

INFRASTRUCTURE

December 2015



in-fra-struc-ture, noun

- 1: the underlying foundation or basic framework (as of a system or organization);
- 2: the system of public works of a country, state, or region; also: the resources (as personnel, buildings, or equipment) required for an activity.

-Merriam-Webster



INFRASTRUCTURE SUPPORTS GROWTH AND PROGRESS



Source: Scottish-Septic, Enerconics: The Relationship between Energy and GDP, 2013.



CHANGE IN WORLD GDP VERSUS CHANGE IN ENERGY USAGE



Source: Scottish-Septic, Enerconics: The Relationship between Energy and GDP, 2013.



GDP PER COUNTRY VS. ENERGY CONSUMPTION



Toe=ton of oil equivalent

PPP=purchasing power parity

Source: Scottish-Septic, Enerconics: The Relationship between Energy and GDP, 2013.



- 1. Demand for access to basic needs
- 2. An emerging middle class
- 3. A never-ending use of global resources



DEMAND FOR ACCESS TO BASIC NEEDS



Population per Airport With a Paved Runway

Source: Economist Intelligence Unit & CIA World Factbook, 2013.



DEMAND FOR ACCESS TO BASIC NEEDS

Road per Capita (in metres)



Source: Economist Intelligence Unit & CIA World Factbook, 2013.



DEMAND FOR ACCESS TO BASIC NEEDS



Electricity Production per Capita (in kilowatt hours)

Data is for latest available year. Source: Economist Intelligence Unit & CIA World Factbook, 2013.



PROJECTED SPENDING ON INFRASTRUCTURE WORLDWIDE

Estimates of Needed Infrastructure Investments 2013–2030



\$ Trillion Constant 2010 Dollars

World needs an estimated \$57 Trillion in Infrastructure by 2030.

Source: 2013, Organisation for Economic Co-operation and Development (OECD); International Energy Agency (IEA), 2011; International Trasport Forum (ITF); Global Water Intelligence (GWI); McKinsey Global Institute analysis.



PROJECTS TO PROSPERITY: AN EMERGING MIDDLE CLASS



INVESTMENTS

ASIA-PACIFIC INFRASTRUCTURE SPENDING



Source: ANZ, Oxford Economics, 2015.



AN EMERGING MIDDLE CLASS

It is estimated that each U.S. \$1,000 increase in GDP per capita results in 15 more cars per 1,000 residents.



Source: PwC and Oxford Economics. PwC's Capital project and infrastructure spending: Outlook to 2025, research findings, PwC, 2014.



WORLD ELECTRICITY GENERATED BY REGION

World Electricity Generation¹ from 1971 to 2013 by Region (TWh)



TWh = Terawatt hour.

Source: International Energy Agency, 2013.

1. Excludes electricity generation from pumped storage.

2. Organisation for Economic Co-operation and Development (OECD).

3. Asia excludes China.



1973 and 2013 Regional Shares of Electricity Generation¹



TWh=Terawatt hour.

Source: International Energy Agency, 2013.

1. Excludes electricity generation from pumped storage.

2. Asia excludes China.

3. Organisation for Economic Co-operation and Development (OECD).



A NEVER-ENDING USE OF GLOBAL RESOURCES



- Energy intensity, the portion of the total energy supply required to produce a material, has also dropped markedly.
- The manufacture of 1.5 gigatons of steel would have gobbled up one-fifth of the world's total primary energy supply (TPES) in 1900.
- In 2010 it used only about one-fifteenth.

Source: Harvard Business Review, March 2015. 1 exajoule = 174 million barrels of oil equivalent. 1 gigaton = 1 billion tons



WE CONSUME MORE THAN EVER

As efficiency rises, so does affordability, putting ever more products within reach of ever more consumers.

The amount of resources extracted for every person on the planet has skyrocketed even as the global population has multiplied.



Source: Harvard Business Review, March 2015.



WORLD POPULATION GROWTH ACCELERATES



Source: United Nations World Population Prospects, Deutsche Stiftung Weltbevölkerung, 2015.

1.5 Million people are added to the global urban population every week. The world's seven largest megacities are in Asia.



ENERGY MIX IN THE UNITED STATES



Source: B&V Analysis; Grist.org, 2013. GWh = gigawatt hours.



WHAT IS THE SHALE REVOLUTION?

"A golden age for natural gas."

— The International Energy Agency (IEA), June of 2011

- Shale gas production is projected to grow by 113% from 2011–2040.
- Natural gas-fired plants are expected to account for 63% of electric capacity additions from 2012–2040.



Sources: US Energy Information Administration's (EIA) annual energy report derived from state administrative data Source: US Energy Information Administration (EIA), Annual Energy Outlook 2014. collected by Drillinginfo Inc. Data are through December 2014. State abbreviations indicate primary state(s).

Abundant Supply + Moderate Prices = Increased Demand



WORLD INFRASTRUCTURE



LNG GROWTH OPPORTUNITIES



Source: US Energy Information Adminstration (EIA).



EXPORT OPPORTUNITIES FOR LNG



Source: Morgan Stanley Research, Basis Fundamentals: Gas Prices/Demand Dictate Pipeline Flow, May 2015.



EXPORT OPPORTUNITIES FOR LNG

LNG Tankers Grow in Size



Source: arcticgas.gov: LNG carriers called 'floating pipelines', April 2014. Credit Ron Engstorm



US POWER PLANT CAPACITY ADDITIONS IN 2013

Gas-fired electric generation is the largest user of natural gas in the country today (over 30%) and growing.



Source: US Energy Information Administration (EIA), Today in Energy, 2013.

Due to environmental regulation, it's estimated that 30–49 GW of coal-fired electric generation will be retired by the end of the decade, adding to the reliance on gas-fired generation as the bridge fuel into the future.

Source: US Energy Information Administration (EIA).



AGE OF US COAL-FIRED GENERATION UNITS (AS OF 2012)



- 57% of US coal units are older than 40 years.
- The EIA's AEO2014 reference case, for example, assumes 16 percent (56MW) of coal capacity will be retired between 2012 and 2020.

Source: Form EIA-860, 2012



THE EVERYDAY NATURAL GAS CONNECTION



is related to the cost of energy-related inputs.

Miller Howard NVESTMENTS

Source: IHS Chemical 30515-12, America's New Energy Future. 2013.

PROJECTED INDUSTRY INVESTMENT

Industry	Projected Investment	Notes	
Chemical		A 32.6% increase over previous years' announced projects of \$72 bil. Over half of the 2014 funds are from companies located outside the US.	
	\$100 bil for 148 projects announced as of February 2014.	The chemical manufacturing industry is currently one of America's largest exporting industries. Its \$198 billion in annual exports accounted for 13% of all US merchandise exports in 2012.	
		IHS expects more than 16 million tons of chemical capacity to be added, growing to nearly 89 million tons of new capacity by 2025.	
Midstream	\$800 bil estimated over the next	The US has roughly 2.5 million miles of existing pipelines, much of it near capacity.	
	and processing.	An estimated 47,000 miles of new and modified pipelines are projected by 2025.	

Source: American Chemistry Council, IHS Chemical.



	Before 2010	Since 2010		
Ethane Cracker Plants	Last ethane cracker built in the US was in 2001.	More than 20 new projects/expansions at existing crackers.		
Ammonia Fertilizer Plants	None in the previous 20 years.	16-20 new plants since 2010.		
		2 export terminals have been approved by FERC.		
LNG Export Terminals	None in the previous 20 years.	An additional 6 have received conditional approval with approximately 20 more applications pending.		

Source: Industry reports, 2013.



US SOLAR PHOTOVOLTAIC (PV)



Source: GTM Research and Solar Energy Industry Association (SEIA).



ELECTRIC CARS

It takes **25 kilowatt hours** to charge an electric car, which provides **100 miles of travel.**



25 kw hours is equivalent to running 68 CFL light bulbs 24 hours.



Source: US Energy Information Administration (EIA).



The average American car travels **15,000 miles per year.**



ELECTRIC CARS

The average American car travels **15,000 miles per year.** That's **150 charges,** or 3.8 MW (megawatts) per car/year.



ELECTRIC CARS

There are **250 million cars** on the road in America, meaning **37.5 billion charges / year.**



That's **938 million gigawatt (GW) hours** in total demand, equivalent to the output of a **120 GW gas-fired power plant** operating at full capacity.



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The largest natural gas power plant in the United States is located in Midland, MI. It can produce 1.6 GW.



IMPACT ON ENVIRONMENT



Energy-related activities were the primary sources of U.S. anthropogenic greenhouse gas emissions, accounting for 84.5% of total greenhouse gas emissions on a carbon dioxide (CO₂) equivalent basis in 2013.

Source: US Environmental Protection Agency (EPA).

IMPACT ON ENVIRONMENT

The process of generating electricity is the single largest source of CO₂ emissions in the United States, representing 37% of total CO₂ emissions from all CO₂ emissions sources across the United States.



CO₂ Emissions from Fossil Fuels or Minerals

Source: Mitsubishi Heavy Industries Group, 2013.



MILLER/HOWARD HISTORY OF ENERGY INFRASTRUCTURE INVESTING



INVESTMENT PRODUCTS: ARE NOT FDIC INSURED . MAY LOSE VALUE . ARE NOT BANK GUARANTEED

Not all stratgies or custom portfolios shown.

Common stocks do not assure dividend payments. Dividends are paid only when declared by an issuer's board of directors, and the amount of any dividend may vary over time. Dividend yield is one component of performance and should not be the only consideration for investment.



Utility and infrastructure assets provide the framework for economic growth and social development.

Without utilities, energy, and the infrastructure to deliver them, life as we know it (including the economy) cannot exist. There will always be a need for these services and the necessary capital investment, both in developed and emerging countries. We believe there are many short- and long-term opportunities in the delivery and facilitation of these essential services.

Utilities:

Electric, Water, Telecom, Natural Gas, Oil & Gas Pipelines, etc.

Infrastructure:

Oil & Gas Pipelines, Transmission & Distribution Systems, Water Treatment & Waste Management Facilities, Cable Networks and Communication Towers, to name a few.



MILLER/HOWARD INFRASTRUCTURE



% Mid-Cap

% Small-Cap

DIVIDENDS					
TTM Holdings w/ Divide	80%				
2014 Holdings w/ Divid	89%				
2013 Holdings w/ Divid	75%				
2012 Holdings w/ Divid	76%				
2011 Holdings w/ Divid	58%				
TOP TEN HOLDINGS*					
MACQUARIE INFRASTRU	CTURE	4.5%			
MDU RESOURCES	MDU RESOURCES				
ITC HOLDINGS	ITC HOLDINGS				
TELEPHONE & DATA SYS	TELEPHONE & DATA SYSTEMS				
VERIZON	4.1%				
UGI		4.0%			
VEOLIA ENVIRONNEMENT		3.9%			
EVERSOURCE ENERGY	3.7%				
KINDER MORGAN		3.7%			
AMERICAN TOWER		3.6%			
PORTFOLIO FACTS					
Strategy Inception Date	9	/30/1991			
Benchmark***	Morningstar Global Equity Infrastructure Index				

All data is as of September 30, 2015. Source: Bloomberg, MHI Research and Analysis. The above data is shown as supplemental information and complements the disclosure presentation located in the appendix. Information is taken from a representative account and is subject to change. Dividend yields shown for Miller/ Howard portfolios exclude cash. Common stocks do not assure dividend payments. Dividends are paid only when declared by an issuer's board of directors and the amount of any dividend may vary over time. Dividend yield is one component of performance and should not be the only consideration for investment. **Past performance is not indicative of future results**.

49.4%

2.7%

* Percentages may overlap and may not total 100.

Weighted Average Market Cap

** TTM = trailing twelve months.

Median Market Cap

12-Month Turnover

+ Projected Dividend Growth is MHI Portfolio Team's projection based on data from various sources adjusted to reflect our view of future economic and market conditions. There is no assurance projections will be realized.

\$30.9 Bil

\$6.7 Bil

24.2%

- ++ 5 year annualized vs. Morningstar Global Equity Infrastructure Index.
- Miller Howard

- ¥ The securities identified and described do not represent all of the securities purchased, sold, or recommended for client accounts. The reader should not assume that an investment in the securities identified was or will be profitable.
- *** Effective June 30, 2015, the benchmark for the Miller/Howard Infrastructure Strategy has been changed to the Morningstar Global Equity infrastructure Index. In presentations shown prior to June 30, 2015, the benchmark was the Russell 3000 Utilities Index.

APPENDIX



Founded in 1984 as an institutional research boutique, the firm provided quantitative and technical research to Fortune 500 companies.

In 1989, while investigating income alternatives to traditional fixed-income, the firm conducted a 45 year study of the long-term returns of utilities as an asset class. The study showed the importance of dividends as a key component of the long-term returns from equities.

Miller/Howard Investments has been managing long-only portfolios of utilities since 1991 including energy, utilities, and pipelines (the largest segment of the listed infrastructure asset class).

The portfolio team has been focused on the eternal verities of asset-based essential service companies for most of their investment careers.

Miller/Howard's focus has always gravitated toward "foundational" assets that are the building blocks for any society.



PORTFOLIO MANAGEMENT TEAM

Lowell G. Miller Founder Chief Investment Officer	BA Sarah Lawrence College JD New York University School of Law Investment Experience Since 1976 Book The Single Best Investment Founder, Miller/Howard Investments	 Infrastructure Utilities Telecom MLPs REITs 	 Healthcare Technology Technical Analysis Quantitative
John E. Leslie III, CFA Portfolio Manager / Research Analyst	BS Suffolk University MBA Babson College Investment Experience Since 1984 Joined Miller/Howard 2004	 Highest Yielding Materials Quantitative Consumer Staples 	 Industrials Healthcare Consumer Discretionary
Bryan J. Spratt, CFA Portfolio Manager / Research Analyst	BA Spring Arbor College Investment Experience Since 1990 Joined Miller/Howard 2004	• Utilities • Telecom • MLPs	• Energy • Infrastructure
Roger G. Young, CFA Portfolio Manager / Research Analyst	BS Wharton/University of Pennsylvania MBA Thunderbird School of Global Management MBA Michigan State University Investment Experience Since 1970 Joined Miller/Howard 2008	• MLPs • Infrastructure • Energy	• Metals • Financials
John R. Cusick, CFA Portfolio Manager / Research Analyst	BA Temple University MBA Fordham University School of Business NYC Investment Experience Since 1999 Joined Miller/Howard 2013	• MLPs • Natural Gas • Liquids	Exploration & Production
Michael Roomberg, CFA Portfolio Manager / Research Analyst	BS University of Wisconsin, Madison MBA Georgetown University, McDonough School of Business Investment Experience Since 2008 Joined Miller/Howard 2013	 Exploration & Product Utilities MLPs Consumer 	tion • Energy • Infrastructure • Industrials • Materials
Deepak Ahuja, CFA Senior Research Analyst	BA University of Western Ontario MBA University of Western Ontario Investment Experience Since 2005 Joined Miller/Howard 2015	 Consumer Banks Technology Industrials 	 REITs Healthcare Asset Managers
Owen D. Harvey Research Analyst	Mark A. Phillips, CFA Research Associate	Cody Resea	Milosek arch Associate

DISCLOSURE AND DEFINITIONS

Miller/Howard Investments Inc. is an employee owned, registered investment advisor specializing in multi-cap, core equity management and dividend strategies.

All investments carry a certain degree of risk, including possible loss of principal. It is important to note that there are risks inherent in any investment and there can be no assurance that any asset class will provide positive performance over any period of time. Stocks of small and medium-sized companies are often associated with higher risk, including higher volatility. This information is intended solely to report on investment strategies as reported by the Investment Manager. Opinions and estimates offered constitute their judgment and are subject to change without notice, as are statements of financial market trends, which are based on current market conditions. **Past performance is no guarantee of future results.**

Hypothetical past performance in this report is for illustration purposes only. You would not necessarily have obtained these performance results if you had held this strategy for the periods indicated. Actual performance results of accounts vary due to factors such as the timing of contributions and withdrawals, client restrictions, rebalancing schedules, fees, and costs.

These materials are solely informational. Legal, accounting and tax restrictions, transaction costs and changes to any assumptions may significantly affect the economics of any transaction. The information and analyses contained herein are not intended as tax, legal or investment advice and may not be suitable for your specific circumstances; accordingly, you should consult your own tax, legal, investment or other advisors, at both the outset of any transaction and on an ongoing basis, to determine such suitability.

Do not use this report as the sole basis for investment decisions. Do not select an allocation, investment discipline or investment manager based on performance alone. Consider, in addition to performance results, other relevant information about each investment manager, as well as matters such as your investment objectives, risk tolerance and investment time horizon.

Common stocks do not assure dividend payments. Dividends are paid only when declared by an issuer's board of directors and the amount of any dividend may vary over time. Dividend yield is one component of performance and should not be the only consideration for investment.

Certain past performance information in this report is gross performance and does not reflect the deduction of investment management fees and other expenses that would apply if you invest with this manager. The fees and expenses incurred in managing any investment advisory account would reduce your returns.

Manager Profile. You should read the investment manager profile, available from your Investment Representative. The investment manager profile gives further details on the sources of performance information for a particular investment manager, as well as other information on calculating the manager's performance returns. No representation is made that future returns will approximate past results, and none should be implied.

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