

Energy Norway **Company Report**

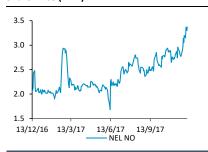
12 December 2017

NEL Hydrogen

Buy

3.37
4.40
NEL NO
3,366m
3,053m
999m
999m
12045.0
8857.0

Share Price (12m)



Share Price Performance						
	1m	6m	12m			
Price	n/a	31.6	n/a			
Rel. Index	n/a	n/a	n/a			

Green, for the lack of a better word, is good

We initiate coverage of NEL Hydrogen with a Buy recommendation and a target price of NOK4.4 per share. The company offers attractive exposure to the market for hydrogen electrolysers and fuel stations, a market with enormous potential. NELs backlog has grown by more than 250% over the last four quarters, indicating proof of concept, strong management and significant revenue growth going forward. As of Q4 2017 it will have a net cash position and we argue that NEL will report a positive EBITDA from 2019 and onwards.

Strong growth from existing order backlog...

NEL has increased its order backlog by more than 250% over the last four quarters, from NOK130m in Q4 2016 to NOK460m in Q3 2017. The average order roughly has 12months delivery, and if one simply annualise the NOK182m order intake in Q3 2017, we get a revenue estimate of NOK727m, 2.5 times as high as our 2017 revenue estimate. NEL has already signed several contracts in Q4 2017, most important being the latest contract to supply two hydrogen fuelling stations with Nikola Motors.

...and more growth from a bankable hydrogen market...

We estimate that hydrogen has reached fossil parity, i.e. it is able to compete against fossil fuels on an opex level in some parts of the world. The main driving force has been falling electricity prices from renewable energy, resulting in reduced hydrogen production costs. On our estimates, an average American citizen can save approximately USD307 per annum on using hydrogen vs petrol in a personal vehicle, based on electricity costs of USD0.05/KWh. We estimate that the total ownership cost of a hydrogen car will fall below that of fossil fuel driven cars in the long-term, significantly incentivising a shift to the greener alternative.

...result in a high valuation potential

Our target price of NOK4.4 per share is calculated using a scenario based DCFmethodology. Our base case scenario estimates 15% revenue growth from 2020 to 2025, but if we apply BP Energy Outlook's estimated 26% growth in electric vehicles, we see a high-case of NOK10.1 per share.

Company Overview (NOK)								
	2015	2016	20175	20105	20105			
Year end: Dec	2015		2017E	2018E	2019E			
Total Revenues (m)	95	114	287	563	833			
EBIT (m)	(22)	(55)	(110)	(88)	2			
Profit Before Tax (m)	(19)	(63)	(116)	(90)	0.4			
EPS (Reported) (NOK)	(0.02)	(80.0)	(0.10)	(0.07)	0.00			
EPS (Adjusted) (NOK)	n.a.	n.a.	n.a.	n.a.	n.a.			
DPS (NOK)								
Balance Sheet								
Total assets (m)	806	764	1,680	1,646	1,688			
Total liabilities (m)	86	91	356	391	432			
NIBD	(313)	(225)	(313)	(274)	(302)			
Margins & Profitability								
EBIT margin (adjusted) (%)	n.a.	n.a.	n.a.	n.a.	n.a.			
ROE (annualised) (%)	n.m.	n.m.	n.m.	n.m.	0.0			
ROCE (%)	n.m.	n.m.	n.m.	n.m.	0.2			
Sales Growth (%)	n.a.	20.9	150.6	96.3	47.8			
EBIT growth (%)	n.a.	-155.0	-99.5	19.8	102.4			
Valuation								
P/E (adjusted)	n.a.	n.a.	n.a.	n.a.	n.a.			
EV/sales (x)	26.1	n.a.	10.6	5.5	3.7			
EV/EBITDA (x)	n.m.	n.a.	n.m.	n.m.	73.2			
P/BV (x)	3.9	n.a.	2.5	2.7	2.7			
Dividend yield (%)	n.a.	n.a.	n.a.	n.a.	n.a.			

Analysts

Jonas Meyer +47 24 13 37 04

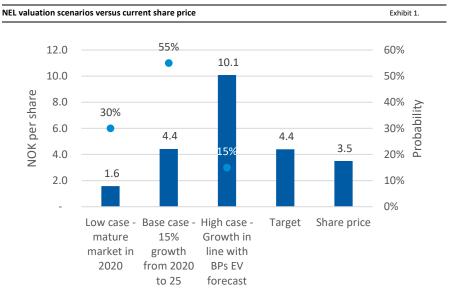
jonas.meyer@sb1markets.no

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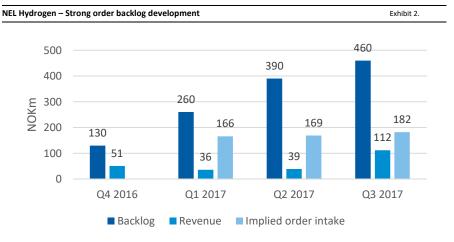
Valuation and investment case

We initiate coverage of NEL with a Buy recommendation and a target price of NOK4.4 per share. The company operates in a fast growing market for hydrogen electrolysers and fuel stations, and no competitor has delivered more hydrogen solutions than NEL's >3,500 solutions delivered since 1927. NELs unrivalled performance is underlined by the signing of several significant contracts in the past 12months, resulting in the company increasing its backlog by over 250% from NOK130m in Q4 2016 to NOK460m in Q3 2017. We estimate that the opex of driving a hydrogen car has become lower than opex driving a petrol car in some parts of the world, while the capex of buying a hydrogen car will come down as increased scale reduce cost trough assembly line production. Thus, in the long-term we believe that battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) will outcompete fossil fuel driven transportation, and that BEVs and FCEVs can co-exist due to different characteristics.



Source: BP Energy Outlook, Company data, Various, SpareBank 1 Markets.

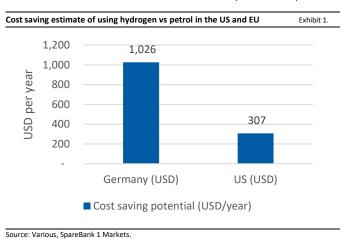
Proof of concept is important in a fast growing market for hydrogen electrolysers, and we are encouraged to see that NEL reaffirms its position as a market leader. Cumulative revenues in Q1-Q3 2017 grew organically by more than 70% (190% inc. Proton acquisition) from the year before, and more importantly, the company grew its backlog with over 250% from NOK130m in Q4 2016 to NOK460m in Q3 2017. Delivering on contracts results in new contract assignments, and we believe NEL is in a positive spiral, most recently proven by its contract with Nikola Motors. The initial contract of delivering two hydrogen stations at USD3.6m is small, but there is significant growth potential from NEL's exclusive partnership to develop 16 stations and Nikolas target of constructing 364 stations in the long-term. Being able to sign new contracts is key to our Buy recommendation.

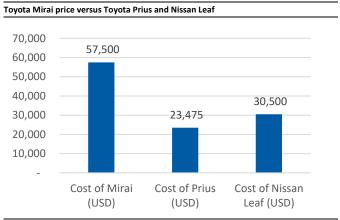


Source: Company data, SpareBank 1 Markets.

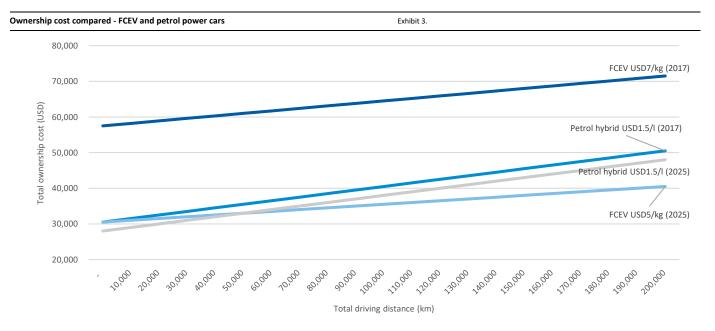
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The hydrogen market is bankable in parts of the world today, and we believe more opportunities to develop hydrogen solutions will emerge. Due to falling electricity costs from renewable energy, we estimate that hydrogen can compete against fossil fuel on an opex level at today's prices; it has reached "fossil parity". For example, we estimate that an average American citizen can save USD307 per year on switching from petrol to hydrogen consumption in their personal vehicle. However, the hydrogen car is still significantly more expensive due to low sales volumes, but in the medium- to long-term that is about to change. Toyota estimates that its Mirai will sell for the same price as a Prius within 2025, significantly improving the competitiveness of hydrogen cars. We estimate that the total ownership cost for a FCEV will outcompete fossil fuels by 2020/2025, significantly incentivising the shift towards the greener alternative. In addition to outcompeting fossil fuel cars, we believe there is room for both FCEVs and BECs due to difference characteristics. In short, FCEVs have longer range, shorter charging/fuelling time and lighter weight, making it more suitable for long-range driving (like busses, trucks, trains and ferries), high utilisation vehicles (forklifts), and a bit further down the road potentially in planes and space-rockets.





Source: Carsalesbase, SpareBank 1 Markets.

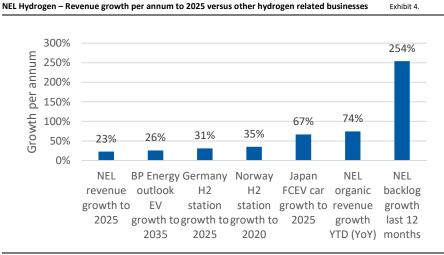


Source: Shell, Toyota, Various, SpareBank 1 Markets.

Strong organic growth is fully funded post the latest equity issue and subsequent offering on November 20, 2017. NEL has next to nothing in bank debt and approximately NOK313m estimated cash at the end of 2017. The company guides that the current business is scalable to at least NOK700m turnover before any major capex will occur, leaving significant growth opportunities before investment is needed. We estimate that NEL revenues will grow by 23% per annum until 2025, while several other hydrogen related businesses are planed to

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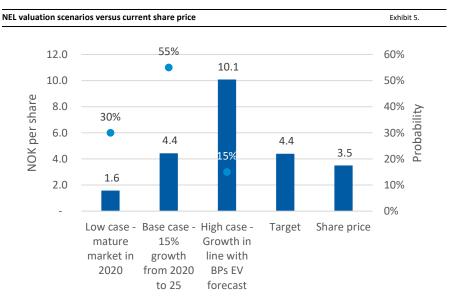
grow by 26%-67% per annum. In addition, we believe there will be potential growth opportunities from new business areas, like hydrogen driven ferries, trains, trucks, planes, energy storage and more.



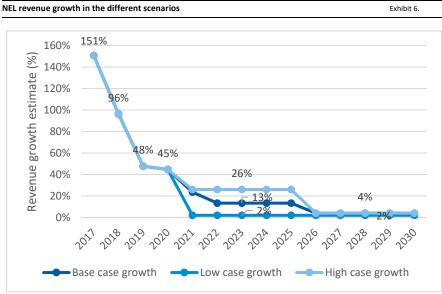
Source: BP Energy Outlook, IEA Hydrogen, SpareBank 1 Markets.

Positive EBITDA will be achieved in Q4 2018 on our estimates. Like most growth companies, NEL is positioned for growth with a cost base that is yet to be overcome by revenues. However, management guides that we will see a positive EBITDA at some point during 2018. Thus, we believe that 12 months from now, we will look into 2019 as the first full year of positive EBITDA and positive cash flow, as the company is debt free, given that NEL does not make any large acquisitions.

High upside potential, but also high uncertainty on valuation. NEL is a growth case and one needs to adopt a long-term perspective to value the company in a meaningful way. We apply a scenario based DCF approach to value NEL until 2025, using a WACC of 10% and a terminal growth value of 4%. In the low case scenario we estimate that the market for hydrogen solutions matures in 2020 and only grow by a modest 2% thereafter. In the base case we estimate that NELs revenues will grow by 14% per annum between 2020 and 2025. In our most optimistic scenario, we estimate that NELs revenues will grow in line with the electrical vehicle growth estimated by BP in its Energy Outlook, i.e. 26% between 2020 and 2025.



Source: BP Energy Outlook, Company data, Various, SpareBank 1 Markets.



Source: Company data, SpareBank 1 Markets.

EL - DCF-valuation of the base cas	e scenario						Exhib	it 7.
DCF-valuation (NOKm)	2018	2019	2020	2021	2022	2023	2024	2025
Revenue	563	833	1205	1488	1684	1910	2166	2456
Grow th (YoY)	96%	48%	45%	24%	13%	13%	13%	13%
EBITDA	-39	42	166	268	331	403	485	578
EBITDA margin	-7%	5%	14%	18%	20%	21%	22%	24%
Tax (no cash effect to 2020)	21.6	-0.1	-29.8	-54.4	-69.5	-86.8	-107.0	-131.0
Capex estimate	0.0	-39.8	-39.8	-39.8	-39.8	-39.8	-37.4	-30.4
Change in working capital	2	-11	-23	-9	-10	-12	-13	-15
Free cash flow	-37	-9	103	166	211	265	327	401
Wacc	10%	10%	10%	10%	10%	10%	10%	10%
NPV FCF	-37	-8	85	124	144	164	185	206
WACC	10%							
Terminal growth rate	4%							
NPV to 2025	863							
Terminal value	3,245							
EV (NOKm)	4,108							
Net debt 2017 -	313							
Equity value	4,421							
Shares	999							
Equity value per share (NOK)	4.4							

Source: Company data, various, SpareBank 1 Markets.

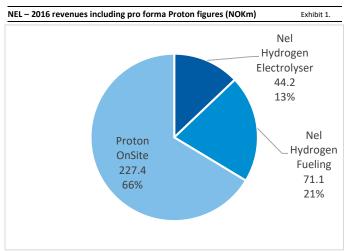
NEL - DCF-valua	EL - DCF-valuation per share sensitivity to WACC and terminal growth							
	Wacc							
		8%	9%	10%	11%	12%	13%	
	2%	5.0	4.2	3.6	3.1	2.8	2.5	
	3%	5.7	4.7	3.9	3.4	3.0	2.6	
Terminal	4%	6.9	5.4	4.4	3.7	3.2	2.8	
growth	5%	8.9	6.5	5.1	4.2	3.5	3.0	
rate	6%	12.8	8.3	6.1	4.8	4.0	3.4	
Tate	7%	24.5	12.0	7.9	5.8	4.6	3.8	
	8%	#DIV/0!	23.0	11.3	7.4	5.5	4.3	
	9%	-22.4	#DIV/0!	21.6	10.6	7.0	5.2	

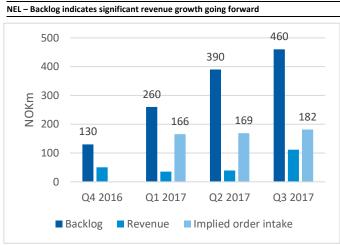
Source: SpareBank 1 Markets.

Company information

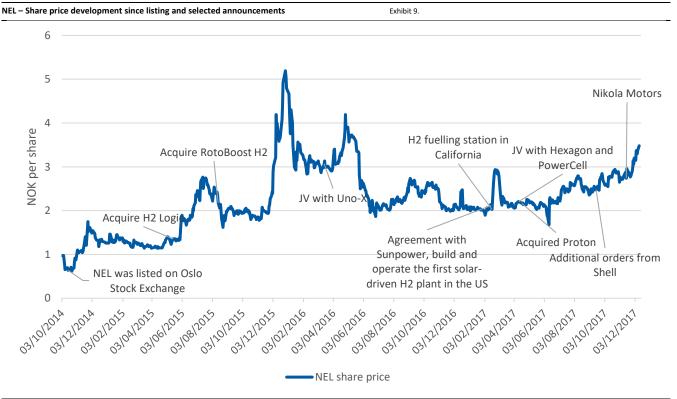
NEL Hydrogen dates back to 1927 when Norsk Hydro installed the first small electrolysers at Notodden, Norway. Originally, the company produced green hydrogen for its own use but in the 1970's the technology was offered to external customers. Since then, NEL has delivered more than 3,500 hydrogen solutions in approximately 80 countries, making it the world's largest electrolyser company. NEL was listed on the Oslo Stock exchange in October 2014 (through an acquisition by DiaGenic ASA) and today it has a market cap of approximately NOK3.2bn (c.USD390m).

NEL's business structure is divided into three segments. 1) NEL Hydrogen Electrolyser, which focus on production and installation of water electrolysers for hydrogen production. After acquiring Proton in June 2017, NEL is the world's largest electrolyser company. 2) NEL Hydrogen Fueling, which focus on production of hydrogen fuelling stations for cars, buses, trucks, forklifts and other applications. Since 2003, the company has delivered 35 stations in eight countries across Europe, and it recently won a contract with Nikola Motors to install two large-scale stations in the US, in addition to receiving exclusive rights aiming to develop 16 more. In February 2017, NEL entered into a framework agreement with Shell for the supply, construction and maintenance of hydrogen fuelling stations in California. The first purchase order had a value in excess of NOK140m, while in September 2017, NEL received additional purchase orders from Shell of NOK50m. We believe fuelling stations represent a huge growth potential as for example Germany aims to have 100 hydrogen fuelling stations in 2020, increasing to 400 stations in 2025, up from 35 in 2016. The same goes for Japan that plans to increase to 320 stations by 2025, up from 92 at the end of 2016. 3) NEL established a third segment called Nel Hydrogen Solutions to utilise market opportunities across the Nel group to offer complete solutions to customers. Lastly, NEL created an exciting JV called HYON together with Hexagon Composites (a Norwegian company that deliver hydrogen tanks) and PowerCell Sweden (a Swedish company delivering fuel cells), to form a Scandinavian provider of integrated hydrogen solutions.





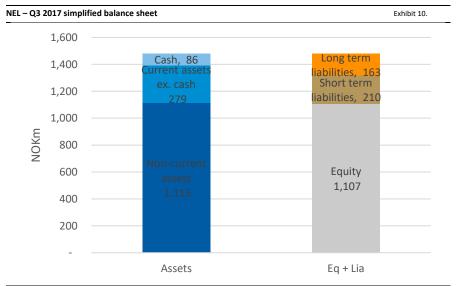
Source: Company data, SpareBank 1 Markets. Source: Company



Source: Bloomberg, Company data, SpareBank 1 Markets.

Fully funded for organic growth

Following the private placement in September and a subsequent offering in November, NEL's current organic strategy and business plan is well funded. The company had a cash position of NOK85.6m as of Q3 2017, increasing after the quarter end due to gross proceeds of NOK220m and c.NOK25m following a private placement and a subsequent offering in September and November 2017, respectively. The cash position after fees is approximately NOK320m, versus liabilities of c.NOK235.3m. Reported equity ratio as of Q3 2017 was 74.8%. We find the funding situation in NEL satisfactory, but do not exclude further potential equity issues in connection with accretive acquisitions.



Source: Company data, various, SpareBank 1 Markets.

Management

Jon André Løkke – CEO

Jon André Løkke was appointed Chief Executive Officer (CEO) of NEL ASA effective 4 January 2016. Mr. Løkke comes from the position as CEO of Norsk Titanium AS, developing and industrializing 3D printing technology for the production of titanium components for the aerospace and other industries. He has ten years' experience from the REC Group, including positions as senior vice president in REC Wafer, investor relations officer in REC ASA and CFO in REC ASA. Mr Løkke has also worked for the ABB Group and holds an International MBA degree from Glasgow University and a Bachelor degree in business and economics from Southampton University.

Bent Skisaker - CFO

Bent Skisaker served was appointed CFO effective 1 September 2016. Skisaker comes from a position as Chief Financial Officer (CFO) of Eureka Pumps and has more than ten years experience as CFO in various companies in the Aker Group. Bent has also served eight years as an auditor and financial advisor at Ernst & Young/Arthur Andersen. Skisaker holds a Master in Accounting and Auditing from the Norwegian School of Economics (NHH), a B.A. of Business Organisation from Heriot-Watt University, and is qualified as a State Authorised Public Accountant in Norway.

Anders Søreng - CTO

Anders Søreng joined NEL from May 2016. He has previously served as Senior Vice President in REC Solar, where he held various management positions since 2008. He has recently worked as SVP & CTO of Norsk Titanium and holds a PhD from the Norwegian University of Science and Technology (NTNU).

Bjørn Simonsen - Market Development/PR

Bjørn Simonsen joined NEL Hydrogen September 2014, and has since January 2015 been with NEL ASA. He has experience from the hydrogen sector since 2008, and began as a research engineer at Institute for Energy Technology (IFE), followed by key positions in the HyNor-project, The Norwegian Hydrogen Council and Norwegian Hydrogen Forum. He holds a MSc in Energy and Environmental Science from NTNU.

Estimates

There are no good consensus estimates available on NEL and it is difficult to predict the figures on quarterly basis. The company books revenues as contracts are being delivered, and it is a natural part of the business to have fluctuating revenues in both directions. Thus, we argue that it is more important to see a growing trend over a 6-12 months period and not be spooked by a weak quarter. Management guides approximately NOK100m in revenues during Q4 2017, which is 10% weaker than Q3 2017. New contract awards will be key indicators for further growth as well as a growing order backlog.

IEL – Historical P&L and Q4 2017 estimate							
	4Q16	1Q17	2Q17	3Q17	4Q17		
NOKm	Rep.	Rep.	Rep.	Rep.	Rep.		
Revenues	50.6	35.7	39.1	111.7	100.4		
Expenses	-63.7	-48.7	-61.2	-130.2	-122.2		
EBITDA	-13.1	-13.0	-22.0	-18.5	-21.9		
EBITDA-margin	-26%	-36%	-56%	-17%	-22%		
D&AI	-2.9	-2.6	-2.7	-14.8	-14.8		
EBIT	-16.0	-15.6	-24.7	-33.3	-36.7		
Net financials and other	-8.1	-0.6	-1.3	-3.1	-0.4		
Pre-tax profit	-24.1	-16.2	-26.0	-36.4	-37.1		
Tax	5.6	0.5	0.3	3.8	8.9		
Net income	-18.5	-15.6	-25.7	-32.6	-28.2		
EPS	0.0	0.0	0.0	0.0	0.0		

Source: Company data, SpareBank 1 Markets

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IEL – SB1M annual estimate				Exhibi
		SB1M		
NOKm	2017E	2018E	2019E	
Revenues	287	563	833	
Expenses	-362	-602	-791	
EBITDA	-75	-39	42	
EBITDA-margin	-26%	-7%	5%	
D&AI	-35	-50	-40	
EBIT	-110	-88	2	
Net financials and other	-5	-2	-2	
Pre-tax profit	-116	-90	0	
Tax	14	22	0	
Net income	-102	-69	0	
EPS (USD)	-0.1	-0.1	0.0	

Source: Company data, SpareBank 1 Markets.

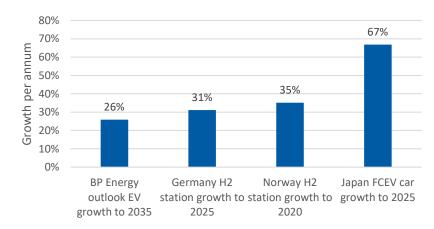
Hydrogen market – bankable today, enormous potential

The hydrogen market is estimated to be approximately 50m tonnes (USD150bn) per year. The majority of production comes from fossil based sources like steam methane reforming, crude cracking and coal gasification, while only 1% of the total market comes from water electrolysis. With increased focus on climate and renewable energy as well as falling production cost for water electrolysis, we believe that hydrogen from renewable energy will be able to compete against other sources of energy and there is an enormous potential for growth in the years to come.

We estimate that the total ownership cost for a FCEV will outcompete fossil fuels by 2020/2025, significantly incentivising the shift towards the greener alternative. In addition to outcompeting fossil fuel cars, we believe there is room for both FCEVs and BECs due to difference characteristics. In short, FCEVs have longer range, shorter charging/fuelling time and lighter weight, making it more suitable for long-range driving (like busses, trucks, trains and ferries), high utilisation vehicles (forklifts), and a bit further down the road potentially in planes and space-rockets. BP estimates that electric vehicles (EVs) will grow by 26% per annum from 1million cars in 2015, to 100m cars in 2035. Coming from a lower base, we believe that the renewable hydrogen market can grow with at least similar figures.

Selected estimates and targets show a small part of the growth potential within hydrogen

Exhibit 13.

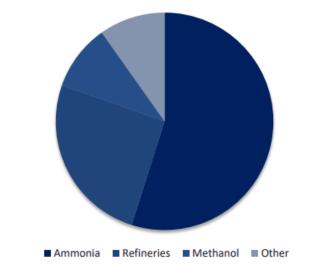


Source: BP Energy Outlook, IEA Hydrogen, SpareBank 1 Markets.

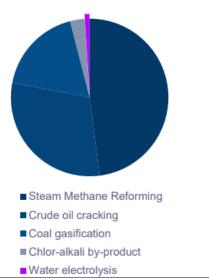
Global hydrogen market by end use

Exhibit 1.

Hydrogen by source - water electrolysers represents only 1% of the total market



Source: NEL. SpareBank 1 Markets.



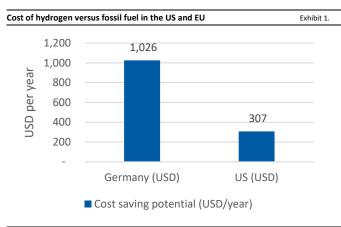
Source: NEL, SpareBank 1 Markets

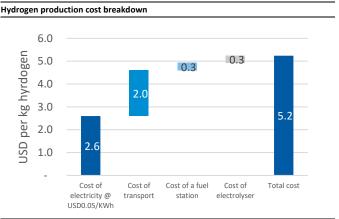
Hydrogen as a fuel - Reaching fossil parity

We estimate that hydrogen is able to compete against fossil fuels today, as the production cost of hydrogen has reached fossil parity in some regions. Electricity price is the main cost component in producing hydrogen, while the producer has to choose between being

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located in close proximity to the energy source and avoid grid fees but get costs related to transporting hydrogen to end user, or the opposite, being located close to the consumer to avoid transport costs but get grid fees. Including the cost of: transporting hydrogen to end user, constructing a hydrogen fuel station, buying an electrolyser and converting energy to hydrogen, we estimate that hydrogen costs approximately USD5.2 per kg. At a selling price of USD5.2 per kg, hydrogen cost approximately USD5.2 per 100km driving distance, while petrol in the US and EU cost USD6.7 and USD10 per 100km respectively. I.e. the average American citizen can save approximately USD307 per annum by switching from petrol to hydrogen as fuel in their personal vehicle.

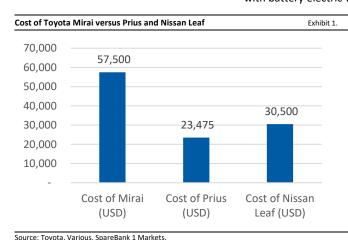


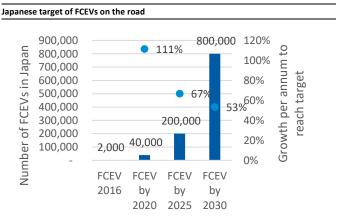


Source: Various, SpareBank 1 Markets.

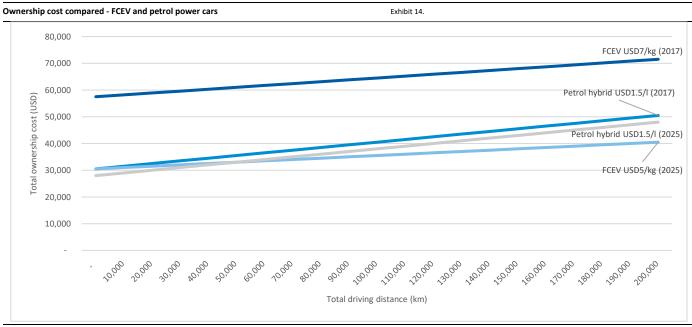
Source: Company data, various, SpareBank 1 Markets.

The main issue is that the price of fuel cell electric vehicles (FCEVs) outweighs the price of fossil fuel cars and hybrids. Although European car drivers pay approximately half the price for hydrogen compared to petrol, this still only equates to a yearly saving of USD1,026 per annum while a Toyota Mirai is USD34,000 more pricy than a Toyota Prius. However, Mirai is the Japanese word for future, and we believe that hydrogen cars will be more competitive in the future due to economies of scale from assembly line production. Toyota aims to sell the Mirai for the same price as a Prius by 2025, significantly improving the competitiveness of hydrogen cars. Powered by funds from the Development Bank of Japan, all three Japanese automakers, Toyota, Nissan (to a lesser extent) and Honda have banded together with major Japanese gas and energy suppliers to build a network of hydrogen fuelling stations big enough to support their government's ambitious 2020 target of 40,000 hydrogen fuel cell vehicles on Japan's roads. The Japanese government targets to have 40,000, 200,000 and 800,000 FCEV on the road by 2020, 2025 and 2030 respectively, up from 2,000 at the end of 2016. Based on our own calculations and Shell's predictions, we estimate that the total ownership cost of FCEVs will outcompete fossil fuels, and compete with battery electric vehicles (BEVs) in the medium term.

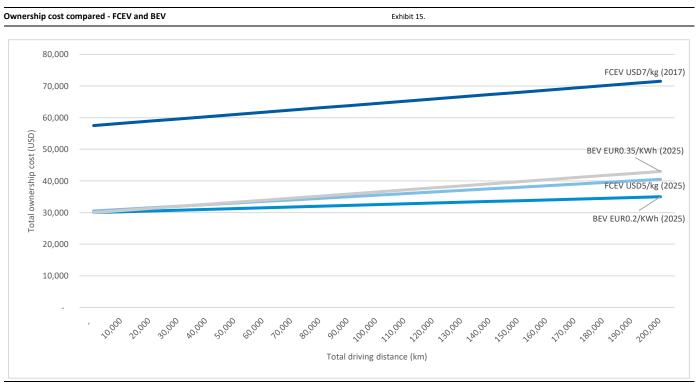




Source: IEA. FT. SpareBank 1 Markets.



Source: Shell, Toyota, Various, SpareBank 1 Markets



Source: Shell, Toyota, Various, SpareBank 1 Markets.

The price of renewable energy is falling drastically, a huge benefit for hydrogen electrolysers as cost of energy represents the majority of costs related to hydrogen production. We estimate that hydrogen as a fuel is bankable around USD0.04/KWh-USD0.05/KWh, while further decreases would increase the economic incentives to adopt the technology. The International Renewable Energy Association (IRENA) published a study showing that the average price of solar power auctions fell from USD0.25/KWh in 2010 to USD0.05/KWh in 2016. Although less steep, wind power auctions has declined to USD40/MWh, down from USD80/MWh six years earlier. These are average figures, and we have seen significantly lower figures in some sunny countries, like Mexico, Abu Dhabi and Dubai. In October 2017, Saudi Arabia sat a new world record for the cheapest electricity on the planet with solar power at USD0.0177/KWh. Bloomberg New Energy Finance (BNEF) estimates that the power purchase agreements (PPAs) in solar power can fall to USD0.02-USD0.04/KWh in 2020.

Exhibit 1.

12 December 2017

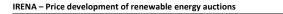
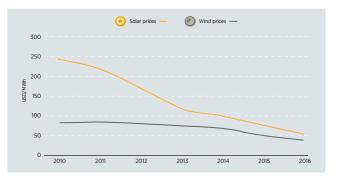


Figure 2.1 Average prices resulting from auctions, 2010-2016



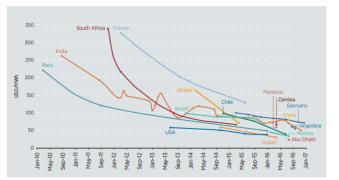
Note: The countries considered in this graph are the ones detailed in Figures 2.3 and 2.9, for solar and wind respectively. The average price for each year was calculated by weighing average prices in individual auctions by the awarded capacities, and then adding a dampening effect to smooth the curve.

Sources: Based on data from BNEF (2016 a, b, c), ANEEL (2016), BnetzA (2017a), Bridge to India (2017a), Coordinador Eléctrico Naciona (2016), Eberhard and Kiberger (2016), EGP (2016), Elizondo-Azuela, Barroso et al (2014), IFC (2016), Mahapatra (2016 a,b), MINEM (2016a, b), MNREG (2010), MNREG (2010), Osinerginni (2016), Santiago and Sinclari (2017a, b), Shahan (2016)

Source: IRENA, various, SpareBank 1 Markets.

IRENA – Price development of solar power auctions per country

Figure 2.3 Evolution of average auction prices for solar PV, January 2010-February 2017



Notes: Prices are averages. On the rare occasion when multiple auctions occurred within the same month, the average price of those auctions is shown. In case of ambiguity regarding the auction's date, the date when the winning bids were selected and announced uses the pulse of the pulse of

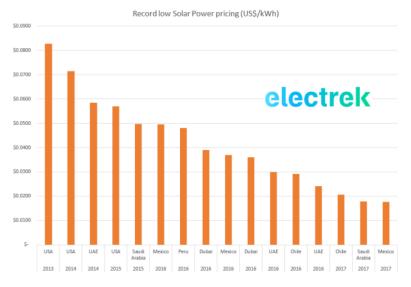
Sources: Based on data from BNEF (2016 a, b,c), ANEEL (2016), BnetzA (2017a), Bridge to India (2017a), Coordinador Eléctrico Nacional (2016), Eberhard and Káberger (2016), Elizondo-Azuela, Barroso et al. (2014), IPC (2016), Káhapatra (2016 a. b), MINEM (2016a, b), MINER (2010), MINER (2017), Ola (2016), Soirregnin (2016), Santiago and Sinclair (2017a, b), Sanhan (2016).

16. On the rare occasion when multiple auctions occurred within the same month, the average price of those auctions is shown in the figure. In case of ambiguity regarding the auction's date, the date when the winning bids were selected and announced was taken as the main reference.

Source: IRENA, various, SpareBank 1 Markets.

Development in the cheapest solar power projects on the planet

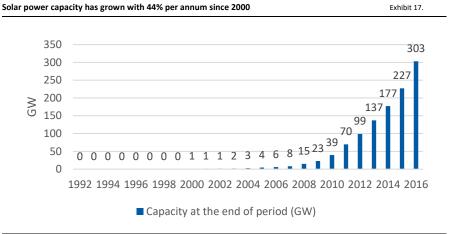
Exhibit 16.



Source: Electrek, SpareBank 1 Markets.

Example of using hydrogen to release stranded energy

Since 2000, solar power alone has increased to 303GW at the end of 2016, an eye opening 44% per annum. Technological improvements has resulted in cost reductions of approximately 80% on solar modules over the last seven years, leading to decreased electricity prices. However, new types of energy creates new types of problems, and one of the problems that hydrogen can help solve is grid curtailments. Grid curtailments happen when an energy source produce more electricity than the power lines can distribute, and the owner need to shut down / reduce production. However, this can be solved by using hydrogen to store electricity in hydrogen at peak hours, and then either redistribute it back into the grid at times with less production or sell it to the global market for other purposes.



Source: IHS, SpareBank 1 Markets.

Solar power - Price of a silicon module

2.5 2.0 1.5 0.5 0.0

Jan-14

Jan-15

Jan-16

Average

Jan-17

Jan-13

Range

Jan-12

Source: PV Insights, SpareBank 1 Markets.

Jan-11

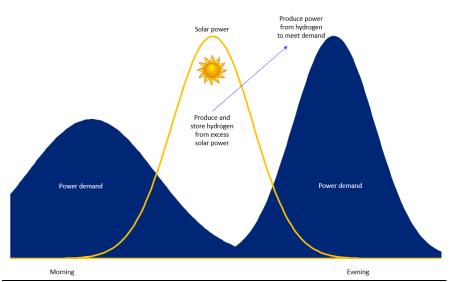
Jan-10

For example, Varanger Kraft has the permit to develop 200MW of wind power in Finmark, northern part of Norway. However, although only 45MW (190GWh) of the capacity has been built to date, the company is experiencing days where the project is producing more power than the grid can handle, and the grid operator asks Varanger Kraft to shut down parts of the production. In addition, a competitor opened a wind power project in the neighbour municipality in the fall of 2017, with the same 45MW/190GWh capacity. Needless to say, already today and even more so with a capacity increase to 200MW, the grid curtailment could be significant resulting in potential income loss for the wind power operators.

The most intuitive solution is to produce hydrogen from the excess power at peak hours, and then convert it back power when power consumption is higher (see figure below). In that way hydrogen can release stranded energy. However, the economics of doing this is still challenging as the power loss by converting power to hydrogen is roughly 30% and it is roughly a 30% loss when converting back to power. Potential solutions, and this shows just some of the growth potential in hydrogen, includes to sell hydrogen directly as fuel to ferries (if the wind farm is located in close proximity to the coast or offshore). Or more sophisticated create an ammonia or methanol factory next to the hydrogen production, so chemical tankers can ship the goods on a global market. In the next section, we touch upon some of the many possible business areas of hydrogen in the future.

Exhibit 18.

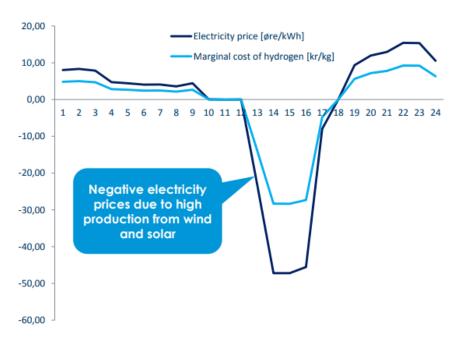
Simplified overview of power consumption vs solar power generation, and how hydrogen solves the issue



Source: Various, SpareBank 1 Markets.

Example: 24hr period in Germany with excess power production

Exhibit 20.



Source: NEL, SpareBank 1 Markets.

Other applications show a wide variety of growth

The main application for hydrogen is in the chemical industry, and we have shown the potential for hydrogen use in personal vehicles. However, growth can come from several other applications, and McKinsey predicts that it can possibly come in in waves. For example: GM together with the US Army Tank Automotive Research are developing the Chevrolet Colorado ZH2 FCEV, a FCEV that is silent and able to remove the fuel cell to use it for power generation and water production when the car is not in use. Field testing in 2017. Audi is developing an electric vehicle called e-tron, but that does not mean that hydrogen is not a priority. The company will also developed a hydrogen car called Audi h-tron. After all, a hydrogen vehicle is just an electric vehicle with a fuel cell. BWM aims to enter the FCEV market in the next decade, GreenGT has made a FC race car that completed laps in Le Mans, and the traditional hydrogen car companies Toyota, Hyundai and Honda continue to develop their FCEVs an reduce cost.

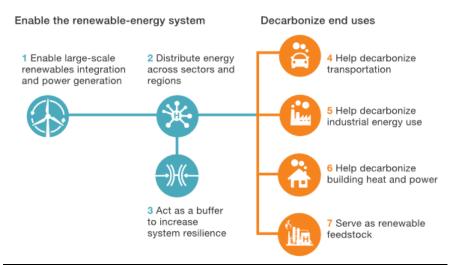
12 December 2017

In March 2017, Alstom successfully tested world's first hydrogen train at 80km/h, the Coradia iLint. Its first passenger test runs will be on the Buxtehude-Bremevörde-Bremerhaven-Cuxhaven rout (Germany), in 2018. In April 2017, Amazon decided to use hydrogen forklifts in ten of its warehouses and in July 2017, Walmart matched Amazon's USD600m deal with a similar one. The advantage of forklifts is that they can charge in minutes instead of hours, eliminating the labour cost of charging batteries, freeing up warehouse space and keeping goods flowing around the clock. Fewer than 3% of the 600,000 forklifts used in the US warehouses are run on hydrogen.

HY4 became the world's first passenger aircraft with an engine powered by a hydrogen fuel cell. Its flight took place in Stuttgart on September 29, 2016. Hydrogen is lighter than air and about one-third of the weight of kerosene jet-fuel for the same amount of energy. For a Boeing 747-400 this would potentially reduce the take-off gross weight from 360,000 to 270,000 kg, essentially improving costs dependent on plane size.

McKinsey & Company – Hydrogen can play seven major roles in the energy transformation

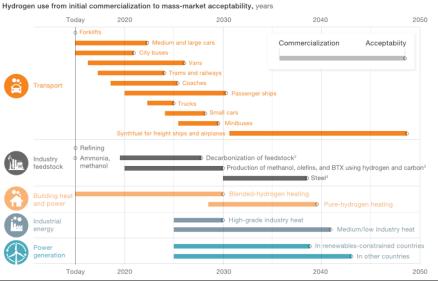
Exhibit 21.



Source: McKinsey & Company, SpareBank 1 Markets.

McKinsey & Company – Hydrogen adaption could come in waves

Exhibit 22



Source: McKinsey & Company, SpareBank 1 Markets.

To put it modestly: the growth potential in hydrogen is enormous. CEO-level group The Hydrogen Council was launched at the World Economic Forum 2017 in Davos, with the main purpose of accelerating the investment in development and commercialisation of hydrogen and fuel cells. Its member companies collectively represents revenues of USD1.3 trillion and more than 2.06m employees around the world. Combined, their investments in hydrogen amounts to an estimated value of EUR1.4bn per annum. On 13 November 2017, The

12 December 2017

Hydrogen Council together with McKinsey launched the first quantifiable roadmap showing the scale up potential of hydrogen: USD2.5tn of business and more than 30m jobs by 2050.

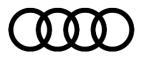
The Hydrogen Council steering members – Aim to accelerate investments in hydrogen

Exhibit 23



































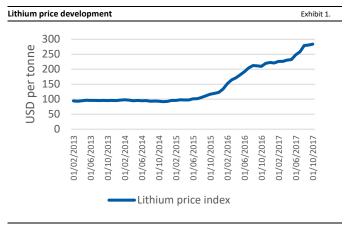


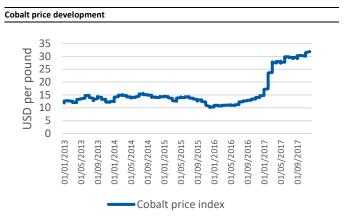
Source: The hydrogen Council, SpareBank 1 Markets.

Hydrogen vs battery

As FCEVs and BEVs are getting cost competitive with fossil fuel cars, and potentially are able to outcompete them in the long-term, we believe the green cars will play a major role in the future car fleet. However, the questions is also whether BEVs or FCEVs will be the winning technology in the future. BEVs have a head start and are further developed than FCEVs, but Shell estimates that the ownership costs of the two will be fairly similar by 2020. We believe there is space for both technologies in the future, as they have different strong sides for various applications. Just like today, there will not be one car brand or one car type that captures the entire market.

One huge advantage for FCEV is that hydrogen is the most abundant resource in the universe. BEVs use lithium batteries, which has resulted in a supply shortage of lithium and prices has increased from USD92/tonne in December 2014, to over USD283/tonne in December 2017. The same can be said about cobalt increasing from USD14/pound to USD32/pound over the same period.





Source: Bloomberg, SpareBank 1 Markets.

Source: Bloomberg, SpareBank 1 Markets.

The infrastructure around BEVs are more developed than those for FCEVs, as they are easier to develop. A BEV can be charged over night in the garage while a FCEV needs a fuelling station. However, the FCEV is a lot faster to charge than BEVs, meaning that FCEVs may have an advantage over longer driving distances and higher utilisation. For example, hydrogen forklifts have already been adopted by the likes of Walmart and Amazon due to their short charging time saving labour time and space compared to its electric counterparts, as they can operate over several shifts. Hydrogen fuelling stations are also more expensive, but will be more competitive as costs come down. As electric charging stations are slower at charging, it will require more charging points per station than hydrogen.

Further into the future, hydrogen is much lighter than lithium batteries, making it more suitable for planes and rockets. HY4 became the world's first passenger aircraft with an engine powered by a hydrogen fuel cell. Its flight took place in Stuttgart on September 29, 2016. Hydrogen is lighter than air and about one-third of the weight of kerosene jet-fuel for the same amount of energy. For a Boeing 747-400 this would potentially reduce the take-off gross weight from 360,000 to 270,000 kg, essentially improving costs dependent on plane size.

In total, we believe it is room for significant growth within both FCEVs and BEVs.

 Ownership cost compared - FCEV and BEV
 Exhibit 24.

 FCEV USD7/kg (2017)
 FCEV USD7/kg (2017)

 70,000
 BEV EURO.35/KWh (2025)

 40,000
 FCEV USD5/kg (2025)

 30,000
 BEV EURO.25/KWh (2025)

 20,000
 BEV EURO.2/KWh (2025)

 Total driving distance (km)

Source: Shell. Toyota. Various. SpareBank 1 Markets.

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Potential risks to our Buy recommendation

NEL needs scale to become profitable. Thus, the main risks to our NOK4.4 per share target price is a slower adoption of hydrogen usage, or that NEL loose its competitive advantages resulting in fewer contract assignments in the future. With contracts lasting approximately 6-18 months, it is important that management continue to deliver a steady growth in contract assignments going forward. Given that EVs are ahead of FCEV in adoption rate, hydrogen may simply never become competitive as car manufacturers and others continue to pour significant funds into the EV technology.

Other potential risks are 1) falling prices of fossil fuel that can alter the competitive landscape, 2) increasing electricity prices making it expensive to produce hydrogen, 3) disruptive innovation from new technologies that are yet to appear.

Income Statement (NOK)					
Year end: Dec	2015	2016	2017E	2018E	2019E
Net revenues (m)	95	114	287	563	833
Revenue growth (%)	n.a.	21	151	96	48
EBITDA (m)	(8)	(45)	(75)	(39)	42
EBITDA margin (%)	n.m.	n.m.	n.m.	n.m.	5.0
Depreciation (m)	(14)	(10)	(35)	(50)	(40)
Amortisation (m)					
EBIT (m)	(22)	(55)	(110)	(88)	2
EBIT margin (%)	n.m.	n.m.	n.m.	n.m.	0.25
Pre-tax profit (m)	(19)	(63)	(116)	(90)	0.4
Net financials (total)	2	(7)	(5)	(2)	(2)
Taxation (m)	(4)	(7)	(14)	(22)	0.1
Minorities (m)					
Net income (m)	(15)	(56)	(102)	(69)	0.3
Net income (adjusted) (m)					

Source: SpareBank 1 Markets and Company Data

Balance Sheet (NOK)					
Year end: Dec	2015	2016	2017E	2018E	2019E
Deferred tax assets (m)	0	0	0	0	0
Goodwill (m)	324	318	575	575	575
Property, plant and equipment (m)	17	46	81	69	56
Other non-current assets	0.0	15.0	11.3	11.3	11.3
Total non-current assets (m)	426	464	1,100	1,051	1,011
Inventory (m)	15	36	113	113	113
Accounts receivables (m)	40	35	107	162	215
Cash and equivalents (m)	313	225	313	274	302
Other current assets	11.8	3.3	46.7	46.7	46.7
Total current assets (m)	380	300	579	595	677
Total assets (m)	806	764	1,680	1,646	1,688
Shareholders equity (m)	720	674	1,324	1,255	1,255
Minority interest (m)	0	0	0	0	0
Non-current interest bearing liabilities (m)	15	13	25	25	25
Deferred tax liabilities (m)	24	14	129	108	108
Total non-current liabilities (m)	38	27	155	133	133
Current interest bearing liabilities (m)	31	46	131	131	131
Accounts payables (m)	17	17	71	127	169
Total current liabilities (m)	48	63	202	258	299
Total liabilities (m)	86	91	356	391	432
Total equity and liabilities (m)	806	764	1,680	1,646	1,688
NIBD (m)	(313)	(225)	(313)	(274)	(302)

Source: SpareBank 1 Markets and Company Data

Cash Flow (NOK)							
Year end: Dec	2015	2016	2017E	2018E	2019E		
EBIT (m)	(22)	(55)	(110)	(88)	2		
Change in working capital (m)	(32)	8	(319)	2	(11)		
Net interest paid/income (inc. divs received) (m)	2	(7)	(5)	(2)	(2)		
Net tax paid (m)	0	0	0	0	0		
Cash flow from operating activities (m)	(35)	(45)	(86)	(39)	29		
Cash flow from investing activities (m)	(84)	(52)	(234)	0	0		
Dividends paid (m)	0	0	0	0	0		
Equity raised (share buybacks) (m)	337	8	424	0	0		
Change in debt and other items (m)	(6)	1	(4)	0	0		
Cash flow from financing activities (m)	333	10	407	0	0		
Net change in cash (m)	215	(88)	87	(39)	29		

Source: SpareBank 1 Markets and Company Data

Valuation					
Year end: Dec	2015	2016	2017E	2018E	2019E
P/E (x)	n.m.	n.a.	n.m.	n.m.	n.m.
P/E (adjusted) (x)	n.a.	n.a.	n.a.	n.a.	n.a.
P/S (x)	29.4	n.a.	11.7	6.0	4.0
P/B (x)	3.9	n.a.	2.5	2.7	2.7
EV/sales (x)	26.1	n.a.	10.6	5.5	3.7
EV/EBITDA (x)	n.m.	n.a.	n.m.	n.m.	73.2
EV/EBITDA (adjusted) (x)	n.a.	n.a.	n.a.	n.a.	n.a.
EV/EBIT (x)	n.m.	n.a.	n.m.	n.m.	n.m.
EV/EBIT (adjusted) (x)	n.a.	n.a.	n.a.	n.a.	n.a.
ROE (annualised) (%)	n.m.	n.m.	n.m.	n.m.	0.02
ROCE (annualised) (%)	n.m.	n.m.	n.m.	n.m.	0.16
Dividend yield (%)	n.a.	n.a.	n.a.	n.a.	n.a.

Source: SpareBank 1 Markets and Company Data

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3-Year Price, Target Price and Rating Change History Chart for NEL NO

NEL NO	Closing	Target		6
Date	Price	Price	Rating	
12/12/2017	3.37	4.4	BUY	5
				4
				3
				My Tarry Man Man Man
				2 - Whole many marry
				1
				0
				15/12/14 - 15/03/15 - 15/03/15 - 15/03/15 - 15/03/16 - 15/03/16 - 15/03/16 - 15/03/17 -
				151214 150315 150316 150316 150316 150317 150317 150317 150317

Current recommendations of the Research Department: (refers to Recommendations published prior to this report and required disclosed in accordance with the Securities Trading Regulations section 3-11 (4)

B=Buv. H=Hold. S=Sell

Current recommendations of the Research Department

Recommendation	Percent	
Buy	54.1%	
Neutral	21.5%	
Sell	24.4%	

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Company Report

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