Nickolas Mabini and Kathryn Sartor's PLUG Due Diligence

What is PLUG?

PLUG is a company that "provides hydrogen fuel cell turnkey solutions for the electric mobility and stationary power markets."[4] Who provides "clean hydrogen and zero-emission fuel cell solutions" which are "cost-effective and reliable"[3]. To create this Green Hydrogen into energy, they take electricity and water to turn it into Gaseous Hydrogen which is then turned into Liquid Hydrogen which is then used as energy, with Hydrogen being readily available everywhere and the world's most abundant element, the resources seem endless.[6]

Is PLUG still a speculative stock or do they have actual partnerships and clientele?

PLUG is NOT a speculative stock; they do have clientele and partnerships! Such as **WMT**'s subsidiary (one of the many businesses they own) called Asda which is a grocery store company in the United Kingdom. They provide the Lightning Trucks via providing them with their liquid hydrogen-powered batteries.[6] They have also acquired the company called **Giner ELX** and **United Hydrogen Group Inc**.[7] Through this acquisition they can "enhance **Plug Power**'s position in the hydrogen industry with capabilities in the generation, liquefaction and distribution of hydrogen fuel complementing its industry-leading position in the design, construction, and operation of customer-facing hydrogen fueling stations."[7] They also "provide [services] to customers such as Amazon, BMW, The Southern Company, Carrefour, and Walmart."[7] These are big-name companies who they have some kind of tie with, which promises big growth for the company once they provide more services and goods for these companies.

A little bit of background into Giner ELX:

ELX is the "most efficient and cost-effective PEM hydrogen generators; grid-level renewable energy storage solutions, and on-site hydrogen generation systems for fuel cell vehicle refueling stations and industrial uses. **Giner ELX** also has a strong sales channel in the European market."[7] Since **Giner ELX** is big within the European market, **PLUG** is working on expanding its stake within the European market since a strong userbase was found via clientele in Europe.[6]

Will a change in Presidency impact PLUG?

"Biden will invest $400 billion over ten years, as one part of a broad mobilization of public investment, in clean energy and innovation."[11] Essentially, there will be more money put into clean energy such as hydro, wind, solar, and hydrogen energy. This will stimulate this kind of market even further, as more money is being put into it, the supply for gas and oil will decrease significantly. If these alternative energy sources are the only way we can gain energy/power, the demand will significantly increase. "On Day 1, Biden will rejoin the Paris Climate Agreement. But we must go further. In his first 100 days in office, Biden will convene a climate world summit to directly engage the leaders of the major greenhouse gas-emitting nations of the world to persuade them to join the United States in making more ambitious national pledges, above and beyond the commitments they have already made."[11] Once again, this creates big demand when a lot of money is being dumped into alternative energy through the U.S. joining the Climate Change Agreement. "Requiring aggressive methane pollution limits for new and existing oil and gas operations; developing rigorous new fuel economy standards aimed at ensuring 100% of new sales for light- and medium-duty vehicles will be zero emissions and annual improvements for heavy-duty vehicles." When talking about improving the vehicles at zero-emissions, the only possible ways to do so is via battery-powered or liquid hydrogen-powered. "Banning new oil and gas leasing on public lands and waters."[11] If oil bans get leaked on public lands and waters, the demand will deplete very quickly, increasing the demand for alternative energy which can increase demand for companies like **PLUG**. When. The demand is high, the company will be hiring more workers, therefore creating a larger supply to upkeep with the demand allowing for bigger assets and larger liabilities. In turn, creating, a larger market cap in general, which will be more attractive to investors. With demand being larger and the more attraction towards investors, this will allow the banks to upgrade their price targets once they see crazy demand and a lot of big volume coming in.

Is PLUG profitable and how has it shown via their growth?

CONSOLIDATED BALANCE SHEETS

As of December 31, 2019 and 2018

(In thousands, except share and per share amounts)

	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	$ 139,496	$ 38,602
Restricted cash	54,813	17,399
Accounts receivable	25,448	37,347
Inventory	72,391	47,910
Prepaid expenses and other current assets	21,192	14,357
Total current assets	313,340	155,615
Restricted cash	175,191	54,152
Property, plant, and equipment, net	14,959	12,869
Leased property, net	244,740	146,751
Goodwill	8,842	9,023
Intangible assets, net	5,539	3,890
Other assets	8,573	8,026
Total assets	$ 771,184	$ 390,326
Liabilities, Redeemable Preferred Stock, and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 40,376	$ 34,824
Accrued expenses	14,213	7,864
Deferred revenue	11,691	12,055
Finance obligations	49,507	74,264
Current portion of long-term debt	26,461	16,803
Other current liabilities	8,543	560
Total current liabilities	150,791	146,370
Deferred revenue	23,369	28,021
Common stock warrant liability	—	105
Finance obligations	265,228	118,076
Convertible senior notes, net	110,246	63,247
Long-term debt	85,708	133
Other liabilities	13	18
Total liabilities	635,355	355,970

***PLUG** annual balance sheet (10 – K), December 31st of 2018 to December 31st of 2019.*[1]

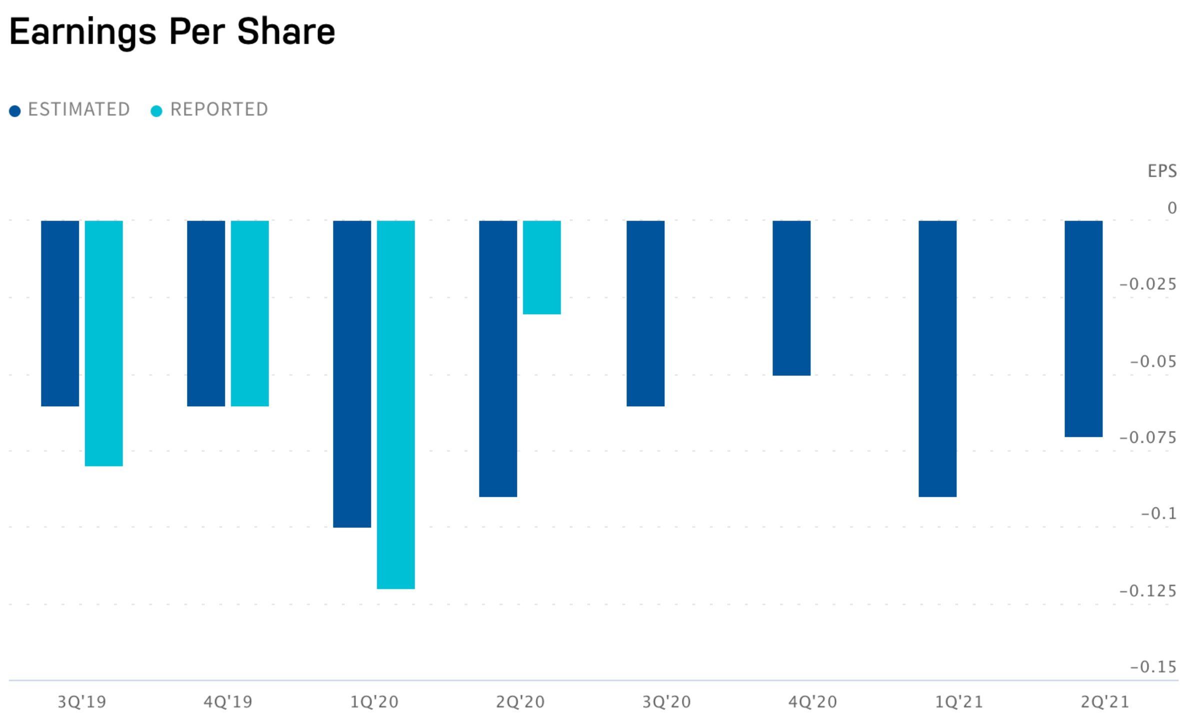
Let us now take a look at the total assets vs. the total liabilities. Their profit margins were VERY slim, they had a total profit margin of [771,184 Thousand – 635,355 Thousand = 135,829 Thousand] 135 million dollars within one whole year.

Plug Power Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(In thousands, except share and per share amounts)
(Unaudited)

	June 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 152,492	$ 139,496
Restricted cash	50,634	54,813
Accounts receivable	45,522	25,448
Inventory	114,571	72,391
Prepaid expenses and other current assets	31,436	21,192
Total current assets	394,655	313,340
Restricted cash	180,127	175,191
Property, plant, and equipment, net of accumulated depreciation of $19,203 and $17,417, respectively	60,018	14,959
Leased property, net	274,721	244,740
Goodwill	70,402	8,842
Intangible assets, net	38,574	5,539
Other assets	11,817	8,573
Total assets	$ 1,030,314	$ 771,184
Liabilities, Redeemable Preferred Stock, and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 39,812	$ 40,376
Accrued expenses	23,320	14,213
Deferred revenue	14,902	11,691
Finance obligations	57,695	49,507
Current portion of long-term debt	50,933	26,461
Other current liabilities	21,692	8,543
Total current liabilities	208,354	150,791
Deferred revenue	25,038	23,369
Finance obligations	300,653	265,228
Convertible senior notes, net	142,704	110,246
Long-term debt	101,844	85,708
Other liabilities	11,756	13
Total liabilities	790,349	635,355

***PLUG** Quarter 2 Balance Sheet (10 – Q) ended on June 30th, 2020.*[2]

Now, we are going to take a look at the total assets vs. the total liabilities. Their profit margins were very large within one single quarter totaling [1,030,314 Thousand – 790,349 Thousand = 239,965 Thousand] 239.965 million dollars[2]. Which in comparison to the whole 2018 to the 2019 year, is growth of [239,965 Thousand[2]/135,829 Thousand[1] * 100% = 176.66%] 176.66% growth in just a single quarter during Quarter 2 vs. a whole year. The growth of this caliber is astounding and very attractive to investors. Yet, it begs the question, is this kind of growth sustainable? To answer this question, we will look at the market cap, shares outstanding, and their EPS over the last 4 Quarters. First, we are going to look at their market cap that resides at 5.94B[4]. With a larger market cap than both big publicly listed competitors; **Bloom Energy Corporation** and **Ballard Power Systems** with market caps of 2.039 Billion[8] and 3.777 Billion[9] respectively. Although **PLUG** does have more outstanding shares due to the split back in 2011, the original share value is worth a lot more.[7] Next, we are looking at the EPS over the last four quarters.



PLUG *previous 4 earnings, including the next 4 estimates.*[10]

Going from left to right, the Estimated EPS during the third quarter of 2019 was -0.06 vs the Actual -0.08, taking a loss of -0.02 EPS.[10] Where in the fourth quarter of 2019, the Estimated EPS was -0.06 vs. the Actual -0.06.[10] Here, they met expectations and had no reaction from the market. During the first quarter of 2020, they ended up missing by 0.02, where the Estimated EPS was -0.10 vs. the Actual of -0.12.[10] Yet Quarter 2 is where it turned around, their Estimated EPS was -0.09 where the Actual was -0.03 so they ended up beating expectations by 0.06.[10] Which is a big point prover for such a small market cap stock. From the Quarter 3 Earnings Report, we should be able to estimate the next couple of EPS reports, to where once they turn to the upside (as in Actual EPS is positive) then, it will be marked as a solid and sustainable company.

What is a good price to buy shares of PLUG at?

__PLUG__ chart on the 1-year 8-hour time frame. More historical trend lines are shown in yellow. Recent trend lines are shown in blue. Plotted by __Nickolas Mabini.__

Current trends show a bullish structure. A big leg up with price action and consolidation down in a downward sloping channel is a bullish structure/outlook. The perfect buy point would be any touch of the bottom blue trend line or the breakout of the top blue trend line. 5-year projection no matter the President but based on price action is the 50-70$ range. With the increasing demand, and the push to use cleaner energy, **PLUG** should be an emerging company that will perform very well in the publicly listed companies. Suggestion: grab shares sooner rather than later; a good buy now would be in the 13-15$ range.

PLUG

<u>Summary</u>
Plug Power Inc. provides hydrogen fuel cell turnkey solutions for the electric mobility and stationary power markets in North America and Europe. It focuses on proton exchange membrane (PEM) fuel cell and fuel processing technologies, fuel cell/battery hybrid technologies, and related hydrogen storage and dispensing infrastructure. The company offers its products to retail-distribution and manufacturing businesses through direct product sales force, original equipment manufacturers, and dealer networks. Plug Power Inc. was founded in 1997 and is headquartered in Latham, New York.

<u>Indicators</u>

- Overall technology advances due to market demanding more EV.

- Hydrogen market is $11 trillion, with Plug Power current market cap at $7.57B
- With the cost of renewables like solar power falling, green hydrogen is being touted as one part of the energy mix that will lead toward decarbonization, with applications ranging from consumer and industrial power supplies to transportation and spaceflight.
- Plug Power's GenDrive fuel cell technology powers large parts of material handling equipment in ultra-large scale distribution centers for both Amazon & Walmart. Plug Power also provides the required hydrogen infrastructure (fueling stations, hydrogen storage) and distributes liquid hydrogen to its customers in addition to providing all service and maintenance with service staff permanently located at customer facilities. 78% of H1/2020 revenues derived from Amazon & Walmart, as hydrogen fuel cells have proven to be a good energy choice for powering forklifts.

Overall financial health

Key Metrics	Latest (12 mo)
Total Revenue	260MM
Adjusted EBITDA	-62.045MM
EBITDA Margin	-23.9%
Net Profit Margin	-35.5%
Total Assets	1.03B
Total Debt	653.8MM

Valuation – weak

- PLUG reported negative earnings for the last year, making the P/E ratio negative.
- Expected to report negative earnings again in 2020, making forward P/E ratio negative.
- Price to Sales: 4.27 (average PS ratio over last 5 years)
- Price to Book: 31.83 (average p/bv higher than industry, indicator that company is overvalued)

Fiscal Period: **December**	**2017**	**2018**	**2019**	**2020**
Capitalization[1]	539	289	878	6 419
Enterprise Value (EV)[1]	539	331	961	6 263**
P/E ratio	-3,93x	-3,44x	-8,78x	-58,3x**

[1] USD in Million
** Estimates as of 9/28/2020

Growth – strong

EPS 1Y	**23.68%**	EPS 5Y	**N/A**
EPS Next Y	**20.59%**	EPS Next 2Y	**23.26%**
EPS growth Q2Q	**62.5%**	Revenue growth 1Y	**35.35%**
Revenue growth 5Y	**20.28%**	Revenue growth Q2Q	**18.31%**

- Q3 earnings date: 11/9
- Beat expectations for EPS in Q2FY20 after reporting weaker-than-expected results twice in the trailing four quarters. EPS has grown by 23.68% over the last year (Q2FY19 to Q2FY20), with expected 23.26% growth over the next 2 years. Good indicator that EPS growth is stable.
- Increased revenue in Q2FY20 by 18.2% YoY to $68.07MM. Revenue increases starting in Q4FY18 and holding strong through 2020, notable weak quarters in Q1FY19 and Q1FY20.
- Revenue growth 20.28% over the last 5 years, indicating strong growth / long-term potential.

Profitability – weak

ROA	**(8.01%)**	ROE	**N/A**
PM	**(31.75)**	Asset Turnover	**0.25**

- PLUG is unprofitable (reflected in the negative profit ratios), so did not analyze them.
- Reported losses have increased over the past 5 years at a rate of 11.2% per year.

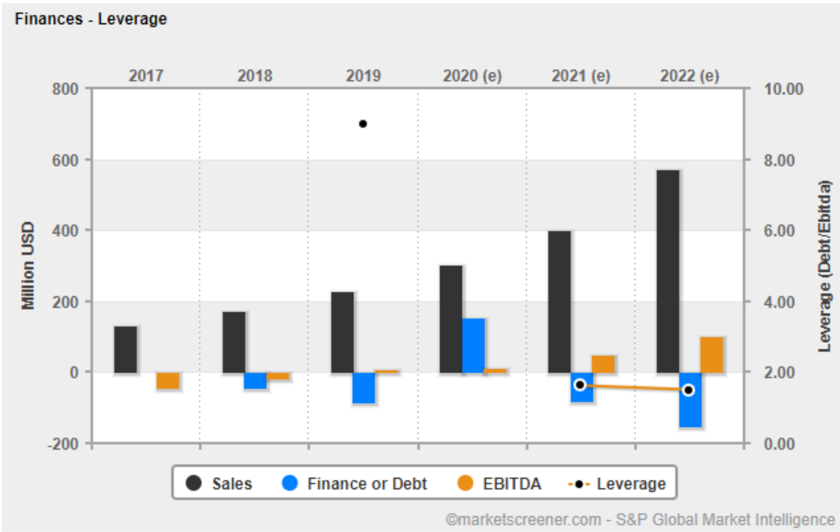
Liabilities – weak

Current Ratio	**1.89**	Quick Ratio	**1.34**
Debt/Equity			**1.68**

- Short term assets ($394.7MM) exceed short-term liabilities ($208.4MM); however, STA do not cover its long-term liabilities ($582.0MM) so might be less able to pay short-term obligations.
- Debt ($295.481MM) to Equity ($239.965MM) in Q2FY20 is 123.1%, considered high.
- Plug Power has been taking on more debt and issuing more shares, which dilutes the share price.
- In October 2019, the company's shares broke the $3 mark for the first time since March 2015. In the last 3 months, shares have surged 53.8% compared to industry 5.6% and are now sitting at a 5 year high; however, Plug Power has only demonstrated success in niche markets so far.

Cash Runway – weak

- Burning through cash at an alarming rate. Not only has the company not had a single profitable year in 20 years, trailing 12-month cash burn has exceeded $50MM for six consecutive quarters.



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