# UTILITY SCALE SOLAR MOMENTUM AT RISK

Arno Harris
CEO, Recurrent Energy

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RECURRENT ENERGY

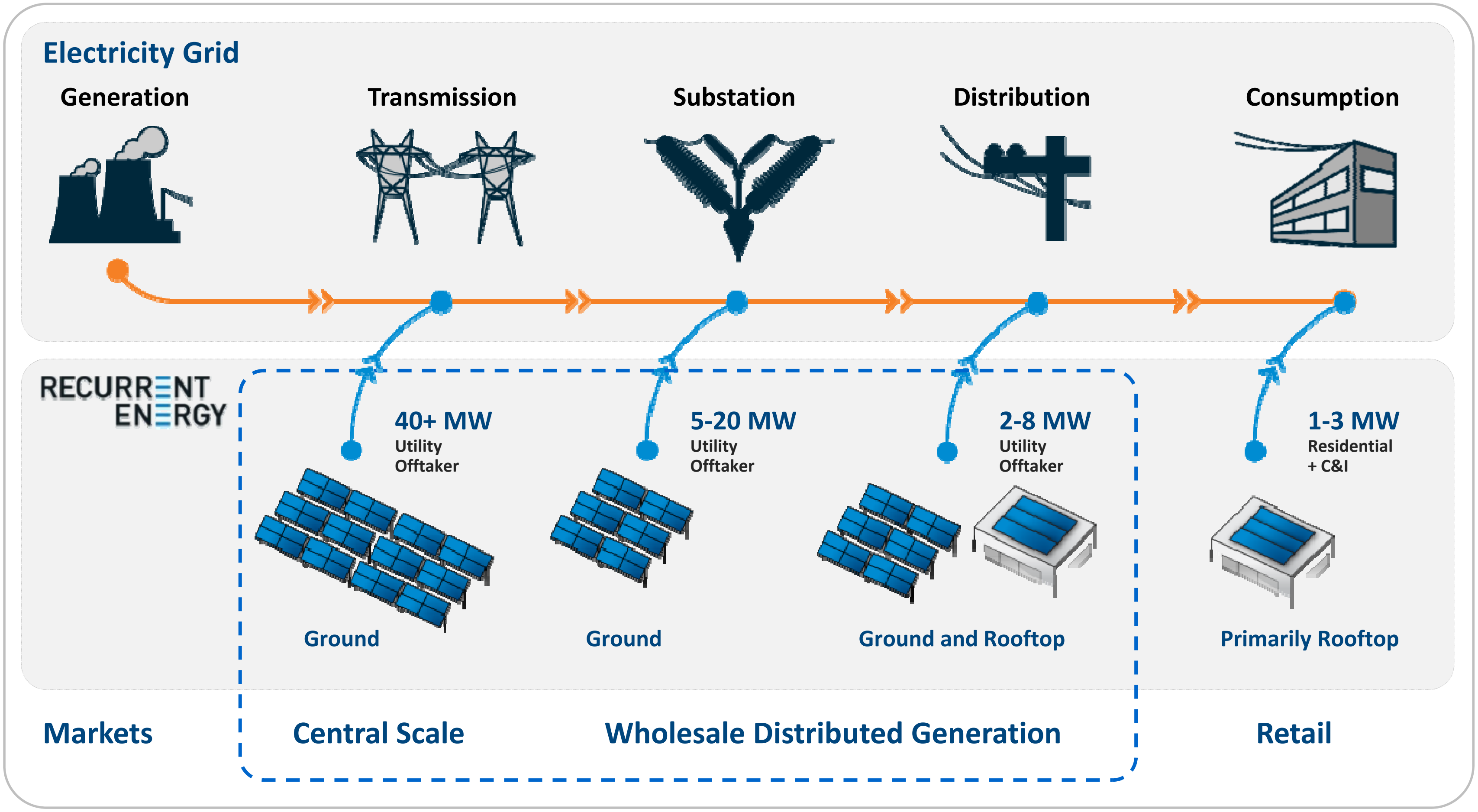
# RECURRENT ENERGY: BUSINESS OVERVIEW

- Leading global solar project developer helping our world to sustainably meet its energy needs
- 2.4 GW project pipeline and 450 MW portfolio of signed contracts makes Recurrent Energy one of the largest PV developers in North America
- Balanced development strategy featuring distributed and central-scale utility solar projects
- Primary solar development company for Sharp Corporation worldwide
- Seasoned leadership team with experience in conventional and renewable power business
- Strong technology and supply chain enable delivery of solar projects at market-leading cost
- Proven access to capital through a global network of financial partners that enables us to deliver utility solar at any scale

***Recurrent Energy has the resources, experience, technology, and access to capital to deliver utility solar at any scale.***

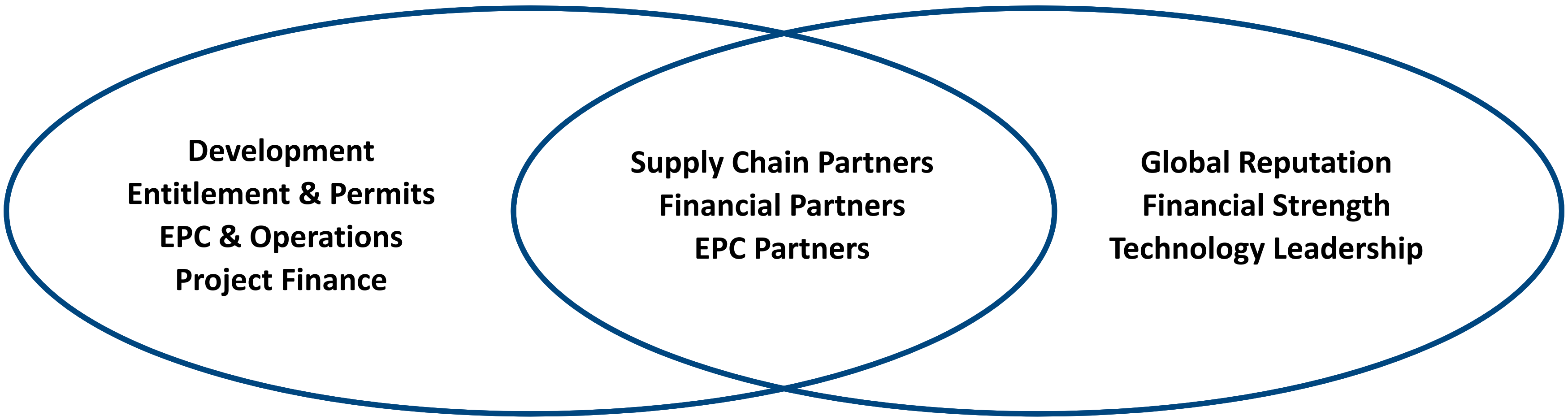
# VISION: A BALANCED PORTFOLIO OF SOLAR PROJECTS

**Recurrent Energy develops, builds, and operates distributed and central scale solar power systems**. We're developing a balanced portfolio of distributed and central scale solar PV projects delivering clean power where it's needed most.



# THE STRENGTH TO DELIVER UTILITY SCALE PV

RECURRENT ENERGY + SHARP




Recurrent Energy is the **primary solar development company** for Sharp **worldwide**.

# 2.4 GW PIPELINE / 450MW CONTRACTED PORTFOLIO





## Operating Projects

| | | | |
|---|---|---|---|
| **Spanish Rooftop** | 4.8 MW, FiT | **Operating** | Spanish feed-in tariff.  Summer 2010 COD. |
| **SFPUC/Sunset Reservoir** | 5 MW, PPA | **Operating** | 25-year PPA with SFPUC. Fall 2010 COD. |
| **Kaiser Permanente** | 15 MW, PPA | **Operating/Final COD '11** | 16 projects spread across 15 Kaiser sites. |

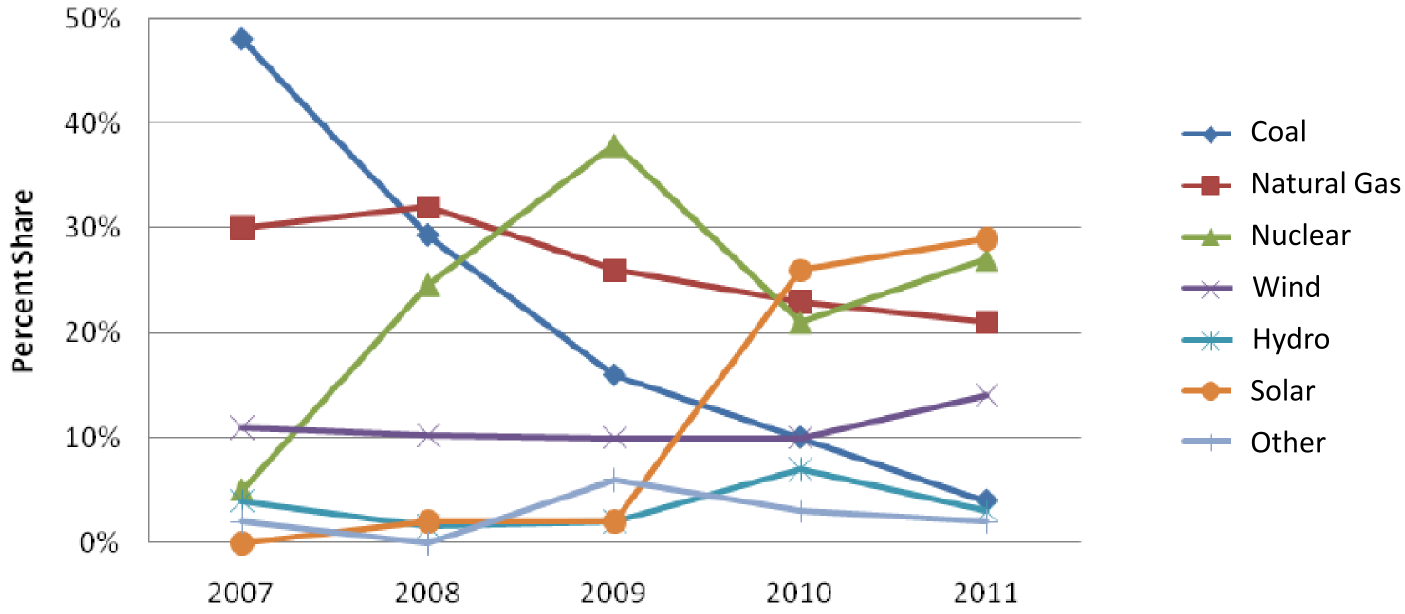
## Contracted Projects

| | | | |
|---|---|---|---|
| **SW Utility Solar Farms** | 22 MW, PPA | **COD 2011-2012** | Two projects, construction under way. |
| **Ontario Solar Farms** | 180 MW, FiT | **COD 2012-2014** | 19 projects spread across southeastern Ontario. |
| **SCE Solar Farms** | 80 MW, PPA | **COD 2012-2013** | 5 PPAs in total; projects spread across central/southern CA. |
| **SMUD Solar Farms** | 88 MW, PPA | **COD 2011-2012** | Multiple projects in Sacramento, CA area. |
| **PJM Rooftop** | 6 MW, Wholesale | **COD 2011** | Rooftop solar project in PJM service territory. |
| **CA Utility** | 26 MW, PPA | **COD 2012** | Ground-mount Solar in California |

**~450 MW Contracted, Operating, or in Construction**

# UNHARMONIZED POLICY – SOMETIMES IT WORKS

**US Pending Power Plant Permit Applications (MW)**
**2007-2011**




Source: APPA Report on New Generating Capacity, 2011 Update

Solar has the **highest volume in pending power plant applications** by volume.

# US SOLAR INDUSTRY PIPELINE – GROWING RISK

**By volume, utility solar is now…**

**#1** in pending applications for permit.

| Pending Application by: Fuel Type | Capacity (MW) | % Total |
|---|---|---|
| Solar | 29,936.65 | 27.5% |
| Nuclear | 28,800.00 | 26.5% |
| Natural Gas | 22,470.20 | 20.7% |
| Wind | 15,328.75 | 14.1% |
| Coal | 4,445.00 | 4.1% |
| Water | 3,184.55 | 2.9% |
| Petroleum Coke | 2,600.00 | 2.4% |
| Wood | 817.90 | 0.8% |
| Geothermal | 621.00 | 0.6% |
| Waste | 226.30 | 0.2% |
| Waste Heat | 135.00 | 0.1% |
| Other | 90.00 | 0.1% |
| Landfill Gas | 46.84 | 0.0% |
| Biomass Solid | 26.50 | 0.0% |
| Distillate Fuel Oil | 15.00 | 0.0% |
| Biomass Gas | 5.93 | 0.0% |
| **Total** | **108,748.52** | **100.0%** |

**#4** in permitted plants awaiting construction…

| Permitted Plants by: Fuel Type | Capacity (MW) | % Total |
|---|---|---|
| Natural Gas | 18,760.60 | 37.8% |
| Wind | 12,416.14 | 25.0% |
| Coal | 6,786.40 | 13.7% |
| Solar | 5,210.76 | 10.5% |
| Other | 2,700.00 | 5.4% |
| Petroleum Coke | 1,320.00 | 2.7% |
| Nuclear | 1,213.00 | 2.4% |
| Wood | 484.37 | 1.0% |
| Water | 430.53 | 0.9% |
| Geothermal | 197.50 | 0.4% |
| Landfill Gas | 49.65 | 0.1% |
| Biomass Solid | 21.00 | 0.0% |
| **Total** | **49,589.94** | **100.0%** |

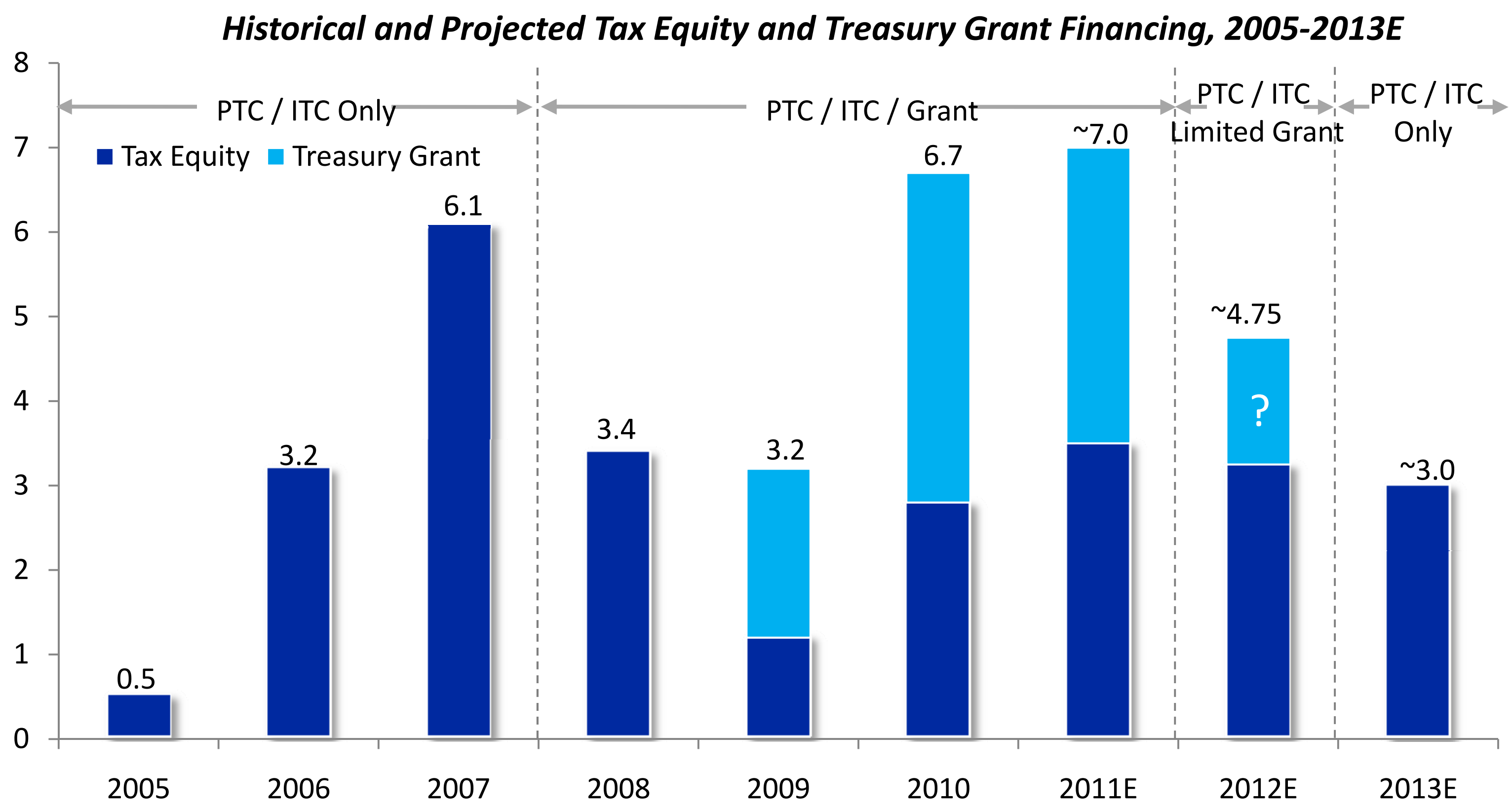
**#5** in plants under construction…

| Plants under construction by: Fuel Type | Capacity (MW) | % Total |
|---|---|---|
| Natural Gas | 14,816.90 | 41.0% |
| Coal | 7,628.50 | 21.1% |
| Wind | 6,583.66 | 18.2% |
| Nuclear | 3,503.90 | 9.7% |
| Solar | 1,567.15 | 4.3% |
| Water | 480.10 | 1.3% |
| Wood | 366.85 | 1.0% |
| Petroleum Coke | 310.00 | 0.9% |
| Waste | 285.40 | 0.8% |
| Geothermal | 280.04 | 0.8% |
| Landfill Gas | 122.10 | 0.3% |
| Biomass Solid | 70.20 | 0.2% |
| Waste Heat | 64.00 | 0.2% |
| Other Gas | 21.80 | 0.1% |
| Other | 20.00 | 0.1% |
| Biomass Gas | 4.43 | 0.0% |
| Distillate Fuel Oil | 2.00 | 0.0% |
| Agricultural Byproduct | 0.75 | 0.0% |
| **Total** | **36,127.77** | **100.0%** |

Source: APPA Report on New Generating Capacity, 2011 Update

The **solar industry pipeline is massively exposed** to permitting and finance risk.

# EXPIRATION OF 1603 GRANTS = BIG FINANCE RISK




Sources: ACORE, U.S. Department of The Treasury, PREF Estimates, Leading Tax Equity Market Participants

There is **nowhere near the amount of tax equity needed** to maintain solar's momentum.

# ANSWERS TO THE 1603 GRANT EXPIRATION?

- Refundable Investment Tax Credit (ITC)
  - A simple solution is just to make the existing ITC refundable
  - Developer just files a return and bypasses complicated tax equity financing
  - Fiscally neutral, legislative fix would instantly create sufficient access to capital to build out the industry pipeline

- Open Master Limited Partnerships (MLP) to Solar
  - MLPs are multi-investor funds that allow individual investors to participate in investments that have tax benefits
  - MLPs are used heavily in real estate and oil & gas projects, but prohibited for solar projects
  - Opening MLPs to solar would enable the industry to tap the interest of millions of individual investors and corporations that are currently excluded from participation

# SOLAR + NATURAL GAS
# BEST FRENEMIES?

- Natural gas is an ideal companion to balance intermittent renewables
- Lacking a clear national energy roadmap, regulators and utilities are tempted to binge on cheap shale gas
- Danger of short term thinking creates future dependency risk while doing nothing about carbon

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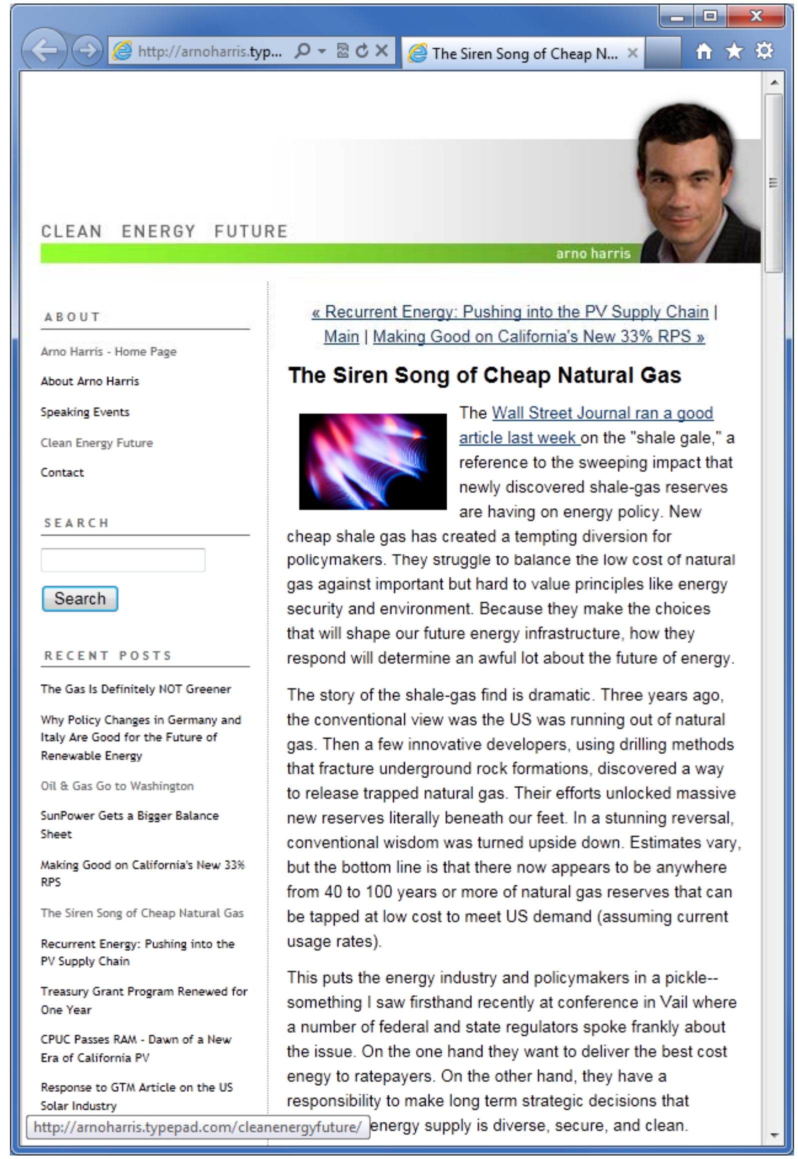
- **Need policy guidance to build a grid that is robust, diverse, clean, and affordable for generations to come**



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**The Siren Song of Cheap Natural Gas**

The Wall Street Journal ran a good article last week on the "shale gale," a reference to the sweeping impact that newly discovered shale-gas reserves are having on energy policy. New cheap shale gas has created a tempting diversion for policymakers. They struggle to balance the low cost of natural gas against important but hard to value principles like energy security and environment. Because they make the choices that will shape our future energy infrastructure, how they respond will determine an awful lot about the future of energy.

The story of the shale-gas find is dramatic. Three years ago, the conventional view was the US was running out of natural gas. Then a few innovative developers, using drilling methods that fracture underground rock formations, discovered a way to release trapped natural gas. Their efforts unlocked massive new reserves literally beneath our feet. In a stunning reversal, conventional wisdom was turned upside down. Estimates vary, but the bottom line is that there now appears to be anywhere from 40 to 100 years or more of natural gas reserves that can be tapped at low cost to meet US demand (assuming current usage rates).

This puts the energy industry and policymakers in a pickle--something I saw firsthand recently at conference in Vail where a number of federal and state regulators spoke frankly about the issue. On the one hand they want to deliver the best cost enegy to ratepayers. On the other hand, they have a responsibility to make long term strategic decisions that

http://arnoharris.typepad.com/cleanenergyfuture/ energy supply is diverse, secure, and clean.

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