PIPER | SANDLER

22nd Annual

Energy Conference Recap




Participants

PANELS

Large Cap OFS and Equipment Panel

Jeff Miller CEO
Halliburton Company (HAL)

Jose Bayardo, SVP & CFO
NOV, Inc. (NOV)

E&P Panel

Clay Gaspar, EVP & COO
Devon Energy Corporation (DVN)

Kaes Van't Hof, CFO
Diamondback Energy, Inc. (FANG)

John Christmann IV, CEO & President
APA Corp. (APA)

LNG, Hydrogen and CCUS Panel

Lorenzo Simonelli, CEO
Baker Highes Company (BKR)

Jill Evanko, CEO
Chart Industries (GTLS)

Residental Solar Panel

Robert Lane, CFO
Sunova Energy International, Inc. (NOVA)

Ed Fenster, Co-Executive Chair & Co-Founder
SunRun, Inc. (RUN)

Private Equity Panel

Sean O'Donnell, Partner, Energy Transition & Decarbonization
Quantum Energy Partners, LLC

Joe Bob Edwards, Managing Partner
White Deer Management LLC

Brad Thielemann, Partner
EnCap Investments L.P.

Large-Scale Solar Equipment Panel

Sean Hunkler, CEO
FTC Solar, Inc. (FTCI)

Mark Gibbens, CFO
GameChange Solar LP (Private)

Energy Efficiency/Distributed Energy Panel
Kenneth Gianella, VP IR & ESG Strategy
Don Reeves, SVP Outcomes
Itron, Inc. (ITRI)

Brandon Schwertner, CEO
Priority Power Management, LLC (Private)

Solar C&I Panel
Steve Cunningham, Managing Partner
Madison Energy Investments LLC (Private)

Manish Nayar, Managing Partner
OYA Solar Inc. (Private)

Steve Luker, CEO
Catalyze (Private)

Pressure Pumpers Panel
Michael Stock, CFO
Liberty Oilfield Services Inc. (LBRT)

Robert Drummond, President & CEO
NexTier Oilfield Solutions, Inc. (NEX)

Sam Sledge, CEO
ProPetro Holding Corp. (PUMP)

Hydrogen Panel
Jeffrey Benoit, VP, Clean Energy Solutions
Power Systems MFG., LLC (Private)

Jean Perarnaud, CEO
Tarafert B.V. (Private)

Carbon Capture Panel
Steven Green, Founding Partner & CEO
Piñon Midstream, LLC (Private)

Scott Goldberg, VP, Carbon Solutions
EnLink Midstream, LLC (ENLC)

Renewable Natural Gas Panel
Ann Anthony, CFO
Opal Fuels LLC (Private)

Damon Yuzon, CFO
Resilient Infrastructure Group, LLC (Private)

Paul Morrow, P.E., Founder & President
Morrow Energy, LLC (Private)

Minerals Panel
Jeff Wood, President & CFO
Black Stone Minerals, LP (BSM)

Blake Williams, CFO
Brigham Minerals, Inc. (MNRL)

Battery Storage Panel
Bill Bush, CFO
Stem, Inc. (STEM)

Eric Dresselhuys, CEO
ESS Inc. (GWH)

FIRESIDE DISCUSSIONS

ConocoPhillips (COP)
Dominic Macklon, EVP Strategy, Sustainability and Technology

Enphase Energy Inc. (ENPH)
Ragu Belur, Co-Founder, Chief Products Officer

Phillips 66 (PSX)
Greg Garland, Chairman & CEO
Mark Lashier, President & COO
Jeff Dietert, VP, IR

Piper Sandler & Co. (PIPR)
Jan Stuart, Global Energy Economist

Darling Ingredients, Inc. (DAR)
Randy Stuewe, Chairman & CEO

Delek US Holdings, Inc. (DK)
Todd O'Malley, EVP Chief Commercial Officer

E&P

Conference Takeaways; E&Ps Sticking with 2022 Plans

The obvious question for the E&Ps at Piper Sandler's 22nd Annual Energy Conference this week in Las Vegas was the willingness to bend to political pressure to move toward higher activity levels and growth to help offset higher oil prices as a result of the conflict in Ukraine. As we anticipated, the answer from domestic independents was that there will be no change to their 2022 capital plans or long term growth targets. DVN talked about three constraints to growth including investor demands for discipline and shareholder return, supply chain constraints and a need for infrastructure, with a primary focus on gas takeaway. PXD suggested that the backwardation in the oil curve makes increased investment a potentially difficult decision for shareholders to support, with no anticipated change in activity levels expected before 2023, a production response not anticipated for another 6-12 months driving uncertainty on return.

- **Investors Rule.** The investment landscape for conventional energy has changed. E&Ps have proven extremely adaptable through multiple cycles, starting with the OPEC price war in 4Q14, utilizing equity to right-size balance sheets in 2015-16 and driving costs out of the business. Today, the industry has shifted toward a self-funding model capable of returning capital to shareholders. The pandemic-led demand shock accelerated the move toward disciplined capital allocation and frameworks that promised shareholder return was prioritized over growth. For an industry that has spent the better part of six years gaining trust back from an investor base that was scarred by boom-bust cycles and capital destruction, domestic upstream is no longer in a position to deliver price limiting growth. While the industry can blame investor demands as cover, historic areas of domestic oil growth such as the Bakken and Eagle Ford are maturing, while the lower growth model also pushes out inventory depth concerns.

- **Growth Will Take Time.** US producers are not bending to political pressure to do anything that isn't going to benefit shareholders and that includes accelerating activity in an inflationary cost environment and backwardated oil tape. DVN discussed it would take at least two years to move from its current maintenance program to the upper band of its long-term growth range (0-5%). PXD estimates spot drilling and completion activity would cost 30-40% more than what they have budgeted for 2022, and would not be surprised to see a similar level of cost inflation in 2023 (10%+). That said, it does sound like service and supply chain tightness pose the risk that 2H22 and 2023 inflation tick even higher in the current price environment. High-spec rigs coming off contracts of ~$22k/d are now seeing day rates of $29-30k/d, while completions and sand have been on shorter-term contracts. Sand was a frequent topic of conversation, with operators looking at "wet sand" as a potential short-term solution to offset costs and logistical constraints but is anticipated to be a short-term issue.

- **Inflation Driving Budget Risk, but Not Sure it Matters at $100+ Oil.** One of the big questions of all the operators was whether companies would reduce activity levels to stay within capital budgets, or stick with planned activity levels to maintain efficiencies and access to services, the preference across the companies we spoke with was for the latter. While capital budgets certainly have risk to the upside given the current price environment and muted spending levels relative to projected CF (less than 30% of CFO at the strip), we ultimately think the group will get the pass.

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Related Companies:	Share Price:
APA	40.78
BSM	13.20
DVN	61.54
FANG	143.19
MNRL	24.57
MRO	25.53
NOG	27.79
OAS	150.34
PXD	251.26
WLL	83.85

INDUSTRY RISKS

The primary risks for the energy business are: weak global economic activity resulting in depressed demand for oil and natural gas, increased supply of oil and natural gas and weak capital markets (especially given the capital intensive nature of the energy business). M&A can create additional risks, including: overpaying for the target company, overestimating synergies, culture challenges, and integration shortfalls.

Buybacks at $110/Bbl+. The pro- vs. counter-cyclical buyback debate is alive and well, and while there was more of a skew toward being opportunistic with buybacks from DVN, FANG and PXD, APA and MRO still argue the stocks represent an attractive opportunity. While we would have expected more of a preference to pump the brakes on stock repurchases with front-month crude at $110/bbl+, the equities are still discounting something closer to $70/bbl WTI LT, we think the higher oil price environment has duration given supply uncertainty, and FCF yields for the group are still in the 15-20% range. DVN was aggressive with the buyback in 4Q21, repurchasing nearly $600mm of stock and increasing the authorization to $1.6bn. The company did stress that the buyback is more of an opportunistic tool and did describe the volatility during the week of 3/14 as just that sort of opportunity, but stressed that there is more capacity to raise the base dividend with a goal of it representing 5-10% of FCF at mid-cycle pricing. PXD also stressed that it wants to be counter-cyclical and opportunistic with buybacks as it was in 4Q21 repurchasing $250mm ($181/sh) on the back of omicron concerns. FANG was aggressive with the buyback in 4Q21 as well, and where the company had discussed a limit predicated on the stock representing a PV12-15 at a $55/bbl mid-cycle price, it has revised its mid-cylce to $65/bbl. We estimate that change raises the limit or toggle between equity repurchases and variable dividend to ~$135/ sh (from $105).

We Were Bullish Crude Pre-Ukraine. We sat down with our Global Energy Strategist Jan Stuart to discuss the current state of the oil market. While he was bullish ahead of the Ukraine invasion, the lack of any near- and long-term supply solutions pose a big risk to the market. We were already expecting to be through OPEC spare capacity by early 3Q22, but with upwards of 2.5mm Russian barrels not coming to market (even with the Ural spread $25/bbl below Brent) and absolutely no way to replace those barrels, we will need to see crude trade at levels that reduce demand. With the post-Covid recovery expected to drive demand approaching 103 mbbls/d in 2022 (PSC has been above EIA, IEA) and the 500 mbbls/d of compounding annual growth needed Russian growth likely inverting to a similar level of decline, Jan thinks the US will need to accelerate growth and fill the gap. Jan estimated a multi-year supply/ demand gap approaching 4 mmbls/d that shale will need to fill. While we similarly see few other alternatives than shale to replace that supply gap, our E&P coverage has not indicated any willingness to depart from the re-investment and capital return frameworks that broadly have growth rates capped in the ballpark of 5%. Absent a material amount of capital formation across upstream, service and midstream, and a more supportive domestic energy policy we think that level of global sustained production is a near impossibility.

Infrastructure Needs. While the brunt of the finger pointing has been in the direction of the E&Ps, the producers have stressed that they can't do it alone. In addition to service and supply chain constraints on near-term growth, US operators have also pointed to infrastructure constraints, with Permian gas takeaway needed by late 2023/early 2024 and additional LNG export capacity to handle growing gas volumes. PXD estimates the Permian will need 2 Bcf/ d of takeaway capacity every two years to support ~5% annual oil growth, and expects one of the three projected projects moving to FID in the next 2-4 weeks. While not a near-term pinch point, DVN discussed need for additional gas processing capacity (12-18 month lead times) and also voiced support for EQT's campaign calling for accelerated development of US gas export capacity.

Bid-Ask Spreads Wide. The majority of the E&Ps we spoke with viewed the current environment as one that will be difficult for M&A given the backwardation of the curve and the commodity price expectation differences between buyers and sellers. DVN and FANG stressed that they continue to look at opportunities but have also stressed that deals have a high hurdle to compete with existing inventory. We spoke with OAS management in the wake of the recently announced MOE with WLL, and get the sense that it is not done consolidating in the basin. The combined company is expected to be net-debt free at YE22 and management expressed a comfort with adding leverage (still sub-1.0x) to do additional M&A in the basin. NOG was aggressive in consolidating its non-operated Bakken position, as well as expanding into the Delaware and Marcellus in 2021, and while it sees the current commodity price environment being more challenging for M&A it is optimistic it can continue to execute accretive acquisitions.

Attractive Commodity Exposure Minus the Capital Cost Inflation. We discussed the advantages of the minerals business model with management from BSM and MNRL and the attractive commodity exposure the asset class provides. We project MNRL and BSM offering low-mid double-digit distribution yields at the strip which compares favorably with the upper band of the TSR's offered by our E&P operator coverage despite no capital expense requirements and extremely attractive EBITDA margin (~90% at MNRL). BSM and MNRL emphasized the asset class offers protection against the current inflationary forces many producers are experiencing. BSM is optimistic it can return to growth in the Shelby Trough with Aethon resuming operations and planning to accelerate activity in late 2022/early 2023 and is excited about organic opportunities across its mineral position in the higher price environment. MNRL is expected to deliver 25% growth in 2022 in the wake of the DJ acquisition in 4Q21 and a Permian deal that is expected to close in the next couple of weeks, and while the commodity volatility has made deals more difficult will continue to look for accretive oil-weighted acquisition opportunities.

Integrated Oils

Vegas Conference Takeaways: There is No Fix for Current Tightness

An overarching theme from our 22nd Annual Energy Conference in Las Vegas was twofold: 1) recent events likely add duration to an already constructive cycle for both traditional and renewable energy, and 2) there is very little that the industry can do in the short-term to address tight markets, no matter oil, natgas, refining, chems, etc. Commitment to discipline across the industry remains both consistent and impressive, with a wave of excess cash flow destined for both balance sheets (against an eventual downturn) and shareholder returns. And while stock charts are unquestionably challenging, the re-weighting of energy in the broader market, recalibration of ESG perspectives, and re-emergence of generalist investors in Vegas are a reminder that this cycle is yet in the early days, with increasingly visible duration ahead.

- **Supply Response Not Coming from the IOCs.** High oil prices will not drive any deviation from current investment plans. Medium-term supply response on crude would be limited to either L48 or offshore, near-infrastructure tiebacks and/or well management (each a 9-12+ month lag in the best case), but service tightness (rigs, crews, etc) make either challenging - both onshore and offshore. COP, in particular, highlighted the risk of "hyperinflation" - beyond the 10%-15% already evident in L48 - and deteriorating capital efficiency if it tried to accelerate further. COP sees 800-900kbd of L48 growth in 2022 and 2023, and believes US peaks production at ~14 Mb/d. Many acknowledged the possibility of a higher "mid-cycle" oil price from here, with potential long-term implications for capital allocation (ie. don't want to undercapitalize the business).

- **Let's Talk About Natural Gas.** There was significant investor focus on opportunities for the IOCs to increase investment in, or exposure to, natural gas. While the long-term outlook for natural gas is improved (more political support and tight balances), don't expect immediate shifts in capital allocation. LNG contract terms are showing signs of improving (higher slope on J-curve); however, and while lead times are long, areas to keep an eye on include US LNG export capacity (expect renewed push for permitted capacity), Eastern Mediterranean gas (CVX, SHEL), and the coming Qatari expansions.

- **Refining: Even the Bears are Bullish.** When even PSX's Greg Garland is bullish, it is a sign that product markets are extremely tight. Distillate has rightfully garnered the headlines, with record demand, low inventories and ~1.1 Mb/d of Russian distillate exports at risk, driving robust margins. However, both PSX and VLO highlighted a bullish setup for summer gasoline. Both are running max-distillate yields currently,

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Related Companies:	**Share Price:**
DK	20.80
CVX	169.31
BP	31.05
SHEL	55.59
DAR	79.35
PSX	83.85
VLO	97.25
REGI	60.74
COP	107.50

INDUSTRY RISKS

Primary risks include a global recession, partially due to high energy prices, which could destroy crude and product demand. Service cost inflation could cause deterioration of returns, cost overruns or delays. Volatility in energy markets could drive the further compression of multiples across energy equities.

unheard of in the lead-up to driving season, while a backwardated gasoline curve is disincentivizing building gasoline inventories into driving season (plus loss of Russian VGO), setting the stage for strong summer margins, particularly for US refiners, where PSX estimates a ~$6-$7/bbl advantage vs. European peers on natgas price. VLO and PSX (complex, coastal) ideally positioned to benefit.

- **Peak ESG?** Dialog with US policymakers has increased, and tone is changing slightly, but not yet supportive. A lot of “education” underway in Washington. A tangible improvement could come on ability to permit and build infrastructure, in particular natgas pipelines (eg. Permian), where FERC is already backing off on greenhouse gas requirements. With shareholders, companies are seeing signs for cautious optimism that energy security and affordability will join decarbonization as investment considerations.

- **Sticking to Priorities on Excess Cash.** Despite the sheer amount of excess cash generated at the current strip (30%-50% of market cap by YE23), priorities remain the same: expect a lot of buybacks (or variable distributions), and material cash builds on the balance sheet. Refiners are lagging their IOC peers on distribution growth, but expect PSX and VLO to be in a position to ramp distributions by mid-year (DK already buying back a large position from Icahn).

- **“Da svidaniya” Russia.** Russian exits by the IOCs are likely to be permanent, with limited visibility whether they will ever receive any compensation for abandoned positions/assets (SHEL, BP). Most believed that most Russian crude would find a way to market, with trading houses filling much of the gap, but keep an eye on April, when 45-day sanction grace period expires. While most believed Russian growth was in the past, there was lack of consensus on pace of decline from here. CVX Tengiz bbls to remain a key near-term focus (~15% of current CVX liquids production, ~11% of CFO), with news of downtime for “repairs” hitting the market post-our meetings with them.

- **Renewable Diesel - You Better Get Low on the Cost Curve:** While DAR’s outlook on normalized margins (~$1.50/gal) was less than bullish (maybe conservative?), the margin remains highly attractive if you can position yourself low on the cost curve. The importance of feedstock integration, in particular, was evidenced by a slew of recent deals (REGI, Bunge, Neste, etc), and those dependent purely on veg oils will struggle to compete (or won’t get built in the first place). Impact of RNG on LCFS pricing should be slowing, as it has displaced 90% + of available CNG in the market. SAF may a big part of the future, but probably requires ~ $2.00/gal+ of incremental govt incentive.

Oil Service

Constructive OFS Takeaways from our Vegas Conference

An overarching takeaway from our 22nd Annual Energy Conference in Las Vegas this week is the reality that surging prices and diminished security of forward supply point to an "All of the Above" solution, i.e. parallel growth cycles for conventional + renewables. With respect to OFS specifically, the takeaways were predictably bullish, consistent with much that we outlined in our preceding note, 3/8/28 Reflections on the Surge. 1) OFS capacity is not sized for accelerated growth; 2) service pricing power continues to inflect nearly universally (drillers and pumpers are poster children, but it's a much broader industry phenomenon); 3) OFS emulating the E&P capital discipline playbook is a blessing for cycle duration; Ergo 1+2+3 = 4) 2023 earnings, as we have previously conveyed, are both materially understated and quite possibly more mid-cycle than peak (or early/mid for some) -- stay tuned for our next iteration of model updates.

- **Lower 48: '22 D&C activity has limited flex, but service pricing and '23 activity are both upside levers to street estimates.** No surprise to hear the majority of our day one conference panelists (across public and private E&Ps and large cap OFS) restate that '22 activity plans are more or less firm. One big E&P rightly pointing out the inherent friction between growth and capital efficiency (particularly in a service and supply chain environment that's riddled with pinch points). That said, the U.S. land rig count (BKR) now stands at 643, up from ~400 a year aqo, and our modeled assumptions of 652 for Q2, 672 for H2, and 695 for FY23 still have a conservative skew even as most publics and some privates (~60% of total rig count) march closer to their near-term activity ceilings.

- **Leading edge dayrates for tier 1 rigs are now mid/upper $20s k/d,** reaching or eclipsing $30k all-in daily revenue with a la carte technology pricing. Mid $20s k/d leading edge base rates were deduced from the Q4 earnings calls - this has continued to creep higher. After Q4 earnings, we moved our '23 modeled cash margin assumptions up from $8k/d to $10k/d and highlighted $12k/d as the revised upside case. Implied MTM margins at the top end of spot pricing are now low teens $ k/d.

- **Pressure pumping capacity is approaching sold out,** with ~250 deployed fleets and no more than 15 more viable fleets remaining in cold stack, per our panel. Lead times for CAT Tier 4 DGB engine deliveries are ~9 months - although we heard from an off-panel contact that CMI might have more near-term availability due to some diverted Russian shipments. Similar to drillers, pressure pumpers are indicating significant improvement in pricing, even in recent weeks. But with pricing still materially below pre-pandemic levels (per one panelist, still 20% below), LBRT-NEX-PUMP remain averse to deploying materially more fleets, absent significant further price improvement -- mgmt teams keenly aware of the need to deliver improved FCF in '23.

- **Service pricing increases can/will continue for efficiency enablers.** We have heard little pushback from both E&Ps and service companies regarding the reality of tighter service resulting in price increases. Availability and timely/efficient execution trump. One small cap service company lamented that their most recent price increases went through too easily (in part because they're an efficiency enabler within the completions services value chain), but are confident that they will get more in H1.

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Related Companies:	Share Price:
BKR	38.29
CHX	24.40
CLB	30.18
FET	23.70
FTI	7.65
HAL	37.68
HLX	4.75
HP	41.42
LBRT	14.73
NEX	9.44
NOV	19.54
OII	15.63
OIS	6.84
PDS	68.82
PTEN	15.57
PUMP	13.94
RIG	4.43
SLB	42.64
SOI	11.75
TS	30.39
WFRD	32.38
WHD	54.09
WTTR	8.87
XPRO	17.47

INDUSTRY RISKS

Macro oil & gas prices, vicissitudes of geopolitics/conflict/sanctions/policy fallout from Ukraine conflict, recession risk resulting from higher energy prices, accelerated renewables adoption resulting from higher energy prices, OFS margin pressure from supply chain and labor headwinds.

Large Cap International OFS calls for multi-year teens % CAGR cycle look more prescient than ever. HAL and SLB, notably, have been early and right with stronger-for-longer 2.0 calls since the early days of this recovery. HAL did not exactly indulge our leading the witness question during our panel as to whether customer demand momentum is adjusting to higher commodity prices. Rather, what was already a durable multi-year growth outlook, driven foremost by short cycle barrels domestically and internationally, has been reaffirmed.

Russia. The long-term impact on Russia's oil & gas production levels resulting from the country's looming isolation as a pariah state will have more to do with the IOCs than with the international OFS sector. Investors have recently seen the various 8Ks and statements from the international service companies that disclosed maximum Russian revenue exposure by some in the range of 5-6% and others in the range of 1-3%. The presumption that full isolation from the western OFS/ OFE industry could cripple Russian production isn't quite right, nor is it the point. One panelist offered that the big international OFS companies are only ~10% of the market in Russia; and moreover, dating back to the 2014 era sanctions there hasn't been a great presence of mission critical technology from these companies operating in Russia for many years. Surely production resilience will be tested by foreign divestment, but this will largely be a function of IOC decisions rather than from the OFS side.

Offshore / Deepwater Observations. Across what has been and continues to be a very broad-based backlog inflection across its segments and end markets, NOV sounds particularly constructive on the opportunity set for deepwater rig reactivations. With recent drillship dayrate prints in the $300-$400k/d range, NOV is scoping up to ten potential rig reactivations. These can potentially become hefty tickets - $10M at the low end for basic recertifications and many multiples of this amount for rigs involving significant upgrades. HLX is also drafting in the wake of significantly improved rig rates. Reminder this is a '23 not '22 inflection opportunity for HLX, but one with very significant y/y operating leverage.

Bottom Line: Significant Upward Conesnsus Earnings Revisions ('23 more than '22) Lie Ahead. Several of our conference attendees have reported back that they were taken aback by the bullishness of their OFS meetings, corroborating our view that '23 estimates have ample positive revision headroom. Per our pre-conference note, consensus '23/'22 y/y avg revenue growth of +11% for the sector looks downright quaint at this point, whereas a more plausible +20% avg top line with notional 35-38% incremental EBITDA margins would translate into a hypothetical 6.2x implied avg '23 EV/EBITDA multiple (vs. 7.8x on stated consensus) and a corresponding upside FCF yield of 10-11% (vs. 7% on stated estimates).

Stock Selection Admittedly Remains Secondary to Sector Conviction. That said, we continue to highlight TS and WFRD as among the most attractively valued (5-6x '23E EBITDA, 8-10% FCF yield) in the international bucket, while equally recognizing SLB, HAL, and BKR's appeal as preeminent industry leaders with logical liquidity and mindshare advantages. Most of SMID cap NAM service -- including but not limited to drillers (HP, PTEN, PDS) and pumpers (LBRT, NEX, PUMP) -- will likely embody the most propulsive near-term earnings catalysts. PDS remains our top pick in this domain with optimal operating and financial leverage to way above consensus dayrates. More out of consensus = deepwater, including FTI, OII and HLX.

Macro Research

The Spectrum of Energy

An overarching takeaway from our 22nd Annual Energy Conference in Las Vegas this week is the reality that surging prices and diminished security of forward supply point to an "All of the Above" solution, i.e. parallel growth cycles for conventional + renewables. With respect to OFS specifically, the takeaways were predictably bullish, consistent with much that we outlined in our preceding note, 3/8/28 Reflections on the Surge. 1) OFS capacity is not sized for accelerated growth; 2) service pricing power continues to inflect nearly universally (drillers and pumpers are poster children, but it's a much broader industry phenomenon); 3) OFS emulating the E&P capital discipline playbook is a blessing for cycle duration; Ergo 1+2+3 = 4) 2023 earnings, as we have previously conveyed, are both materially understated and quite possibly more mid-cycle than peak (or early/mid for some) -- stay tuned for our next iteration of model updates.

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- **US production growth isn't coming anytime soon.** Mark Lear notes that there is little E&P can do to increase near-term activity even if they made decisions to do so. Devon Energy (DVN) noted the timeline to go from 'maintenance' to 5% growth would take more than a year. Two of the largest private operators (EnCap and Quantum) indicated much change in their rig count forecasts. Cost inflation, which had been tame during 2021, is starting to be a problem and could result in operators pushing up 2H22 budgets just to keep the same production profile. The sense was that operators' preference is to maintain activity levels vs cut activity levels to stay within budget given they're spending less than 30% of CFFO at the strip and won't want to lose efficiencies or services if they drop activity.

- **Russia's oil & gas production profile.** On the Oilfield Services panel, Ian Macpherson noted Halliburton's (HAL) CEO, Jeff Miller, refuted the notion that Russian production stability is dependent on Western oilfield service providers. The executives agreed that Russia would be more challenged to grow production as a pariah state, but maintenance production isn't necessarily jeopardized. Recall, Russia has been under technology sanctions since 2014, implying there's less 'mission critical' content provided by Western oilfield services. However, divestments from BP and the other IOCs clearly present a larger risk to Russia's normalized trajectory, but neither BP, ConocoPhillips nor Shell were committal on what would happen to Russia's crude production in the absence of western participation.

- **Long Only Interest in Oil & Gas is picking up.** Sales and research meetings both noted anincrease in attendance from Institutional Investors. Our 'Duration' argument has been resonating more with investors as the Russia-Ukraine conflict signals a structural shift from where global production growth in natural resources is sourced. From Large to SMID Cap managers, there was also the discussion of an increase in weighting to energy in their benchmarks. We've discussed this notion in the past and walk thru some thoughts in relation to the Russell Reconstitution. However, substantial capacity exists for the industry to move higher in the S&P500.

- **The "Pivot?"** A theme we've pushed since the Energy Transition took hold of investors is that policymakers were pushing forward blissfully unaware of understanding the unintended consequences of a rapid adoption without the technology and materials necessary. Kyle Turlington said he noted a shift in investor perspective on traditional energy. The notion now is that there is room for fossil fuels in the energy mix. This is material in our view. As the world transitions to a low carbon environment, capital formation is critical for providing the investments necessary to meet the demand for fossil fuels over the next few decades. To a growing number of investors, it now seems all but 'common sense' when it comes to addressing the global energy crisis that the world is facing. However, rating agencies, commercial lenders, and government agencies will all need to get onboard. It should be understood with good reason why financial players such as JPMorgan attended the discussion the White House held this week for Oil & Gas companies.

- **Electrification for 'everything' is increasing.** Kashy Harrison noted that a consistent theme was the electrification of everything coupled with aging power infrastructure will support significant growth in on-site distributed energy resources (DERs) and energy efficiency for the foreseeable future. Otherwise, rising electricity prices are solidifying the value proposition of adoption for residential solar, where demand for residential batteries is robust despite near-termheadwinds on the supply chain.

- **Natural Gas is 'Good'** To state the obvious, the situation with Russia-Ukraine has really improved the outlook for natural gas. We say that with some cynicism as the outlook for natural gas (and crude oil) were already quite strong prior to the conflict, but certainly, it will be 'different' going forward.
- **"Bitcoin Age " of Refining?** If the Golden Age has passed us and Bitcoin is the new 'gold,' then surely US Refiners are in a new era of earnings potential. Ryan Todd highlighted that Phillips 66 (PSX) and Valero Energy (VLO) both said they were running still running max distillate yields, which will tighten gasoline this summer heading into driving season. We expect US refiners to enjoy strong margins and structurally benefit over European peers.

Renewables

Takeaways From our 22nd Annual Energy Conference in Vegas

Last week, Piper Sandler hosted its annual 22nd Energy Conference in Las Vegas. A sincere thanks to the investors and companies that made the event a success! Broadly, the conference reinforced the view of strong domestic and international demand for renewable/alternative sources of energy stemming from a combination of factors (drive to decarbonize, high conventional energy prices, and energy security in Europe). Despite robust demand, supply-chains remain challenging and have yet to meaningfully improve (or further deteriorate). Overall, no changes to our sector favorites (SEDG/ENPH) as we believe investors will remain focused on companies that have the potential for favorable earnings momentum and exposure to European demand for non-Russian energy supply.

- **The Electrification of Everything Increases Demand for DERs:** We hosted a series of fireside chats and panels with public and private companies that offer various distributed/on-site/BTM products/services. One consistent theme was that the electrification of everything coupled with aging power infrastructure will support significant growth in on-site distributed energy resources (DERs) and energy efficiency for the foreseeable future.

- **Exposure to European Energy Demand Increasingly Important:** Due to the Russia/Ukraine war along with the REPowerEU strategy to deploy a significant amount of renewable resources by 2030, investors will remain focused on companies with meaningful exposure to the region. ENPH indicated: i) its European business doubled during ‘21 (Intl = 20%; Eur = most of Intl), ii) rising demand is the driver of the 750K/qtr line being added in the region by YE’22; and iii) its long-term belief that the European business could eventually become as big as the US.

- **Rising Electricity Prices Driving Increased Demand for Residential Solar:** With power prices rising across the country (Jan’22: +8% y/y), consumers are looking toward residential solar for an opportunity to save money. Notably, consumer confidence is plunging and the Piper Sandler Macro Research team believes the risk of an economic deceleration is rising. Our panelists indicated that while demand for the typical home improvement project will stagnate within a decelerating economic environment, the residential value prop to the customer improves (especially if energy prices remain high) because of the customers’ savings are immediate and their focus on their budgets.

- **Residential Battery Storage Demand Remains Strong; Supply Improving During 2H’22:** Demand for residential batteries is robust. One panelist indicated that while the company doubled battery deployments during ‘21, deployments would have been multiples higher if there weren’t any constraints (primarily semi-related). Battery supply is expected to improve during 2H’22 and our expectation is that equipment providers will raise pricing given inflation pressures. Despite near-term pricing headwinds, one panelist indicated that the goal is to reduce ASPs by 10% per year moving forward in order to drive mass adoption.

- **Front-of-the-Meter (FTM) Storage Demand is Robust:** Demand for FTM short/long duration storage is rising primarily due to the rise of intermittent sources on the grid and demand for more resiliency. BTM storage for C&I has lagged due to the lingering effects of COVID-19. While costs have been a headwind given rising raw material prices, the primary challenge to deployment has been permitting/interconnection

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Related Companies:	Share Price:
ENPH	193.81
SEDG	335.27

INDUSTRY RISKS
Less growth than anticipated, rising interest rates, and adverse changes in regulatory policy.

delays driven by COVID. Our panelists confirmed that LFP is quickly becoming the dominant chemistry in stationary storage but there is a large enough market for numerous hardware technologies and the market continues to rapidly evolve. Finally, one panelist indicated that they believe software will be the key differentiator with respect to grid-scale storage.

- **Supply-Chains Remain Challenged:** There was common consensus across multiple panels that supply-chains remain challenged and have yet to see meaningful improvements. However, the companies are adapting to the current environment (for ex: widening supplier base, switching to containerized shipping, building inventory).

- **Policy Remains Challenging but Forward Path Looks Less Tenuous:** Between BBB, NEM-3, WRO, and AD/CVD, the sector has been dealing with numerous policy headwinds. While BBB didn't really come up in the discussion (perhaps reflective of the probability currently being ascribed to passage), some of our panelists highlighted their belief that the chances of the ITC being extended at year-end are quite high (as they were previously extended multiple times under a Trump presidency). And while the NEM-3 outcome remains uncertain, the hard landing within the initial proposal has a low probability of passage. Finally, challenges surrounding the WRO are expected to abate later this year. One wildcard is the request by Auxin Solar for the Department of Commerce to investigate whether Chinese companies are avoiding AD/CVD fees. The market is waiting for a response from the DoC (announcement was expected on March 25th).

ENPH - Overweight, $230 PT based on 9-yr DCF model using 7% WACC and 2.5% terminal growth. Risks include growth beneath expectations, competition, adverse regulatory changes.

SEDG - Overweight, $400 PT based on 9-yr DCF model using 7% WACC and 2.5% terminal growth. Risks include Less growth than anticipated, competition, rising interest rates.

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S: Suspending Coverage
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N: Neutral
UW: Underweight
NA: Not Available
UR: Under Review

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SELL [UW]	**9**	**0.89**	**0**	**0.00**

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