the alliance offices when he can and drives a fuel efficient car.

"I would prefer not to drive," he says, "but the train is not an option. I think if everybody did what I do the world would be a slightly better place."

REPORTING CSR

Grontmij has chosen the Global Reporting Initiative (GRI) as its mechanism for reporting its corporate social responsibility (CSR) activities, and has selected 13 of the organisation's indicators as a starting point.

Next year Grontmij will increase its commitment to 20 KPIs from the GRI list, and have its performance externally verified.

Sustainability director Frank Price says the firm chose the GRI because it is a "credible standard", and one that is recognised by analysts across all sectors. "We have responsibilities as employers, purchasers, suppliers and neighbours," he says.

18,800

tonnes of carbon used by Grontmij employees in 2008

1,990t

Carbon footprint of Grontmij UK/Ireland business, 2008

1,302

Grontmij employees in the UK and Ireland



In the pipeline: Choices of pipe size, material and construction method involve carbon calculations