

Training Module: Energy Improvement Loans



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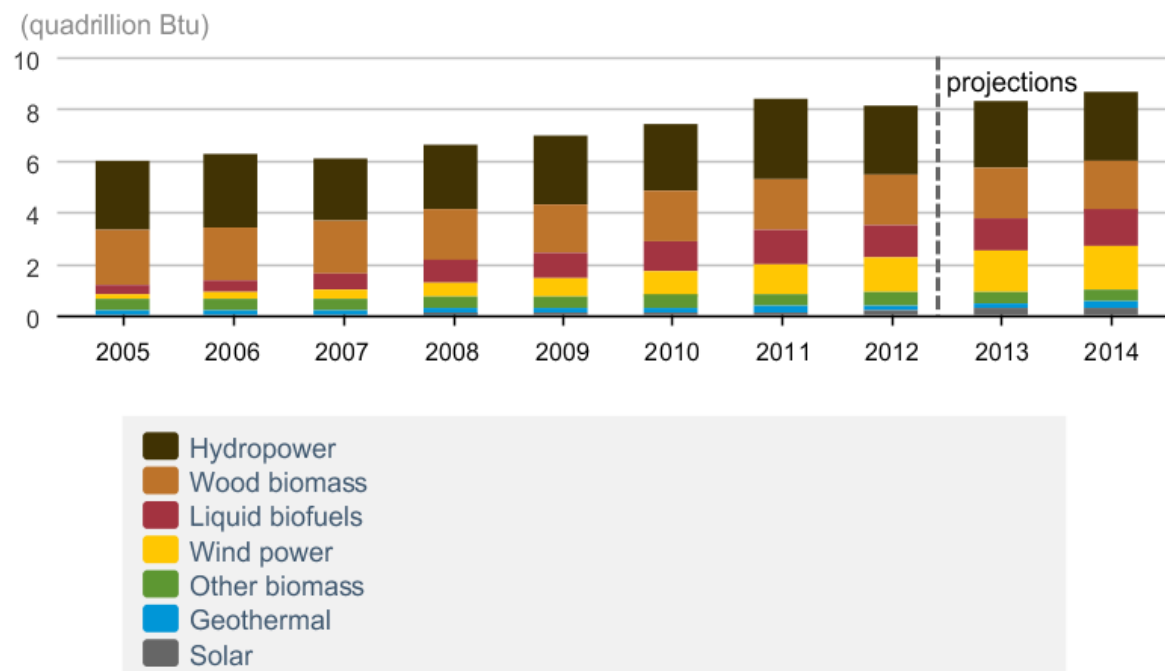
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What are Energy Improvement Loans?

Providing financing for small businesses focused on:

- Energy efficiency
- Renewable energy
- Emerging “green” businesses

U.S. Renewable Energy Supply



Source: February 2013 , Short-Term Energy Outlook , EIA
http://www.eia.gov/forecasts/steo/report/renew_co2.cfm



Reasons for Selection

1. **Community Quality of Life** – providing cheaper/more consistent electricity to low-income/underserved communities
2. **Renewable Energy Portfolio Targets** – helping local and state governments meet their RE targets
3. **Job Creation Potential** – benefiting local and regional economies, developing the “energy ecosystem”
4. **Triple Bottom Line Impact** – benefiting the environment, society, and economy



Major Trends in Energy

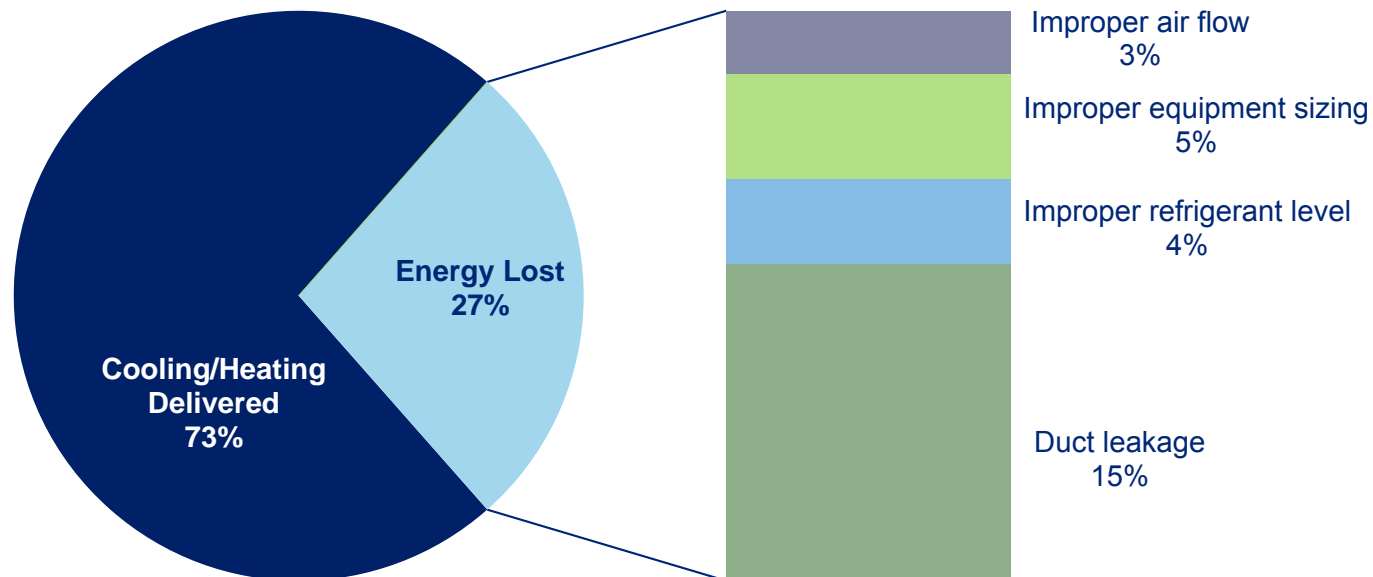
1. **Efficiency investments are generating high ROI**
2. **New regulation is increasing small business opportunities**
3. **There is a dramatic shift toward renewable energy sources**



Trend #1 – Efficiency Investments Generate High ROI

- By increasing energy efficiency through installation and conservation initiatives, small businesses can save costs and increase their bottom line profit
- These efficiency investments produce ROI, create jobs, and add value to community
- Utilities and States currently offer a variety of incentives tailored to their needs and targets which can be used to assist with financing these efforts

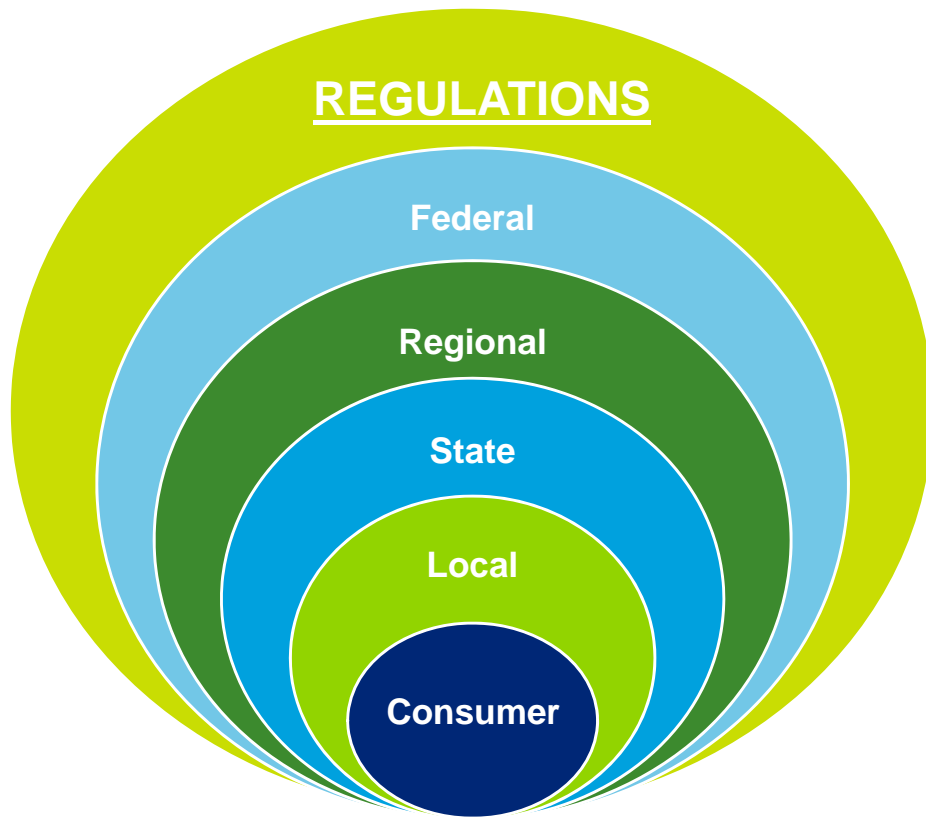
Typical Air Conditioner or Heat Pump Installation



Source: Energy Star



Trend #2 – Increased Regulation is Increasing Small Business Opportunities



**Regulations are
increasing at all levels!**

- Regulation for electricity is primarily driven by the States, not the federal government
- Tax credits and government grants are available to stimulate investments in energy efficiency and renewable energy including:
 - Weatherization and assisted housing programs
 - Energy efficiency and conservation block grant programs
 - Energy manufacturing tax credits
 - Updated tax credits for renewables
 - Loan guarantees for renewables and biofuels
 - Smart grid expenditures
- Move to a more market and consumer-driven energy market



Funding Sources

DSIRE Walk Through

www.dsireusa.org

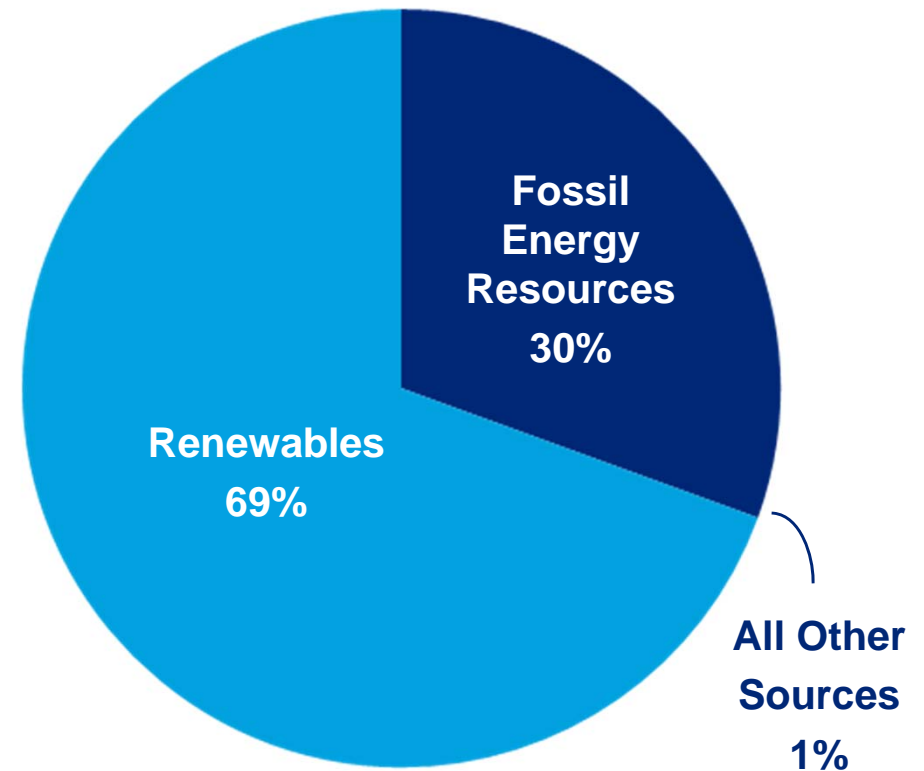
See training binder for additional information.



Trend #3 – There is a Clear Shift Toward Renewable Energy Sources

- Over the last decade, States have implemented Renewable Portfolio Standards, aiming to increase renewable energy generation
 - Renewables represented 33.7% of the net increase in electric generation over the last 10 years
- Increased focus on being “green”
 - Consumer-side push to be green via residential renewables and energy efficiency in homes and vehicles
 - Growing expectation of businesses to be green – there is clear marketing as well as economic benefit

Projected New Electricity
Generation by Source
2012-2016



Source: EIA



CDFI Roles

As a Lender:

- Lend to consumers (directly or through utilities) looking to reduce energy costs or “go green”
- Lend to small businesses looking to reduce energy costs
- Lend to more established businesses looking to “go green”

As an Investor:

- Invest in renewable energy generation to both generate revenues and provide electricity to low-income residents



CDFI Roles

As a Partner:

- Information sharing with utilities to better evaluate risk of customers
- Negotiate/collaborate energy rebate programs

As a Service Provider:

- Provide energy support services, such as analyzing utility bills, identifying no-cost/low-cost saving opportunities, implementing operating and maintenance practices and identifying upgrades



What opportunities do you see in energy?

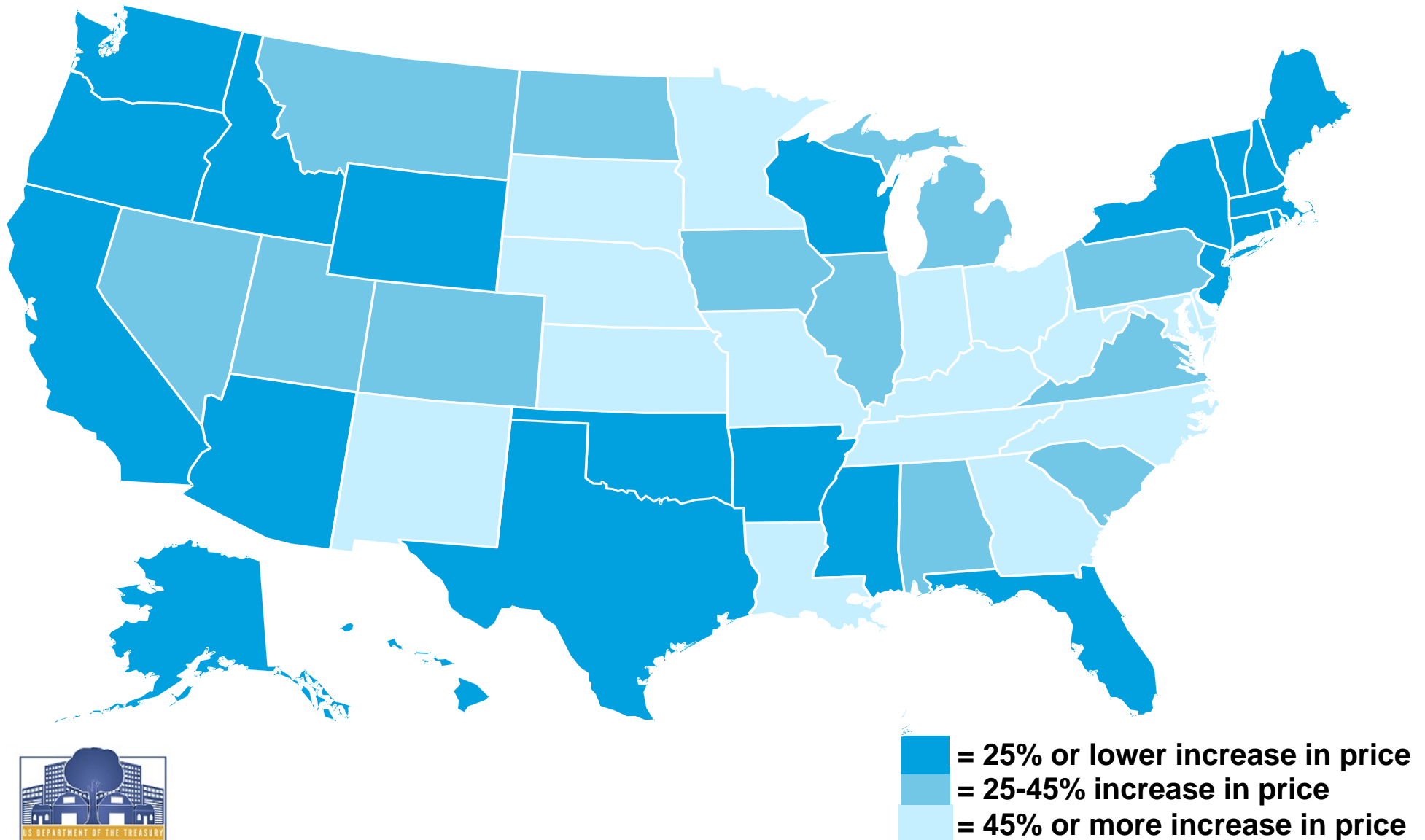
What are the barriers?



Innovation Example #1: Energy Efficiency Retrofits

As the demand for heating and cooling sources continue to increase, utilities are seeking ways to increase the efficiency of their customers use of existing energy consumption.

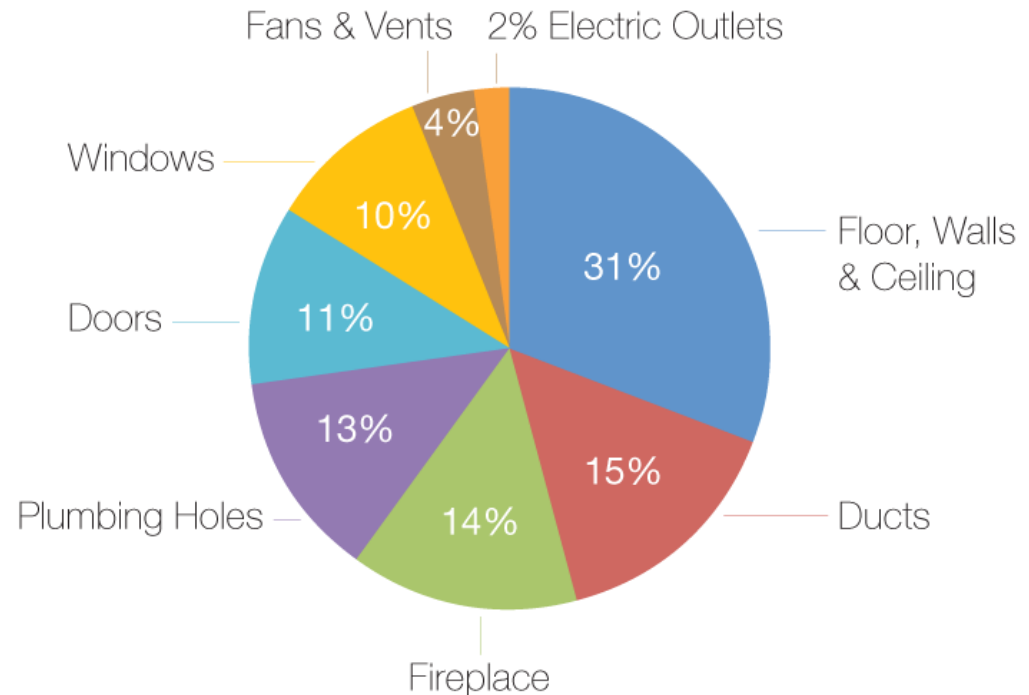
Electricity cost increases by 2020 across the U.S.



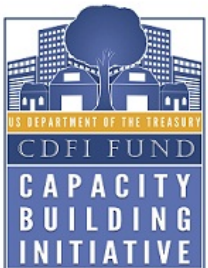
What are Energy Efficiency Retrofits?

- **Financing energy efficiency renovations** offer consumers ways to reduce their monthly costs, improve the value of their home, and “go green”
- **Reducing overall energy consumption** is valuable to utilities, particularly in areas pushing demand response initiatives or are constrained in building new generation

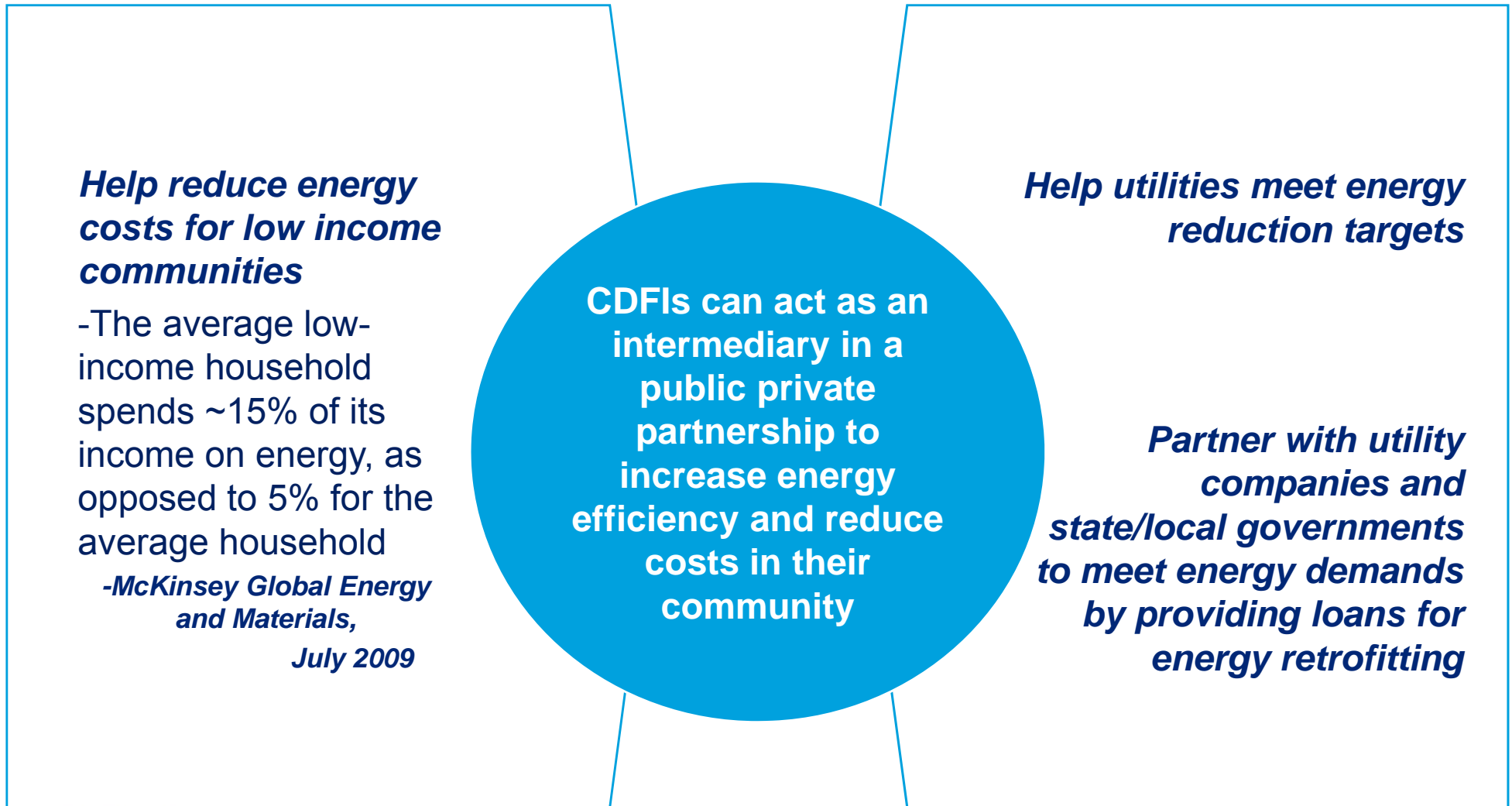
Where do homes leak?



Source: U.S. Department of Energy, *ENERGY SAVERS, Tips on saving Energy & Money at Home*



Energy Retrofitting Loans: Where do CDFIs Fit?



Risks and Challenges in Energy

1. **Partnerships with Utilities** – CDFIs need to partner with local utilities to gain information about their customer base, their needs, and their incentive programs.
2. **Complex Regulatory Environment** – CDFIs must also partner with the regulators to ensure guidelines are met. Energy loans will be subject to local, state and federal regulations and opportunities will vary regionally.
3. **Staffing** – CDFIs need to establish and retain qualified contractors for installations and retrofits.
4. **Specialized Knowledge for Underwriting** – CDFIs need a working knowledge of renewable and energy efficiency policies and procedures which will be required to underwrite the deals.
 1. Many of these programs experience minimal cash flow in early stages.
 2. Another consideration may be the potential reputational or credit implications of related to lending.



Strategies to Overcome the Challenges in Energy

1. Partnerships with Utilities	<ul style="list-style-type: none">• Coordinate with local utility service providers to understand their marketplace and the regional regulation that impacts their business
2. Regulatory Coordination	<ul style="list-style-type: none">• Reach out to State regulators and local utilities to understand their needs
3. Staffing	<ul style="list-style-type: none">• Coordinate with local contractors who are currently working in this space to determine staffing requirements and local subcontractor rates
4. Institutional Knowledge	<ul style="list-style-type: none">• CDFIs will need employees that have or can attain the institutional knowledge needed to underwrite energy related deals



What are the Capacity Needs for this Innovation?

- Partnership with the local utility(s) for sharing customer payment information (risk assessment) and on-billing with utility bills
- Qualified energy auditors and contractors capable of renovating/weatherizing the homes (can be the same company, or separate)
- Relationship with city and state regulators to ensure all regulatory needs are met, or to facilitate regulation to assist with program.
- Dedicated staff willing to learn more about energy efficiency and technologies



Innovation #2: Converting Energy Sources

As the US moves towards increasing energy efficiency as well as clean energy, various regions of the US are increasingly diversifying their energy sources to meet market demands.

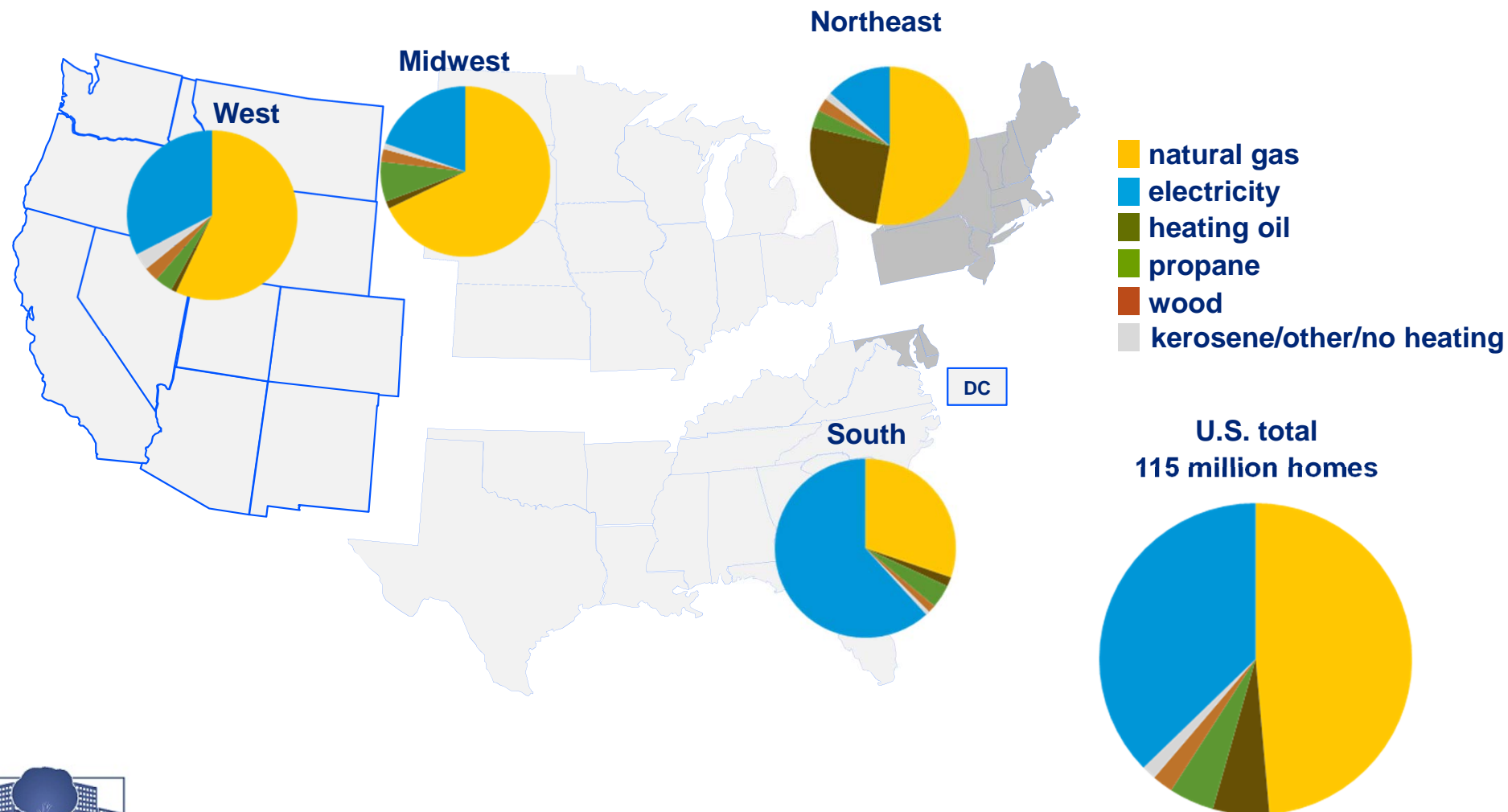
What Does it Mean to Convert an Energy Source?

- Converting energy offers consumers new ways to power and heat their homes, such as solar, wind, and geothermal
- Older buildings may use expensive or environmentally unfriendly fuels, such as kerosene and heating oil
- Conversion provides a chance to switch to green, and potentially cheaper fuels

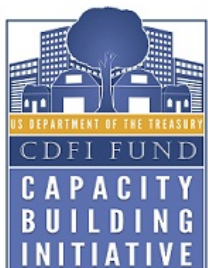


Heating Sources and Alternatives Vary by Region

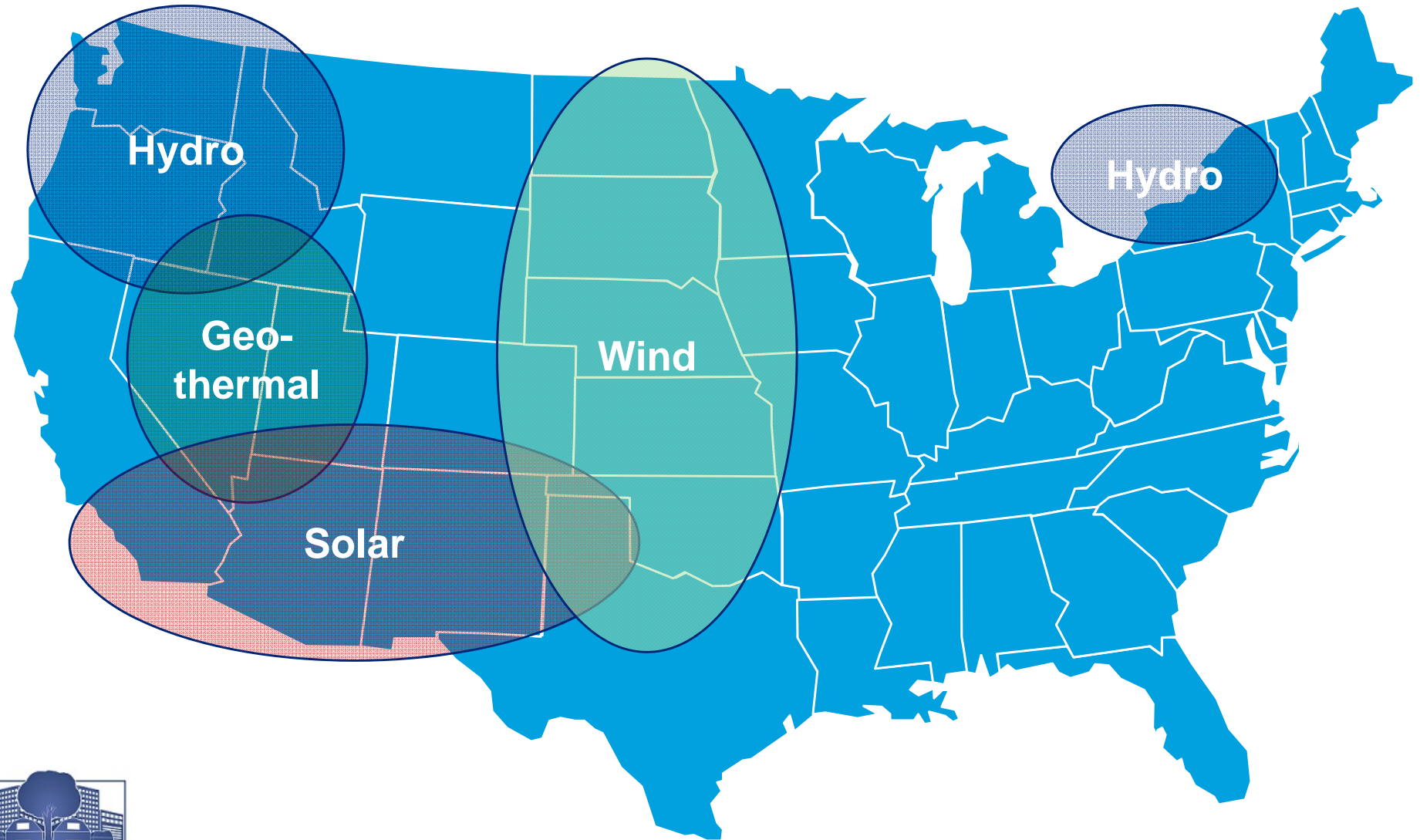
Number of homes by primary space heating fuel and Census Region, winter 2012-13



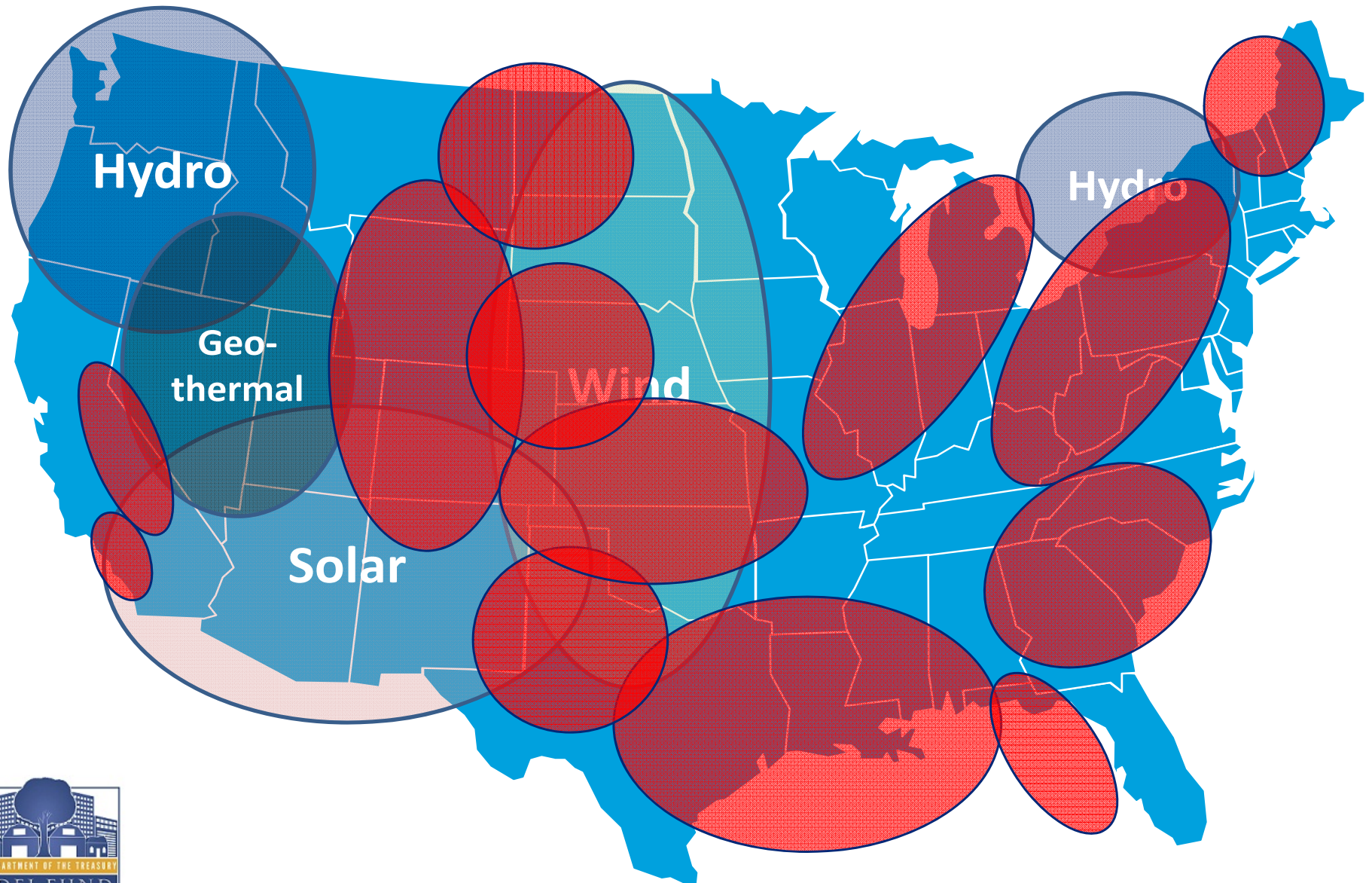
Source: EIA Short-Term Energy Outlook, October 2012



Alternative Energy Opportunities in the US



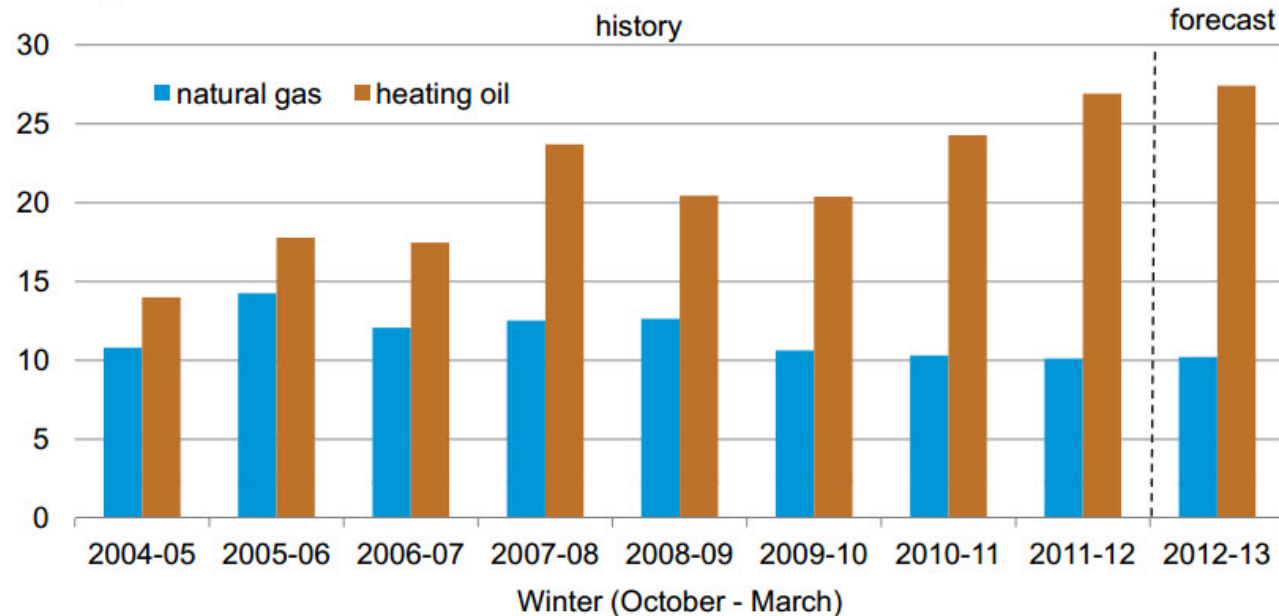
Even More Alternative Energy Opportunities in the US



Natural Gas Is Suddenly Significantly Cheaper Than Oil

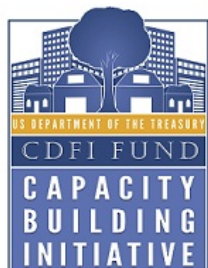
- The price of heating oil and propane are correlated to crude oil
- In 2011-2012, an average 30-60year old, 2,000sqft home with low air leakage would have spend an additional \$1,023 using heating oil instead of natural gas

U.S. average residential winter heating fuel prices
dollars per million Btu

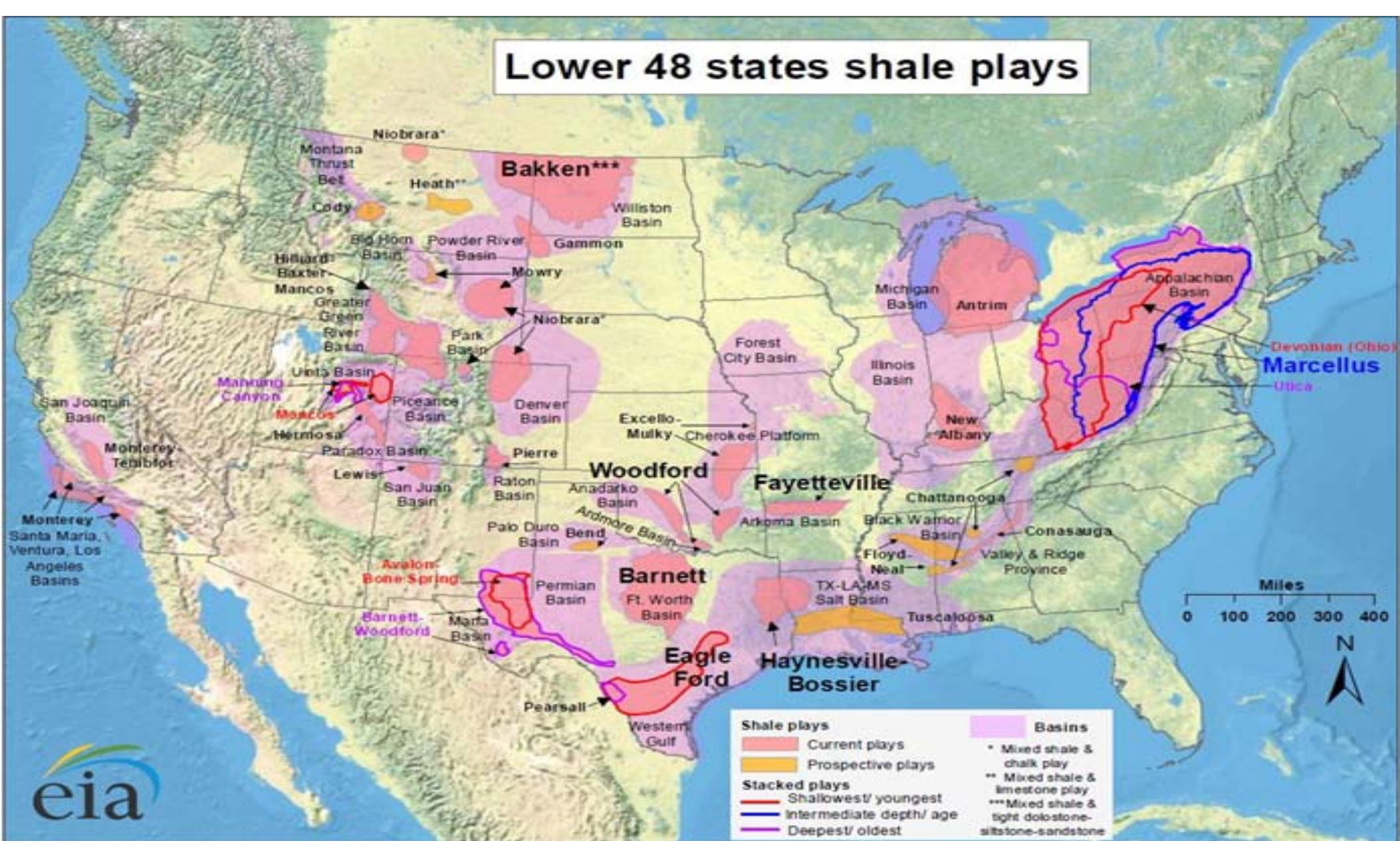


Source: EIA Short-Term Energy Outlook, October 2012

Source: EIA

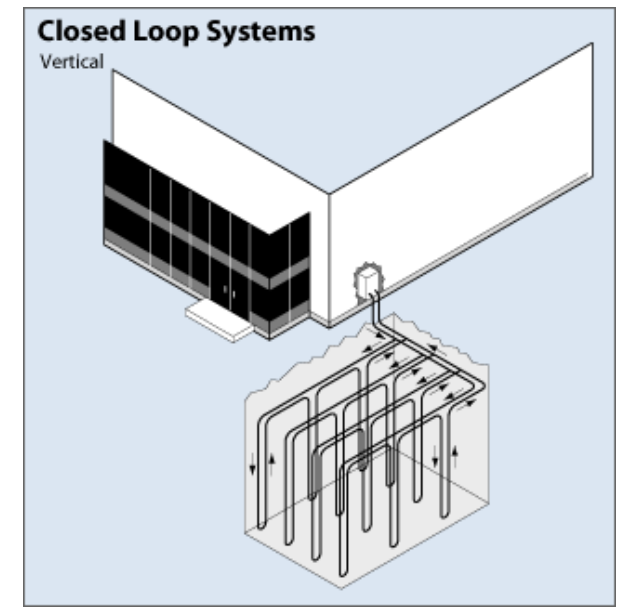
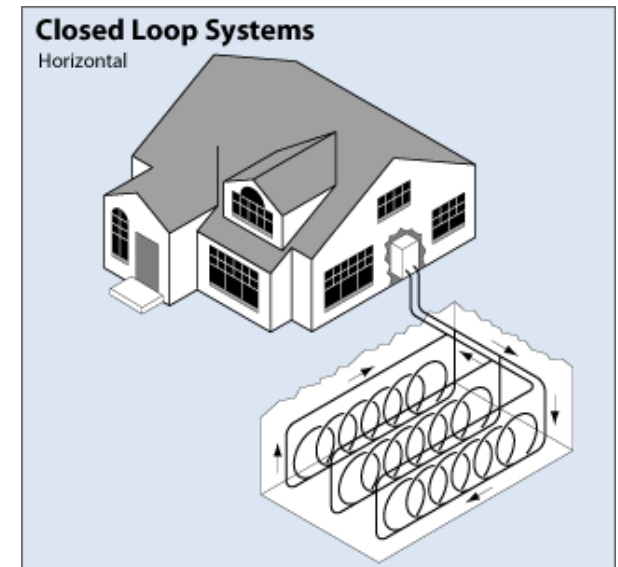


Lower 48 states shale plays



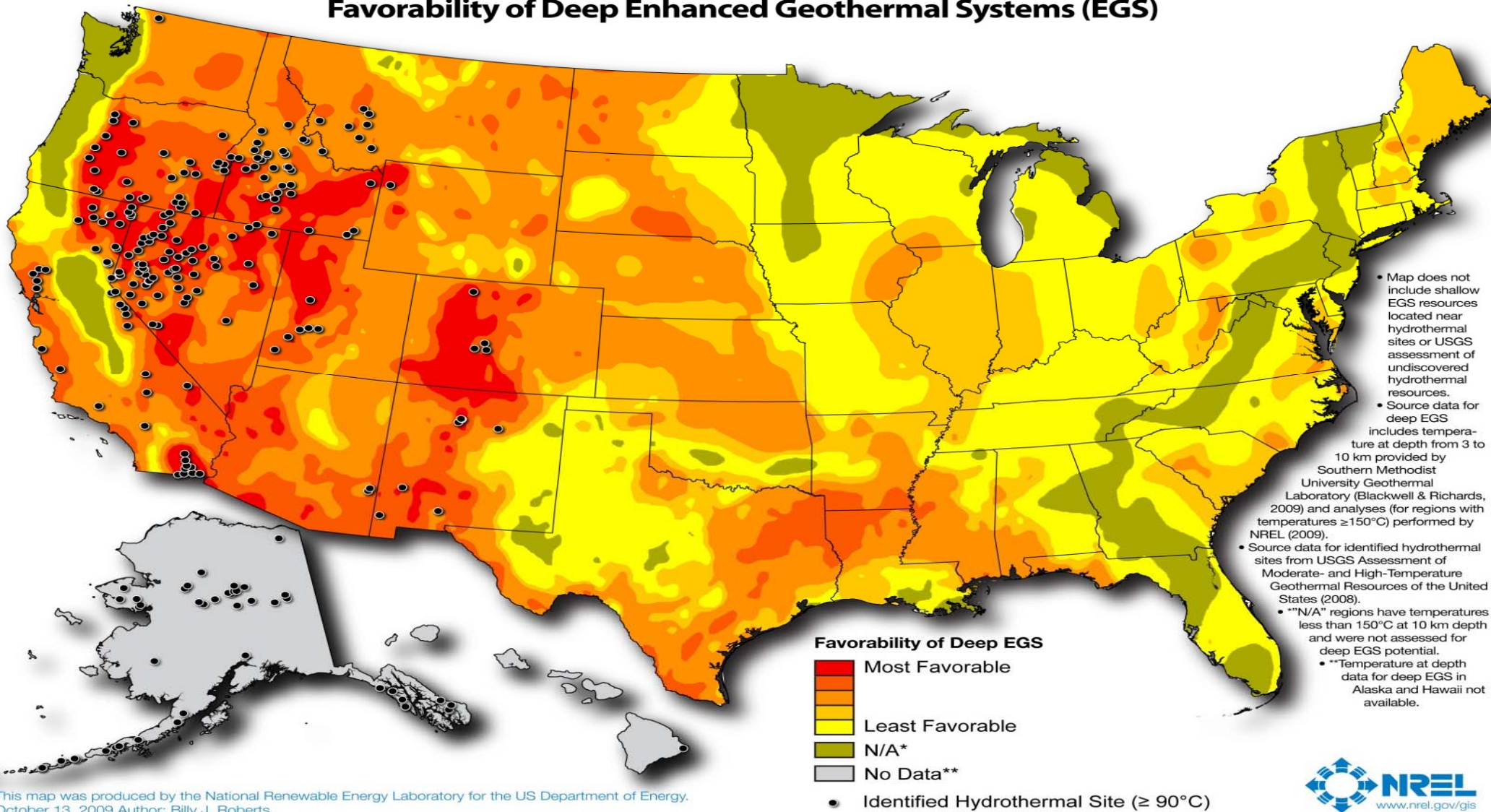
Supplementing Traditional HVAC with Geothermal

- **Geothermal heat pumps are the most energy efficient, environmentally clean, and cost effective systems for temperature control**
- **This technology is completely scalable, from residential to commercial**
 - Depending on the available space and usage preference, heat exchange coils can be built vertically or horizontally
 - Horizontal loops can be strategically placed under parking lots or driveways



Geothermal Resource of the United States

Locations of Identified Hydrothermal Sites and Favorability of Deep Enhanced Geothermal Systems (EGS)



Home Solar Use is on the Rise

Short clip: <http://energy.gov/articles/energy-101-solar-photovoltaics>

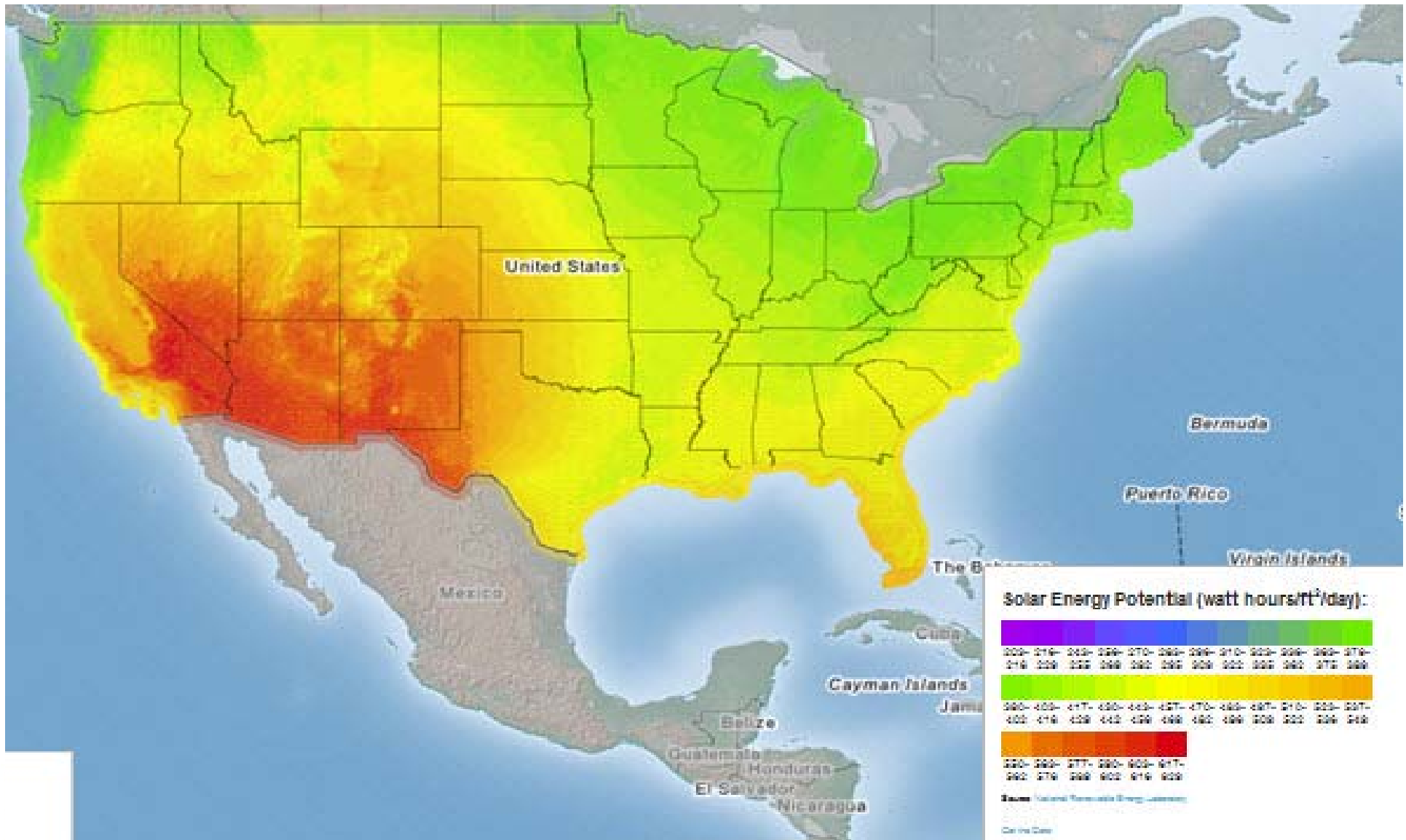
- Average American household uses about 10,000 kWh a year
- There was 98 MW of residential installations in the Q2 2012, up 42% over Q2 2011 installations
- A typical fixed-mount PV system would produce about 80% of its maximum output
- An ideal 1-kW rooftop PV system produces approximately 2,424 kWh of electricity annually (Southern Inland Los Angeles example)
- The formula below uses the example above and a 16 cents per kWh utility rate to estimate what your average monthly savings might be

$$\mathbf{2,424\ kWh \times 12\ \text{¢/kWh} = \$292/\text{year, or about } \$24/\text{month on average}}$$

Source: EIA and the California Energy Commission

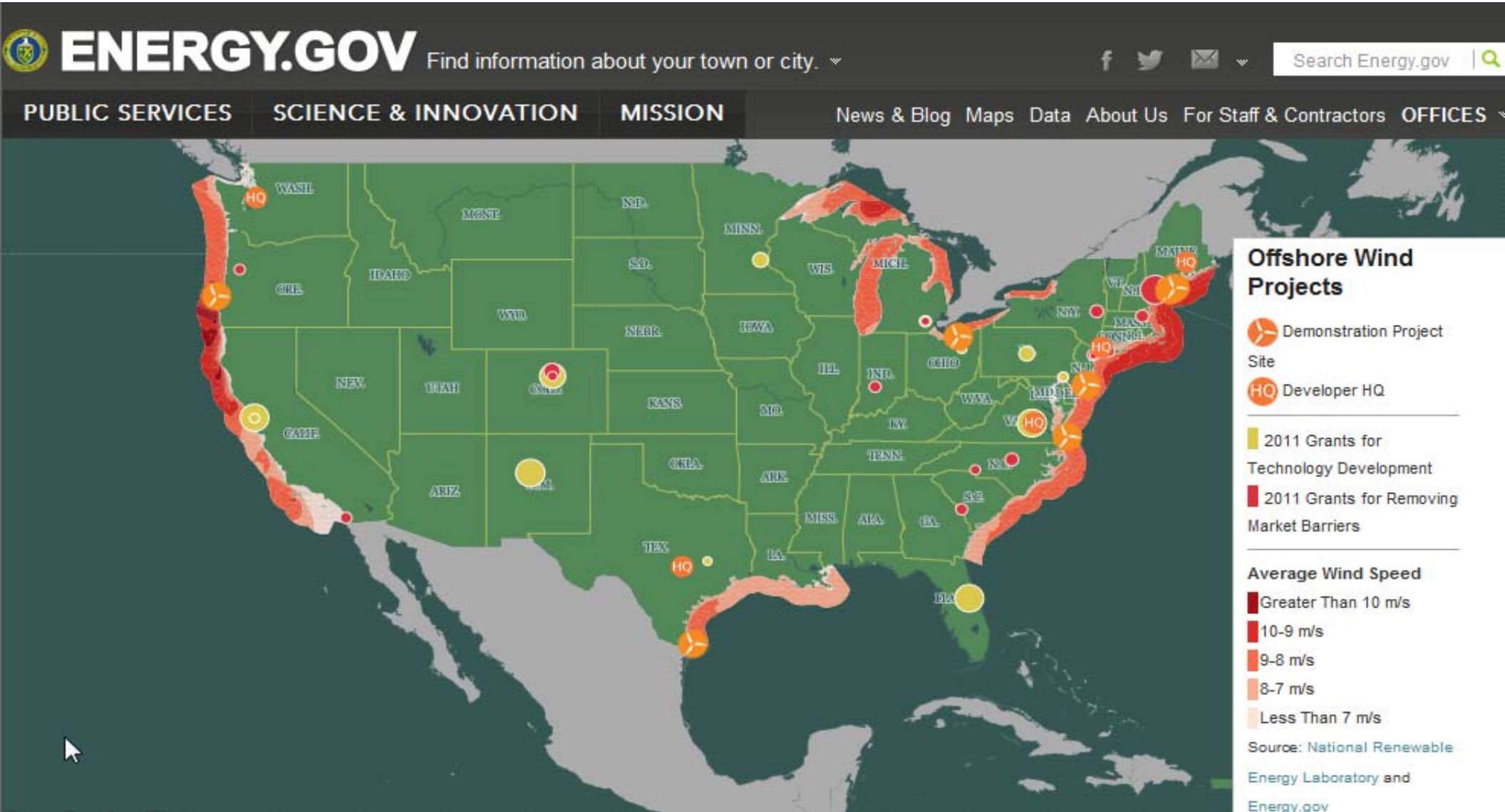


Solar Potential – Rising Across the U.S.

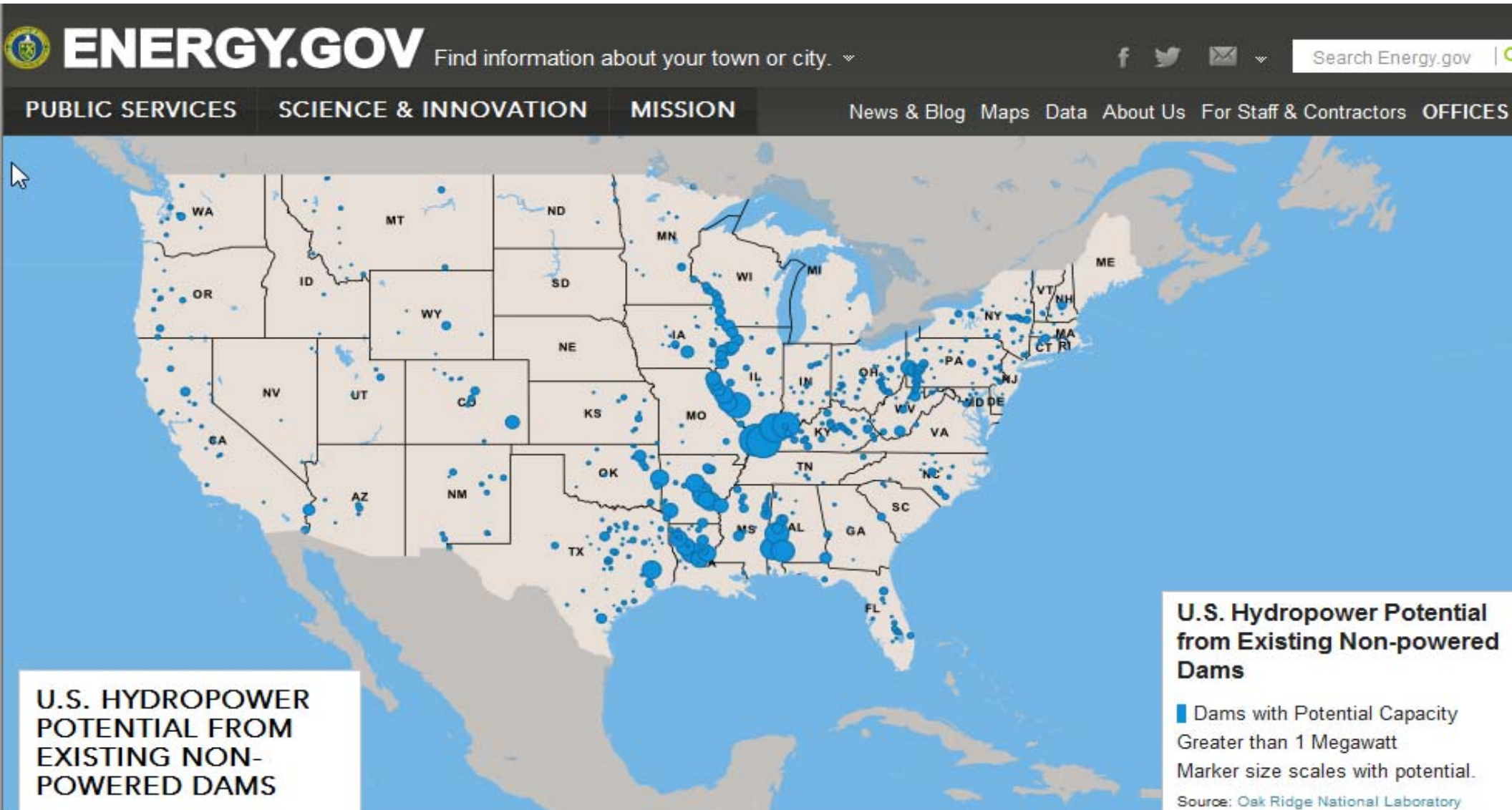


Source: Energy.gov

U.S. Offshore Wind and Existing Projects



U.S. Hydropower Potential



Breakout – Solar Solutions!

Solar Solutions! Is a small business that leases solar panels to consumers and is seeking funding to expand its financing pool and business.

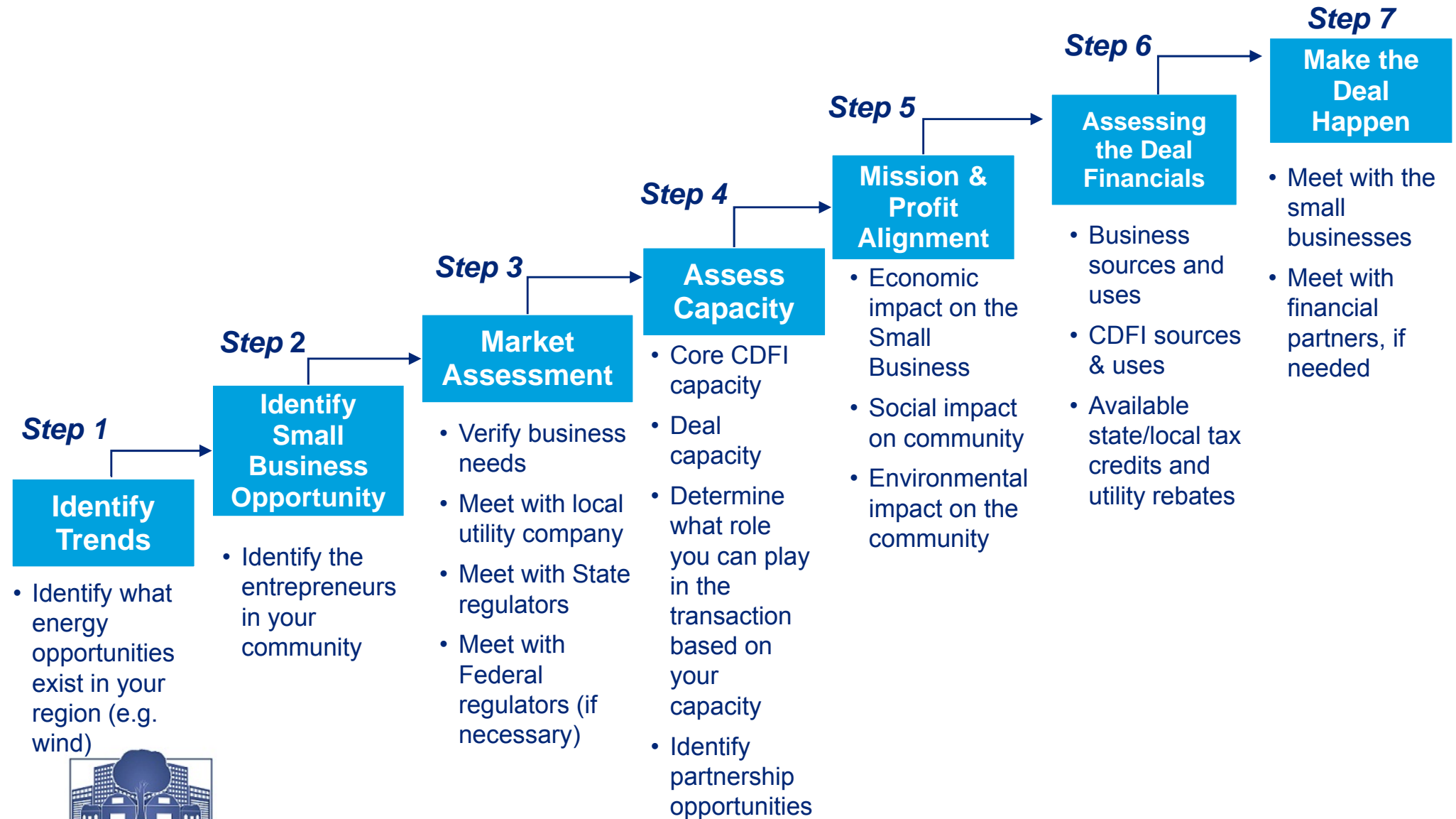
What benefits, costs, and risks should you consider before financing this opportunity? What should you research (and where would you start looking) in order to fully analyze this opportunity?

Here are the technical highlights of Solar Solutions! business plan:

1. Solar Solutions! is a full-service solar solution: they install, monitor, and repair the solar panels; they procure all necessary permits on behalf of the consumer and coordinate with the local utility
2. They file all necessary paperwork for all incentives & tax rebates on behalf of the consumer, and incorporate into the leasing plan
3. The consumer does not own the equipment, Solar Solutions! does. The lease is transferrable if the consumer leaves. The equipment is automatically insured, and this cost is factored into the leasing plan
4. The consumer still pays his/her electric bill



Action Plan



What other innovations are out there?

What is your CDFI doing?

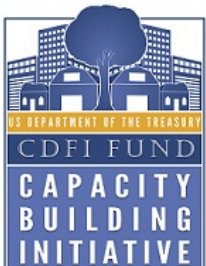


**For sources and further information,
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Resource Bank**

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