

Market Intelligence Overview

Unconventional Product Offerings



Contents

- 1) PacWest Overview**
- 2) Market Intelligence Offerings**
- 3) Unique Intelligence**
- 4) Next Steps**
- 5) Product Samples**

PacWest is a boutique strategy consultancy and market intel firm specializing in energy, industrial, resources; strength in the oilfield

Firm Overview & Capabilities

Consulting & Advisory

- Provide strategy consulting and advisory services to energy, industrial, and resources clients
- Strength in the oilfield supply market
 - Often work with E&Ps or suppliers across range of industries that supply products/services to it
- Generally work at C-Level or business lead level

Market Intelligence Products

- Offer industry-leading, granular analysis of unconventional market
- Deep knowledge and strength in the pressure pumping / frac market
- Employ combination of primary intelligence + secondary research
- Unique in market: apply strategy consulting capabilities to turn research into actionable intelligence

All key staff come from top-tier strategy firms; consulting and market intelligence capabilities reinforce/inform each other

PacWest provides a range of consulting & advisory services across multiple oil & gas, electricity, industrial, and resources sectors

Consulting Services & Industries

Services	Industries
Strategy	Oil & Gas E&Ps Oilfield Services Midstream
Supply Chain Management	
Transformation	
Market Outlook & Intelligence	Electricity Conventional Generation Renewable Generation Transmission Demand Management
Corporate Development	
Technology & Innovation	
Private Equity	Industrial Chemicals Capital Equipment EPC Logistics
Corporate Finance & Economics	
Policy & Regulatory	
	Resources Water Mining

We help clients identify sources of long-term competitive advantage

A sampling of some of PacWest's recent projects demonstrate our depth of experience in North American and international shale

Sample of Recent PacWest Consulting Projects

PacWest Project	Client Outcome
Analyzed Bakken & Eagle Ford supply/demand; conducted demand planning exercise to develop new pressure pumping sourcing/contract strategy	Operator avoided completion delays, avoided significant additional costs
Developed Poland unconventional market entry, product/service, and JV strategy for a potential shale service company for a private equity client	PE firm focused on high-growth segments only, with the right strategic partners
Developed an innovative economic and strategic analysis of operator all-in water management costs over 20-year timeframe, for Bakken & Eagle Ford assets	Operator understood cost implications, made optimal economic decisions
Conducted a study of frac pump market focused on supplier strategic plans, manufacturing capabilities, and supply chain capabilities; made strategic growth recommendations	Equipment manufacturer developed optimal strategic investment plans
Assessed water management landscape to identify market adjacency opportunities and recommend acquisition targets	Service company identified and engaged new candidates

We have resources in nearly every major unconventional country/region to support international unconventional needs

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PacWest currently offers multiple unconventional market intelligence product offerings to support subscriber decision-making

Market Intelligence Offerings

PUMPINGIQ

Breakdown of pressure pumping fleets/capacity by basin and supplier with strategic analysis of latest regional supply market trends

SUPPLIERIQ

Interactive database of 100+ critical unconventional suppliers

COSTIQ

Cost escalation forecast for major D&C categories

FRACIQ

Detailed breakdown of frac activity by basin, operator, pumper

FRACDB

Database of fracs including basin, operator, pumper, chemicals, chemical suppliers

PumpingIQ provides the only granular breakdown of regional fleets/capacity by pressure pumper and analysis of market trends

PUMPINGIQ

Fleet/Capacity Breakdown & Trends

- On-going monitoring of pressure pumping fleets and capacity in major US onshore frac markets
- Granular regional breakdowns of fleets/capacity by pumper
- Key customers by pumper
- Detailed discussion of major trends and strategic insights for each region and US market in aggregate

Focus Markets

- Bakken
- Eagle Ford
- Permian
- DJ Basin
- Anadarko
- Marcellus
- Uinta/Piceance/Green River
- Haynesville
- Fayetteville
- Barnett
- California

PumpingIQ is the only granular fleet breakdown available in the market

SupplierIQ is an interactive database of 100+ suppliers that are critical players in shale supply markets

SUPPLIERIQ

Supplier Analysis

- Interactive database of 100+ companies that supply critical D&C products/services for shale production
- Database is updated quarterly with new suppliers; updates made to existing suppliers bi-annually
- Subscribers can request supplier additions
- Offer two forms of subscription to database: full SupplierIQ access or a subset of suppliers, customized to subscriber needs

Profile Contents

- PacWest Supplier Classification
- Company Overview & Analysis
- Service Offerings
- Geographic Footprint
- Financials
- Customers
- Organizational Footprint
- Detailed discussion of Service Offerings: 15 product/services that are critical for shale production

SupplierIQ provides insightful snapshots of your key suppliers and competitors

CostIQ provides a forecast of cost increases for key drilling and completion cost drivers

COSTIQ

Forecast Analysis

- 3-year forecast of D&C cost escalation, segmented into major categories
- Includes strategic discussion of trends driving increases and/or decreases
- Updated bi-annually (every 6 months)
- PacWest utilizes three quantitative methods to forecast price changes for each market segment:
 - Multi-variable regression
 - Demand/supply models
 - Macroeconomic models

Cost Segments

- Drilling
 - Land rigs
 - OCTG
 - Drilling fluids
 - Cementing services
- Completion
 - Pressure pumping services
 - Proppant
 - Frac chemicals
 - Completion hardware
 - Completion rigs

CostIQ provides 3-year cost forecasts for each key US region

FracIQ is *the* source of frac activity data by operator and pressure pumper, with data broken down US-wide and regionally

FRACIQ

Product Overview

- The definitive subscription publication on frac activity across the US
- Summary of fracs by region, operator, pressure pumper
- Market share by pumper and operator across multiple metrics
- Strategic analysis of frac trends and market dynamics, including implications for operators, pressure pumpers, and other stakeholders
- Updated quarterly

Contents

- Aggregate US fracs:
 - By operator
 - By pressure pumper
- Regional breakdown of fracs:
 - By operator
 - By pressure pumper
 - By frac type
- Operator and pumper relationships
- Frac practices, including chemicals usage

Your “Land Rig Newsletter” for the frac market – available late 2011

FracDB is the definitive database of fracs and frac chemicals that can be used to conduct sophisticated market analyses

FRACDB

Product Overview

- Database of US fracs and frac chemicals, built into a rich structured data set
 - The data set already contains nearly 7,000 fracs conducted in 2011
- A sophisticated tool that can be used to run a variety of analyses:
 - Pressure pumping/frac market share
 - Completion chemicals market share
 - Regional frac design practices
 - And dozens of other analyses...
- Updated quarterly

Data Elements

- Frac date
- Well number, API number
- Operator
- TVD
- Water volume
- Pressure Pumper
- Play
- Chemical type
- Chemical ingredient
- Chemical supplier

Contact us for more detail

FracDB is a powerful tool for the sophisticated market analyst – available late 2011

The ShaleIQ bundled product provides access to 3 useful products at a reduced price point

SHALE IQ



Bundle Includes

PUMPING IQ

Breakdown of pressure pumping fleets/capacity by basin and supplier with strategic analysis of latest regional supply market trends

SUPPLIER IQ

Interactive database of 100+ critical unconventional suppliers

COST IQ

Cost escalation forecast for major D&C categories

The ShaleIQ bundle is a valuable resource to add to your decision-making toolkit

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The PacWest team seeks to work closely with its subscribers to ensure that products deliver the information you need

PacWest Difference

- PacWest market intelligence services are different from our competitors'
- As a subscriber, our team will work with you to tailor our on-going analyses around your needs
- If you have an area of interest or a pressing requirement, let us know and we can work with you to help satisfy it
- We appreciate that requests of this nature must remain confidential

PacWest delivers actionable intelligence that is designed to provide strategic recommendations to key decision-makers

Actionable Intelligence

- Transforms volumes of disparate market data, insider industry activity and expert input into strategic and actionable recommendations for decision-makers
- Aggregates, organizes and distills a wide range of data and intelligence to provide information to our clients that is comprehensive, focused and strategic
- Analyzes this information to assess its strategic implications and provide a clear path of action for each stakeholder

Decision-Makers



OPERATORS

Market intelligence for executives, business strategy, and procurement & supply chain professionals.



SUPPLIERS

Strategic and competitive intelligence for executives and business strategy professionals.



INVESTORS

Market intelligence to understand a key energy trend of the century and identify investment opportunities.



GOVERNMENTS

A guide to understand the market trends and suppliers that are critical to develop / position their own oil and gas resources.

PacWest employs a comprehensive methodology that relies on primary intelligence and rigorous research and analysis

Methodology

- PacWest uses a multi-pronged approach to develop its market intelligence offerings; the team:
 - 1) Gathers and reviews all information available publicly and via proprietary databases
 - 2) Engages its diverse network of industry contacts to gather real-time intelligence
 - 3) Processes and synthesizes raw information into actionable intelligence

Primary Intelligence Gathering

Insights are based on:

- Constant conversations with our source network of field experts on-the-ground
- Surveys from operators and suppliers
- In-depth interviews and conversations with operators and suppliers
- Industry-leading experts and technical specialists
- PacWest internal databases

Secondary Research

These sources are regularly consulted:

- Market research and reports
- Company annual reports, 10-Ks, 10-Qs
- Speeches and presentations by company leadership and other industry experts
- Analyst reports from leading banks
- Government data

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Call the PacWest Team today to learn more about how our offerings can help you

Next Steps

- If you want to know more, request samples, such as a set of supplier profile extracts from the SupplierIQ database
- Consult with a member of our team so that we can help understand your needs and how our products/services can best address them
- If our product offerings do not suit your particular needs, we can work with you you to scope out a custom consulting engagement that will help your business develop the right strategies to succeed

To learn more, please contact:

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PumpingIQ features a snapshot of key regional statistics that touches on critical frac elements

PUMPINGIQ

DJ Basin Key Stats Sample

Description	Units	Value
Current number of pressure pumpers	Companies	4
Total current capacity (10/15/2011)	HHP	285,000
Total EOY capacity (12/31/2011)	HHP	360,000
Total current fleets (10/15/2011)	Fleets	16
Total EOY fleets (12/31/2011)	Fleets	20
Average fleet size	HHP	15,000 – 20,000
Stages per frac	Stages	14 – 20 (horizontal wells)
Frac type	N/A	No “standard” formula yet – slickwater, linear gel, crosslinked, and hybrid all common, with variance across operators
Average water volume	Barrels	11,315
Average depth	Feet	7,659
Proppant type	N/A	Mostly frac sand (20/40, 30/50, 40/70 grades) with resin-coated proppant commonly used to tail-in

PumpingIQ provides a detailed breakdown of current fleets and capacity and future deployments

PUMPINGIQ

DJ Basin Pressure Pumper Fleets/Capacity Sample

Pumper	Fleets		Capacity (HHP)		Key Customers
	10/15/2011	12/31/2011	10/15/2011	12/31/2011	
Halliburton	8.0	8.0	160,000	160,000	Kerr-McGee
BJ Services	6.0	6.0	90,000	90,000	Kerr-McGee, Noble, EOG
Superior	1.0	2.0	17,500	35,000	Kerr-McGee
Calfrac	1.0	1.0	17,500	17,500	Kerr-McGee, Chesapeake
Frac Tech	0.0	1.0	0	22,500	
Schlumberger	0.0	1.0	0	20,000	
Cudd	0.0	1.0	0	15,000	
Total	16.0	20.0	285,000	360,000	

SUPPLIER IQ

List of Suppliers

<i>Badger Mining</i>	<i>Momentive</i>	<i>Leam Driling Systems</i>	<i>Pioneer Drilling</i>
<i>Baker Hughes</i>	<i>Multi-Chem</i>	<i>Nabors Industries</i>	<i>Platinum Energy Solutions</i>
<i>Basic Energy Services</i>	<i>NALCO</i>	<i>Patterson UTI Energy</i>	<i>ProPetro Services</i>
<i>Bronco Drilling</i>	<i>Packers Plus</i>	<i>PHX Energy Services</i>	<i>Stewart & Stevenson</i>
<i>Calfrac Well Services</i>	<i>RPC</i>	<i>Precision Drilling</i>	<i>Surefire Industries</i>
<i>Calmena Energy Services</i>	<i>Saint-Gobain</i>	<i>Preferred Sands</i>	<i>United Engines</i>
<i>Canyon Services Group</i>	<i>Sanjel</i>	<i>Proppant Specialists</i>	<i>Keane & Sons</i>
<i>Carbo Ceramics</i>	<i>Schlumberger</i>	<i>Scientific Drilling</i>	<i>Pro-Stim</i>
<i>Carmeuse</i>	<i>TAM International</i>	<i>Southern Precision Sands</i>	<i>B&G Oilfield Equipment</i>
<i>Champion Technologies</i>	<i>TESCO</i>	<i>US Silica</i>	<i>Cactus Drilling</i>
<i>Complete Production Services</i>	<i>TIW</i>	<i>Weir SPM</i>	<i>Cameron</i>
<i>Curimbaba</i>	<i>Trican Well Service</i>	<i>Advanced Stimulation Tech.</i>	<i>Dril-Quip</i>
<i>Davis Lynch</i>	<i>Trinidad Drilling</i>	<i>C&J Energy Services</i>	<i>FMC Technologies</i>
<i>Ecosphere Technologies</i>	<i>Unimin</i>	<i>Dixie Iron Works</i>	<i>Foremost Industries</i>
<i>ESG Solutions</i>	<i>Veolia</i>	<i>Dragon Products</i>	<i>Lee Specialties</i>
<i>Express Energy Services</i>	<i>Weatherford International</i>	<i>Enerflow Industries</i>	<i>Rising Star Services</i>
<i>Fairmount Minerals</i>	<i>Allis-Chalmers Energy</i>	<i>Ensign Energy Services</i>	<i>Superior Energy Services</i>
<i>Flotek Industries</i>	<i>AXON Energy Products</i>	<i>Forum Energy Technologies</i>	<i>T-3 Energy Services</i>
<i>Forbes Energy Services</i>	<i>Crescent Directional Drilling</i>	<i>Great White Energy Services</i>	<i>The Wood Group</i>
<i>Frac Tech Services</i>	<i>Fores</i>	<i>Green Field Energy Services</i>	<i>Total Energy Services</i>
<i>Frank's Casing</i>	<i>Gardner Denver</i>	<i>J-Mac</i>	<i>Wood Group</i>
<i>GASFRAC Energy Services</i>	<i>GE Oil & Gas</i>	<i>Maverick Stimulation</i>	<i>China Ceramic Proppant</i>
<i>Global Geophysical Services</i>	<i>Gyrodata</i>	<i>Mission Well Services</i>	<i>Torqued-Up Oilfield Services</i>
<i>Halliburton</i>	<i>JSC Borovich (BorProp)</i>	<i>National Oilwell Varco</i>	<i>Go Coil</i>
<i>MicroSeismic</i>	<i>Key Energy Services</i>	<i>OFM Pump</i>	<i>Premium CT / Energy</i>

Q1 = 41 suppliers	Q2 = 20 suppliers	Q3 = 19 suppliers	Q4 = 20 suppliers
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Note: Q4 suppliers subject to change based upon subscriber request; additional suppliers added in 2012

Supplier profiles range from 4 to 15 pages, depending on the size of the company and range of products/services

SUPPLIERIQ Sample Calfrac Profile Extract

PacWest Classification	
Tier 1	Tier 2
Shale Experience	High
Geographic Footprint	International
Innovation Capacity	Low
Business Model	Individual product/service
Growth Trajectory	Growing
Company Snapshot	
Revenue: C\$865.0M (2010 estimated)	Revenue from unconvensionals: 80% (estimated)
Market capitalization: C\$1.5B (2/15/2011)	Headcount: 2,200 (estimated)
Company Information	
Status: Public	Ticker: CFW (TSX)
Corporate HQ:	411 8th Avenue S.W
	Calgary, Alberta, Canada
Phone:	+1 866 770 3722
Website:	http://calfrac.com/
Major Brands:	No major subsidiary operating brands
Company Overview	
<p>Calfrac Well Services (CFW) is a growing provider of fracturing services with a small global footprint. The company generated an estimated C\$865 million in revenues in 2010, approximately 90% of which is from North America and 80% from unconventional plays. CFW is headquartered in Calgary, Alberta and has operations in Argentina, Columbia, Mexico, Russia and the US.</p> <p>CFW has a well-regarded set of capabilities in fracturing services, which it developed while operating in the unconventional plays of Western Canada. Although the company has had conventional operations in the Rocky Mountain region of the US since 2004, it did not expand its unconventional fracturing service offerings to the US until early 2007, when it deployed assets to the Fayetteville play. The company also provides coiled tubing and cementing services, but those operations are much smaller than its fracturing</p>	

Detailed Service Offerings					
Cementing					
<ul style="list-style-type: none"> Cementing accounted for only 7% of CFW's consolidated revenue for the first 6 months of 2010. The company has typically used cementing, along with coiled tubing, to gain a foothold in international markets (e.g., Mexico and Argentina), while maintaining its focus on fracturing services. The company operates cementing units across its operations: <ul style="list-style-type: none"> Canada: 6 units US: 1 units Latin America: 1 units 					
Fracturing					
<p>Fracturing accounted for 90% of CFW's consolidated revenue in the first 6 months of 2010, compared to 88% of consolidated revenue in 2009.</p> <p>Fracturing is the focus of CFW's business and it has positioned itself in some of the most active fracturing markets in the US, Canada and Russia to take advantage of those opportunities.</p> <ul style="list-style-type: none"> The company has been an early mover in a number of unconventional markets, being among the first pressure pumpers into the Fayetteville, Horn River, and Marcellus shales. The company prefers not to make major capital-intensive fracturing capacity expansions unless they are backed by some sort of commitment or contracts from a customer. The company undertakes the engineering and design of its fracturing equipment in-house. Utilizing a team of engineers, it purchases components from manufacturers and assembles them in-house. 					
Global Revenue Per Fracturing Stage (C\$)					
2005	2006	2007	2008	2009	2010 H1
45,006	56,759	62,466	67,974	83,241	85,884
Canada					
<ul style="list-style-type: none"> Within the Canadian market, CFW has recently been most active in the Bakken shale, Cardium shale, Deep Basin, Horn River shale and Montney shale, but has also been active in the Lower Shaunavon and Viking shale. The company currently operates fracturing capacity of 211,000 HHP in the Canadian market but has announced plans to expand its capacity significantly to 330,000 HHP by year-end 2011. When its 2011 capacity expansion is finished, it will be the largest provider of fracturing services in the Canadian market, with over 20% of market capacity, just edging out <u>Trican Well Services</u>. 					

Note: sample includes only a portion of the full supplier profile; full profile is generally 4-15 pages

Contact us for a full set of samples