

Aker Horizons' Half-Year Report 2023

Note 8 Impairment

Impairment test for Andes Renovables

The Chilean power market design and transmission system are dislocated, with operators delivering electricity under fixed price contracts to regional distribution companies being exposed to internodal price differences (unfavorable differential in price between injection and withdrawal) and elevated system costs (overall cost incurred by the regulator through its balancing of the system). In addition, the operators are exposed to curtailment (available volume not generated or fully valued in the market). Mainstream's diversified portfolio of wind and solar power production in the north and south of the country partly mitigates these market challenges.

The project models applied in the impairment testing include estimates of future sold production volumes and energy spot prices at different nodes throughout the useful life of the generation assets. The estimates are affected by a range of factors, including but not limited to, hydrology, share of renewable energy in the overall energy mix, global energy prices and the development of the Chilean electricity grid. The group incorporates probability-distributed data from third parties when preparing the project models.

An impairment of NOK 3,617 million, net of tax, was recognized as of 31 December 2022, mainly driven by increasing interest rates and updated assumptions related to limited grid capacity affecting internodal price differences and system costs. In the impairment test, management assumed increased visibility in the risk factors affecting the estimates, which did not materialize as expected. The experienced challenges in first half of 2023 related to hydrology and grid constraints triggered a shift in third-party estimates. The experienced market challenges also triggered a new impairment test for Andes Renovables as of 30 June 2023, reflecting that the overall uncertainty is assumed to be higher.

Key assumptions

To reflect the higher perceived risk, management moved the estimates for the different assumptions from third parties in a more conservative direction (e.g., more conservative probability-based assumptions). Other uncertainties are reflected through increased cost assumptions and inclusion of risk contingencies.

Below is an overview of the changes in key assumptions and judgements used to determine the recoverable amounts as of 30 June 2023.

Sold production volume

The Chilean electricity grid has transmission capacity constraints, resulting in intermittent curtailments. Due to the underestimated constraints in the grid capacity, particularly in the north, the new impairment test reflects a higher level of curtailment. The estimated production volume realized has been reduced by approximately 8 percent, compared to the impairment test carried out as of 31 December 2022.

There are several ongoing initiatives to address this problem, such as upgrading the infrastructure, changing the system design and implementing energy storage solutions. The impairment test reflects an expectation that additional transmission capacity will come online in 2030. This will reduce the curtailment challenges.

Internodal price differences

Internodal price differences have increased due to underestimated constraints in the electricity grid capacity and an increased portion of renewable energy in the overall energy mix in Chile. As renewable energy cannot be stored, renewable energy is by nature more volatile than both hydro/thermal and alternative power plants fueled by coal or LNG. A high share of renewable energy in the energy mix results in larger price fluctuations and is expected to put more pressure on an underinvested grid, which ultimately leads to increased internodal price differences. The unfavorable internodal price differences are most commonly experienced between the northern generation assets and the central withdrawal nodes.

A new transmission line, as described above, or structural changes to the system design, is expected to reduce the internodal price differences between the north and the center of the Chilean grid. In the period up to 2030, the overall internodal price differences are increased by an average of 33 percent compared to the impairment test in December 2022. When including all relevant periods up until the expiration of the external PPAs, the estimated internodal price differences are increased by 9 percent on average.

System costs

As the share of renewable energy in the energy mix increases, the overall cost of balancing the system increases, as the capacity cost paid to non-renewable electricity generation plants for back-up and grid stability power increases. Furthermore, system costs are correlated with alternative fuels prices, especially coal and natural gas.

During the first half of 2023, system costs increased due to more renewable energy being introduced into the grid, coupled with weak hydrology, and high alternative fuel costs. To align the system costs included in the impairment models with the cost levels observed in the market, the total estimated level of system costs has on average been doubled compared to the estimates used in the impairment test as of 31 December 2022. The system costs are only relevant for the period of the current PPA contracts, as the consumers must cover the expense in the spot market.

Contingency

In addition to the key assumptions and judgements as described above, management has also applied a contingency on top of the estimated cash flows. The contingency is included to address the overall level of uncertainty in the future cash flows. For the two projects still under construction (in the Huemul and the Copihue portfolios, respectively), there are uncertainties both with regards to timing of future cash flows (assumed to start production in 2025) and final capex amounts. In addition, there are still uncertainties related to the other key assumptions as described above. In total, the contingency reduces the estimated fair value across the three portfolios by approximately NOK 900 million. The overall contingency levels reflect the current perceived uncertainties. In future impairment tests the contingency will be aligned with actual visibility on capital expenditures in particular and the perceived visibility of the Chilean power market in general.

Discount rate

The recoverable amount in the impairment test has been calculated by applying a post-tax discount rate of 5.82 percent, unchanged from the impairment test performed as of 31 December 2022. The capital structure considered in the WACC calculation is derived from the capital structures of an identified peer group and market participants with consideration given to optimal structures. The cost of equity, calculated using the CAPM model, represents the expected return required by equity investors, incorporating the risk-free rate plus equity market- and country risk premiums, in addition to a beta derived from a comparable peer group. The cost of debt is based on the risk-free rate and an observed credit-spread on investment grade bonds.

The estimated fair value less cost of disposal includes significant estimate uncertainty, which has been reflected in the future cash flow assumptions and estimates, rather than in the discount rate. This means that the discount rate only reflects the systematic risk for a company within the renewable sector. All risks that are specific to the energy market in Chile, and relevant projects are reflected through the cash flow estimates and the risk contingency.

Recoverable amount

The recoverable amount as of 30 June 2023 has been determined based on a fair value less cost of disposal calculation. The carrying value of the Cash Generating Units (CGUs) is calculated as the sum of allocated contractual assets, property, plant and equipment (PPE) and working capital items, reduced by deferred tax on the items included in the CGU. The table below summarizes the recoverable amount and the impairments recognized per CGU.

Amounts in NOK million	Condor	Huemul	Copihue	Total
Carrying value PPE, contractual assets and working capital before impairment	8,905	8,726	1,846	19,478
Recoverable amount	6,731	7,210	816	14,757
Impairment loss 1H 2023	2,175	1,516	1,029	4,720

Allocated as follows:

Contractual assets	1,388	37	498	1,923
Property, plant and equipment	786	1,479	531	2,797
Impairment loss 1H 2023	2,175	1,516	1,029	4,720
Deferred tax on impairment	(375)	(10)	(134)	(519)
Net	1,800	1,506	895	4,201

The updated impairment test resulted in an additional impairment charge of NOK 4,201 million, net of tax, as of 30 June 2023 on contractual assets and property, plant and equipment related to the Andes Renovables portfolio.

Sensitivity

When determining the recoverable amount of the CGUs tested for impairment, a wide range of sensitivity tests have been run on the key assumptions in the fair value calculation, to ensure that the test is addressing the uncertainty in the Chilean power market. The sensitivity tests include adjusting the discount rate, internodal price differences, system costs and the sold production volume.

Amounts in NOK million	Change	Change in impairment after	
		Increase in assumption	Decrease in assumption
Assumption			
Discount rate	+/- 0.5 p.p.	(1,406)	1,360
Internodal price differences ¹	+/- 5%	(963)	954
System cost ¹	+/- 20%	(678)	675
Sold production volume ²	+/- 2.5%	692	(689)

1) Sensitivity calculated for remaining period of power purchase agreements (2041/42).

2) Sensitivity calculated for the remaining lifetime of the assets (between 2052 and 2055).

In addition to the sensitivities above, a sensitivity test has been conducted to assess the impact of timing of the grid capacity constraints to be alleviated, either through the introduction of the new HVDC transmission line or other measures such as changes to the system design, or by introduction of energy storage solutions to mitigate the pressure a higher renewable energy penetration puts on the grid. The analysis shows that each year of delay or acceleration would impact the overall impairment with NOK 200 million across the three portfolios.

Goodwill

Remaining goodwill related to the Mainstream acquisition in 2021 amounts to NOK 1.4 billion. The remaining goodwill relates to Mainstream's development pipeline, combined with its global organization, and is allocated to the Mainstream segment for impairment testing. Goodwill originally allocated to the Andes Renovables CGUs was fully impaired in 2022. An impairment trigger test has been carried out. As a result of an overall analysis, no impairment indicators for the remaining goodwill have been identified.