

## Energy Switzerland

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### Market Switzerland

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Thanks to Alpiq's balanced Swiss portfolio, the economic situation had less of an impact on Market Switzerland's sales of electricity than the average seen in the industry. This portfolio allows Alpiq to make an important contribution to energy security in Switzerland, with most of the electricity being sold to customers indirectly through its Swiss shareholders, joint ventures, subsidiaries and associates.

#### Partial liberalisation so far with little impact

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The first phase of electricity market liberalisation, from 2009 to 2013, has so far brought about virtually no change in the price environment prevailing in the Swiss marketplace. For the time being, only large customers with an annual consumption volume of 100 MWh or more are free to choose their electricity supplier. Because of the high price volatility, large consumers are seeking long-term purchase contracts with reliable partners. While price remains an important criterion, it has lost some of its significance.

After reviewing its commercial positioning in Switzerland, Alpiq decided to bring its sales activities in Olten and Lausanne under one roof. These activities centre on energy business with shareholder-customers and strategically important resellers. This restructuring led to a new organisational structure specifically tailored to the new challenges.

In Switzerland, Alpiq is actively involved in the procurement of energy from waste incineration plants (WIP). In 2009, it signed energy purchase agreements with three WIPs, and agreements with other WIPs are under negotiation. Alpiq also demonstrated its innovative approach by supplying the Cartasetta paper factory with industrial steam from the Gösgen nuclear power station via a brand-new pipeline. This will reduce annual CO<sub>2</sub> emissions by more than 8,000 tonnes by doing away with the need for around 2,500 tonnes of heavy oil per year.

#### Società Elettrica Sopracenerina

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Overall, 2009 was a positive year for Società Elettrica Sopracenerina SA (SES) in Locarno, which supplies electricity to much of the northern Ticino region. The challenging capital expenditure plan was adhered to, and costs as well as profit were on target. Due to higher household consumption in the cold months of January and February, electricity sales were slightly above target.

The liberalised market is presenting major challenges to SES. The new cantonal law on electricity came into force on 1 January 2010, which means that SES needs to negotiate new licensing agreements with the local authorities by the end of 2013. SES has also renegotiated its electricity delivery agreement with Azienda Elettrica Ticinese (AET), since the current agreement expired at the end of 2009. Although selling prices still remain below the market price, the marked rise in purchase prices has forced SES to pass some of this increase on to end customers.

SES met its capital expenditure targets and those for the implementation of new tariff structures, while keeping the financial consequences of the new price structure firmly under control. Good progress was achieved in the collaboration with Aziende Industriali di Lugano on a joint service centre, and the unit went into operation on 1 January 2010.

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#### Alpiq Versorgungs AG

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In the wake of the merger between Atel and EOS to form Alpiq, Atel Versorgungs AG (AVAG) changed its name and has been operating as Alpiq Versorgungs AG (AVAG) since 3 August 2009. The administrative changes required by the Electricity Supply Act for the partially liberated market were implemented without any notable incidents.

Sales in 2009 were higher than a year earlier, since grid losses on the energy side are now charged to income too. Energy sales to end customers nearly matched the prior-year level. One of the highlights of the year was the commissioning of the Kappel substation and the Rankwaage substation in Olten. 2009 also saw the decision to dispose of the Niederamt district heating network.

AVAG devoted its efforts to building up the energy efficiency platform for the canton of Solothurn's building programme "Jetzt energetisch modernisieren" ("Put your energy into modernising now"). One important goal for the near future is to bring geographically dispersed operating facilities under one roof, in a new operations building shared with our cooperation partner, Städtische Betriebe Olten.

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#### AEK Energie AG

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AEK Energie AG can look back on a successful year of operation in 2009, in which it substantially grew its energy consulting services for private and business customers through additional offerings, while signing long-term energy delivery contracts with numerous SME customers.

AEK exceeded the targets set for pellet sales and played a key role in launching the pellet industry organisation "propellets.ch", which aims to ensure that the Swiss pellet market grows at an even stronger rate than to date. In the contracting business, which primarily specialises in district heating networks and pellet systems, AEK recorded a successful year. AEK's electrical installation business also enjoyed a high volume of incoming orders throughout the year.

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#### Thermal Power Generation

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The two nuclear power stations, Gösgen and Leibstadt, operated as planned for the year. While the annual overhaul at the Gösgen nuclear plant in June went without a hitch, the overhaul of the Leibstadt nuclear plant in August lasted longer than scheduled due to the scale of tests required. Gösgen now supplies industrial steam to the Cartasetta paper mill in Däniken/SO.

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#### Progress in the Niederamt nuclear power station project

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Alpiq invested a great deal of effort last year in developing and enhancing the Niederamt nuclear power station project, for which a general licence application was submitted to the Federal Office of Energy (FOE) in June 2008. With this project for a

new nuclear power station, Alpiq intends to make an important contribution to Switzerland's long-term energy security.

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#### Modern combined heat and power station in the Valais goes live

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One important event during the year was the inauguration of the Thermatel plant on 23 October 2009. The new industrial power station went into operation in Monthey, canton of Valais, after a 20-month construction period. The efficient combined heat and power facility has an electrical output of 55 MW and a thermal output of 43 MW in the form of industrial steam. At more than 80%, this new thermal power station has an exceptionally high efficiency level.

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#### Hydro Power Generation

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Last year, the Swiss hydroelectric power stations owned by Atel and EOS joined forces in Alpiq's Hydro Power Generation division. Now that Cleuson-Dixence has resumed operations, the division has roughly 3,000 MW of highly flexible generation capacity at its disposal. The reorganisation took up much of the business unit's time and effort during the year. Overall performance in 2009 was positive, with hydroelectric generation ending the year around 10% above the budgeted averages.

While high precipitation during the winter resulted in above-average inflows of water for some facilities, inflows for some power stations, mainly in western Switzerland, remained at average levels owing to strong snow evaporation. Historic lows were recorded by several run-of-river power stations due to the sustained dry period experienced in September 2009.

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#### Large-scale projects: Cleuson-Dixence and Nant de Drance

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Following comprehensive repairs to the penstock, the Cleuson-Dixence plant is up and running once more, and the full capacity of 1,200 MW will again be available to the partners from 2010. The hydroelectric complex consists of the water catchment area behind the Grande Dixence dam, a 15.8 kilometre long intake tunnel, a 4.3 kilometre long pressure shaft and the Bieudron underground power station where pilot operations started at the end of 2009. The cost of repairs and work to re-lay the penstock was around CHF 365 million. The plant had to be shut down for extensive repairs following an accident in December 2000 involving a nine-metre long crack in the penstock above Bieudron.

The Nant de Drance pumped storage power station, which utilises the head between the Emosson and Vieux Emosson reservoirs, is a key project for Alpiq. The power station is being built completely underground so as to minimise the impact on the environment. Alpiq has a 54% stake in Nant de Drance, with the Swiss Federal Railways holding 36% and Valais-based FMV 10%. Nant de Drance is one of the most important Swiss infrastructure projects for hydroelectric generation and, with its 600 MW turbine and pump capacity, will play a pivotal role in ensuring energy security for Switzerland. The power station is scheduled for commissioning in 2015.

## Expansion and renovation projects

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The year under review saw completion of the project to modernise the Flumenthal run-of-river power station on the banks of the River Aare near Solothurn. Work on optimising the turbines has improved energy efficiency by around 6%, enabling an additional 1,750 households to be supplied with electricity. The investment cost was around CHF 25 million.

Several projects were launched last year. The hydroelectric power station in Chippis, built in 1908, is to be comprehensively modernised between May 2009 and October 2012, following which it will boast a capacity of 24 MW. The plant will be shut down for only a short time during the construction period. The cost of the project is around CHF 70 million. Other new projects in which Alpiq has a stake include a project to divert water from Lugnez to the Zervreila power stations in Vals, total renovation of the facilities of Kraftwerke Hinterrhein AG in Thusis, a project to divert glacier water in the Val d'Anniviers to the Gougra power stations in the Valais, the Forces Motrices du Hongrin-Léman pumped storage plant, and a project to expand and upgrade the facilities belonging to Electra-Massa, Energie Electrique du Simplon, Forces Motrices du Grand St. Bernard, Salanfe and Grande-Dixence. The projects are being carried out in close collaboration with the co-owners of these joint ventures.

The mission of Alpiq EcoPower AG is to expand small hydroelectric facilities in Switzerland. With the compensatory feed-in remuneration (CFR), operators receive subsidies to cover their operating costs. The young Alpiq subsidiary is working on around 120 projects for small hydroelectric schemes across Switzerland.

## Water rates to be raised

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Starting in 2011, water rates will be significantly increased from the present level of CHF 80 per gross kilowatt. Various cantons have launched remedial implementation measures for water withdrawals. The final deadline for implementation of the provisions of the Water Protection Act is 2012.

Several cantonal tax authorities are still discussing the possibility of direct taxation for joint ventures. These justifiable calls by the communities and cantons affected for a competitive system of taxation on output value must be weighed against the need for an appropriate correction at the generation partners' site. A new rule governing joint venture taxation must be introduced to ensure clarity and planning security in this respect. Costs rose sharply during the year due to the transfer of ancillary services to large power stations.

Lengthy licensing procedures continue to dampen capital spending on hydro-power and other new renewable energies. Yet despite political assurances of a commitment to promoting hydropower, such processes are only being simplified consistently in a few cantons.

## Grid

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While the technical/operational implementation of partial market liberalisation was accomplished without any notable problems in the transmission system, recent developments are causing concern from the standpoint of Switzerland's energy security. Licensing procedures for high-voltage line projects have been slow-paced.

### Transfer of the transmission system to swissgrid at the end of 2011

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Alpiq has been building its own high-voltage electricity networks for more than 80 years and owns more than one third of the transmission grid, making it Switzerland's largest transmission system owner. So, when it comes to networks, and especially the transmission network, Alpiq is particularly affected by the consequences of market liberalisation. Since 2008, the national grid company, swissgrid, has been responsible for operation of the transmission grid, and ownership of Switzerland's entire transmission system must be transferred to swissgrid by the end of 2011.

It is therefore important for Alpiq to arrange the transfer of the transmission system and the division of responsibilities with swissgrid in good time, and to ensure that the remaining network activities as well as those transferred to swissgrid remain competitive well into the future.

### ElCom ruling before the Federal Administrative Court

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Under the regulations governing the electricity market and in accordance with official rulings on transmission charges and ancillary services, Swiss power plants with a generation capacity of 50 MW or more must bear a substantial part of the costs for ancillary services (also referred to as "system services"). Alpiq expects the additional annual costs to run into the high double-digit millions.

Alpiq has decided to ask the Federal Administrative Court to examine the individual aspects of the ElCom ruling. In particular, the Court is being asked to clarify whether the Electricity Supply Act permits a sizeable proportion of the costs for ancillary services – i.e. services that serve to ensure the stability of the high-voltage transmission system – to be imputed to power plants with a capacity in excess of 50 MW without any entitlement to pass these costs on.

### Closing line gaps

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The most important high-voltage line project is for the double-strand 380 kV line between Chamoson and Chippis in the canton of Valais. The dossier is now in the hands of the Federal Office of Energy. Implementation of this line will complete the Swiss 380 kV network from West to East and from North to South. Rather than installing a new line, an existing line will be reinforced so as to enable 120 kilometres of lines in the Rhone Valley to be dismantled. In addition, the 220 kV line section between Mettlen and Plattischachen in the Reuss Valley, canton of Uri, was re-laid.

## Optimisation

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The merger of Atel and EOS to create Alpiq made 2009 an exceptional year. Liberalisation of the energy market, with new regulations governing ancillary services and balance group management, presented additional challenges. The ancillary services market allows the grid operator to purchase electricity from generators and use this energy to top up transmission capacity and ensure grid stability at all times.

### Maximising the value of the energy portfolio: a key task

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The financial crisis had a major impact on commodity markets and sparked off severe fluctuations in electricity prices. Lower energy prices than in 2008 put pressure on the Swiss portfolio in relation to international energy prices. To address these new boundary conditions for the Swiss market, a new Optimisation business unit was created. The main task of the new organisation is to work hand in hand with the Asset Trader unit to maximise the value of the Swiss energy portfolio. Alpiq's new trading system is to be introduced in 2010, and the company will vigorously pursue its performance targets.