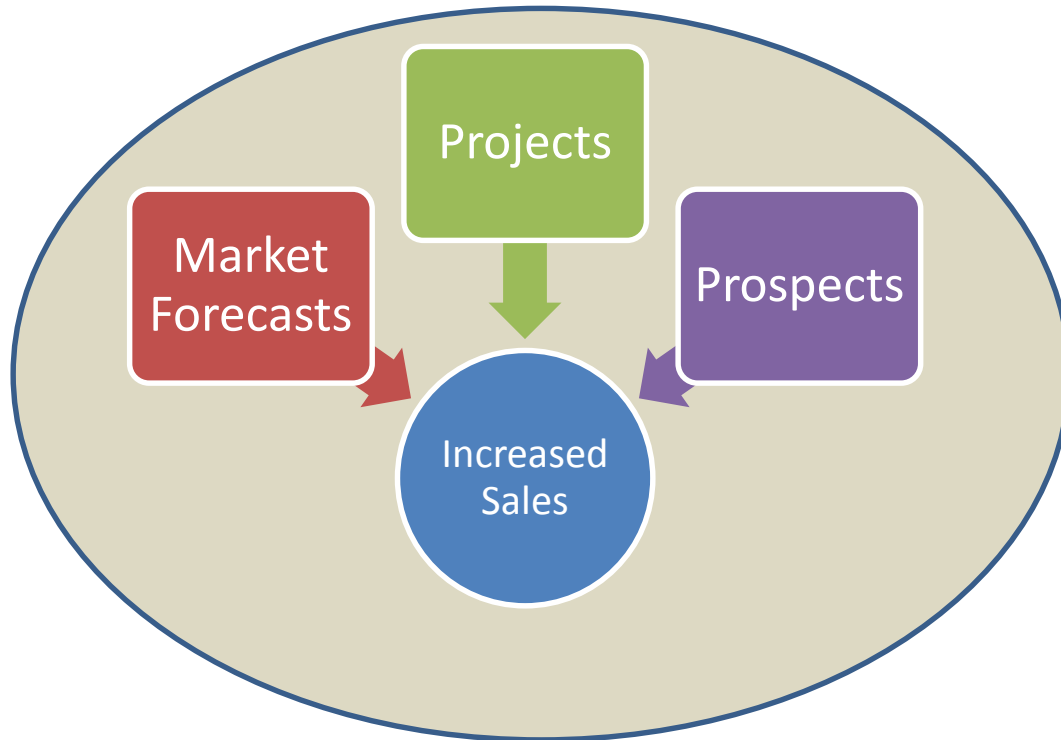


# Detailed Forecasting of Markets, Prospects, Projects



A suit of services from

**Mcilvaine Company**

# Benefits of the program

- It is now possible to precisely segment and predict markets, identify the prospects, and track the most important projects
- Detailed forecasting of markets, prospects, and projects provides the following benefits
  - Improve decisions on allocation of direct sales, promotion, and development expenditures
  - Increase orders cost effectively
  - Review program with better insights as to improvement

# Markets

<b>Geographical</b>				
continent	region	country	State	Sales territory
<b>Product</b>				
Standard <i>(products already forecasted by Mcilvaine)</i>		Common <i>(classification used by multiple companies)</i>		Proprietary
<b>Process</b>				
Major <i>(combustion, cooling, separation etc)</i>		Minor <i>(metering, monitoring etc)</i>		
<b>Drivers</b>				
regulatory	economic	resources	political	social
<b>Applications</b>				
Standard e.g. <i>mining</i>		Common <i>coal, copper</i>	Custom	

# Markets -Geographical

- Mcilvaine standard reports divide the world into 80 countries and sub regions.
- Further division to state and provinces provides better insights for management.
- Custom forecasts by sales territory provide desired specificity.

State by State Analysis of Each Industry							
Chemical Industry % (2015 base)							
STATE	2015	2016	2017	2018	2019	2020	2021
Alaska	0.00	0.00	0.00	0.00	0.00	0.00	0.00
California	6.95	6.60	6.60	6.87	7.21	7.64	8.02
Hawaii	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oregon	0.43	0.41	0.41	0.42	0.45	0.47	0.50
Washington	0.35	0.33	0.33	0.35	0.36	0.38	0.40
<b>TOTAL Pacific States</b>	<b>7.73</b>	<b>7.34</b>	<b>7.34</b>	<b>7.64</b>	<b>8.02</b>	<b>8.50</b>	<b>8.93</b>

# Markets-Products

- Mcilvaine standard reports have as many as 50,000 to 100,000 product forecasts.
- In the valve report there are over 100,000 forecasts including segmentation by valve type and function (control vs on/off).
- For major suppliers it is worthwhile to further forecast sub categories such as floating vs trunnion ball valves.
- Custom studies are performed for proprietary designs. If a new product has advantages it is important to determine the market potential.
- There are three ways to segment products in terms of routes to market
  - Hardware: markets, prospects and projects are important
  - Consumables - common repair parts and service: markets and prospects are important
  - Proprietary repair parts: major focus would be leveraging internal knowledge

China – Ball Valve - On Off - \$millions			
Industry	2015	2016	2017
Chemical	230.98	252.93	276.96
Electronics	3.81	3.94	4.07
Food	77.50	83.20	89.39
Iron & Steel	268.89	294.43	322.41
Metals	28.00	30.05	32.29
Mining	76.44	82.06	88.17
Oil & Gas	113.07	116.08	119.19
Other Electronics	9.41	10.10	10.85
Pharmaceutical	26.09	28.97	32.21

# Markets- Process and Drivers

## Process

- Mcilvaine reports are organized by product and application
- Processes such as separation or cooling are common to many industries and should be analyzed
- Mcilvaine has separate process market reports which can be utilized to predict specific opportunities e.g. utilizing the scrubber market report to predict pump opportunities in scrubbing
- Sub processes such as slurry transfer, or metering can also be addressed

## Drivers

- Markets, prospects, and projects can be determined for groups subject to a particular regulation or groups impacted by a natural resource, economic, political, or social change
- Mcilvaine has detailed forecasts for all plants which must retrofit flue gas desulfurization and DeNOx equipment
- Plants in areas with critical water shortages have special common needs including desalination and ZLD
- Plants considering new high performance technologies such as ultra-super critical coal firing can also be identified.

# Markets- Applications

## Options

- More than a dozen Mcilvaine reports provide product forecasts for each application
- In some reports where electronics is important there are separate forecasts for semiconductor and flat panel applications
- Desalination is treated separately in the cross flow membrane report but is part of municipal water in the other reports
- The standard application segments can be expanded on a customized basis
- For suppliers focusing on the mining industry it is important to forecast the market in each country for each type of material mined

## Iron Mining Industry Example

Production forecast ( 1000 metric tons)			
	2015	2016	2017
United States	56,000	57,000	57,000
Canada	28,000	29,000	30,000
Mexico	8,500	8,500	8,500
Argentina	500	500	500
Brazil	250,000	250,000	250,000
Chile	8,000	8,500	9,000
Colombia	300	300	300

# Prospects

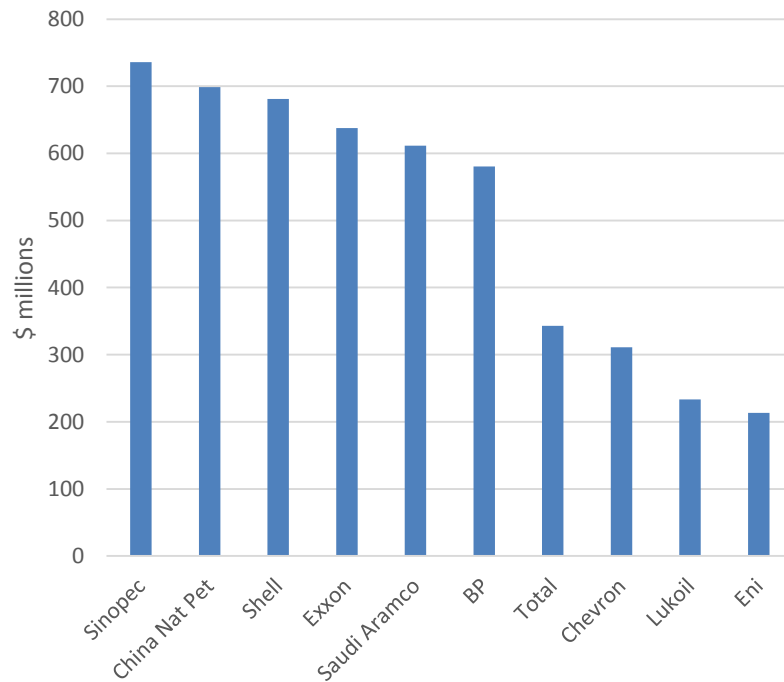
- Detailed forecasting of the purchases by individual companies is valuable because
  - A small number of prospects are responsible for most the flow control and treatment purchases
  - Mcilvaine has identified these prospects and can provide relevant forecasts
- Internationalization and consolidation is being accompanied by global sourcing and a focus on evaluating total cost of ownership. This combination makes it highly desirable to set up a separate program for large prospects.
- Prospects fall into to major categories
  - Operators: the power plants, steel mills, and other companies using flow control and treatment products and services
  - Influencers who are not operators: this includes Original Equipment Manufacturers (OEMS), architect/engineers, and Engineering, Procurement, Construction (EPC) contractors
- The relative importance varies by industry. In oil and gas and semiconductors there are relatively few large end users. There are many end users in municipal wastewater but relatively few architect/engineers influencing decisions for plants.
- In general the architect/engineers play a larger role in the U.S. whereas in much of the rest of the world decisions are made by EPC contractors
- Large end users in some industries have their own engineering staffs and rely less on consultants e.g. Intel, Southern Company



# Concentration of Purchasing in a few companies

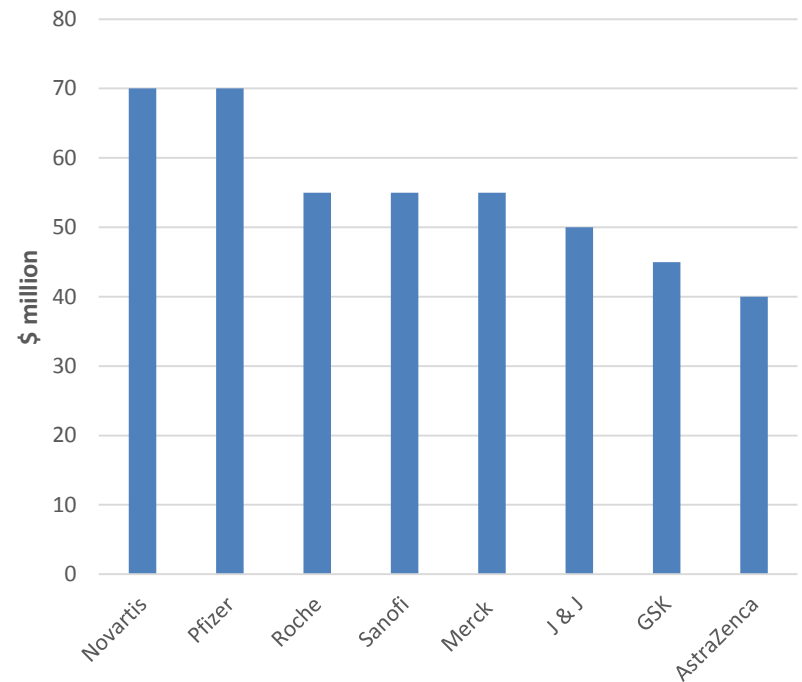
**Top 10 oil and gas companies buy more than 60% of valves in this industry**

Valve Purchases by Largest Oil & Gas Companies



**Top 8 pharmaceutical companies purchase 40% of the valves for this application**

Valve Purchases by Largest Pharmaceutical Companies



# 34% of Valves are Purchased by Largest Prospects including Operators and OEM/EPCs

## Large Owners and EPCs Dominate Valve Market

Owner/operators do not directly buy all the valves. The largest OEMS and EPCs account for more than 15% of the valve purchases.

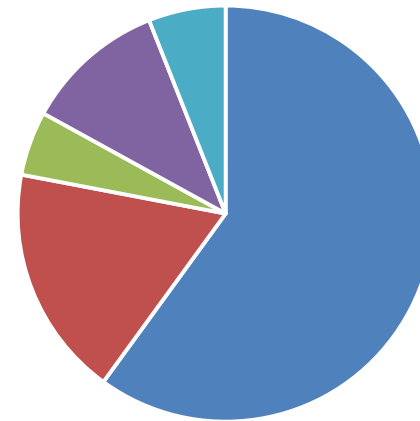
Of this total 4% is sold to the largest end users and 11% to smaller end users.

So the largest end users and OEM/EPCs combine for 34% of the total valve purchases.

When additional purchases influenced by the top 20 design firms are included the total is 40% of all purchases.

## Purchases or Decision Making by Company Type

Valve Purchasers



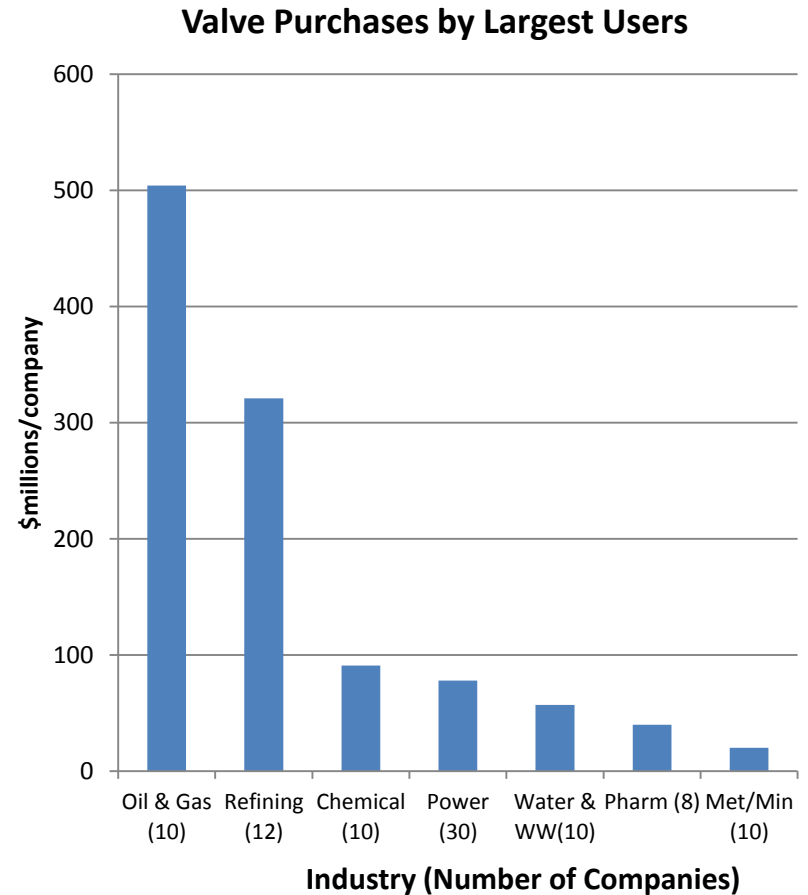
- Other
- Large End User
- Large End User through OEMS/EPC
- Smaller User through Large OEMs/EPC
- Large Design Firms

# 44% of Mercury Control Purchases will be Made by Just 5 Companies

Mercury Reduction Expenditures For Major EGs						
# of Corp	# of FGD MW/EG 1000	Total MW 1000	% of Total Installed Base	% of Mercury Expenditures Short Term	% of Mercury Expenditures Long Term	Examples
7	Over 50	575	44	5	44	Big 5 Chinese Corp
10	10-50	150	12	50	12	AEP, TVA, Duke, Enel, EON
15	5-10	105	8	20	8	NRG, Xcel, Tokyo Electric, Chubu Electric
20	3-5	80	6	10	6	AES, EPDC, RWE, CEZ
52	Sub total	910	70	85	70	
350	0-3	390	30	15	30	U.S., Europe, China
404	Total	1,300	100	100	100	

# Large Purchasers Create Large Projects

- A few hundred large projects per year account for a large percentage of total flow control and treatment purchases.
- New power plants, refineries, LNG and other gas treatment projects each require billions of dollars of investment of which flow control and treatment will be tens of millions.



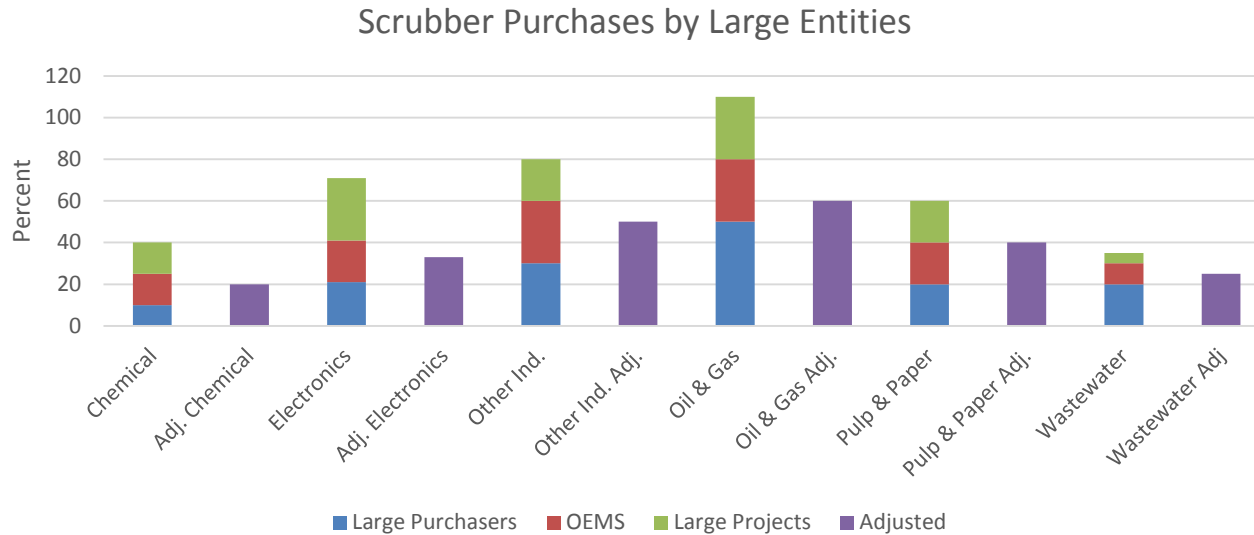
# Large Projects Tracked Weekly- New Coal Fired Generators in Vietnam

Location	Plant name	Start Date
Tra Vinh province	Duyen Hai 1	2015
Tra Vinh province	Duyen Hai 2	2020
Tra Vinh Province	Duyen Hai 3-3 supercritical power plant-EVN	2018
Soc Trang Province	Long Phu 1 supercritical power plant-PetroVietnam	2017
Near Ho Chi Minh City, Soc Trang Province	Long Phu II-Vietnam National Coal and Mineral Industries	2019
Quang Ninh	Mong Duong 1 CFB power plant-Electricity of Vietnam	2015
Quang Ninh	Mong Duong 2-AES	2017
Nam Dinh Province	Nam Dinh 1 CFB power plant--Vinacomin	2020
Phuoc Dinh Commune	Ninh Thuan 1-1,2 nuclear power plant-EVN	2025

# Large Oil and Gas Projects are Tracked Daily with Opportunity (\$ hundred million) = O and Order Date = T

Project Title	Application Location	Opportunity Size Order Date
Fairway Energy Partners to Build Houston Oil Storage Facility	Crude Petroleum USA	O6 T15
Global Marine Lands Subsea 7 Contract	Crude Petroleum UK	O6 T16
Top Canada Oil Sands Project Unlikely to Close, Despite Losing \$6/bbl	Crude Petroleum Canada	O6
ConocoPhillips & total Start Production from their Alberta, Surmont 2 Oil Sands F	Crude Petroleum Canada	O6 T15
Aecon awarded \$109 M Contract for Additional Work on Alberta Oil Sands Refinery	Crude Petroleum Canada	O7 T15
TransCanada expects BC Regulatory Decisions on 2 Pipelines in Q2	Crude Petroleum Canada	O7
Gibson Energy to build 900,000 Barrels of Crude Storage in Alberta	Crude Petroleum Canada	O7 T16
Southern Pacific Resources to “Hibernate” The STP-McKay Oilsands Project by End of July	Crude Petroleum Canada	O7
KBR wins Fort Hills Oil Sands Mining Work	Crude Petroleum Canada	O6 T16
ExxonMobil announces Cold Lake Project Expansion starts Production on Schedule	Crude Petroleum Canada	O8 T15

# Detailed Forecasting of Markets, Prospects and Projects Program



- Mcilvaine offers a customized program to suppliers to address the large percentage of the market created by the largest prospects and projects.
- It combines standard market reports with forecasts and identification of top prospects with various project databases.
- The many standard market reports are shown at [Markets](#)
- Databases in many industries are listed at [Databases](#)
- A package is available complete with custom websites, webinar participation and other features.