



Executive Summary

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TABLE OF CONTENTS

- INTRODUCTION1
- THE RE-AMP VISION & BACKGROUND2
 - Leading with Energy Efficiency4
 - Reducing Demand for New Dirty Energy5
 - Increasing Carbon-Neutral Energy Supply and Demand6
 - Retiring or Modernizing Dirty Energy Facilities8
- Implementation Phase9
- A Learning Community9

INTRODUCTION

In the 2nd century, the great philosopher and mathematician Archimedes declared, “Give me a place to stand and with a lever I will move the whole world.” The challenge now facing the 21st century is to move the whole world towards a clean, sustainable system of generating and consuming energy. Nothing less than a radical shift at a global level will avert the dire consequences of global warming. We need new and powerful levers as well as supportive places to stand in order to elevate that vision to reality.

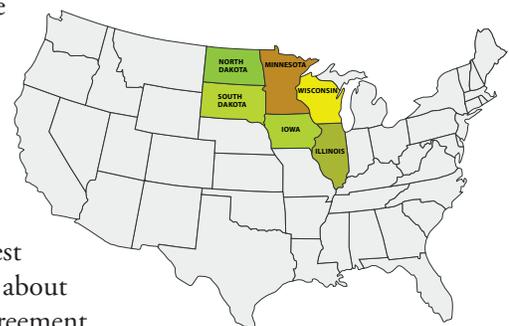
RE-AMP, an engaged learning community of foundations and non-governmental organizations, has taken important steps towards building an innovative lever—a multi-stakeholder, holistic, strategy development process. It has also found a powerful place to stand in the heartland of the United States, that is, the upper Midwest states of Illinois, Minnesota, Wisconsin, Iowa as well as North and South Dakota. RE-AMP’s goal is for the upper Midwest to end its overdependence on coal for electric generation, and create a clean*, efficient, secure electricity system for the 21st century.

RE-AMP’s strategy development process was launched on the basis of two provocative hypotheses. The first was that alignment between and among NGOs and foundations is both achievable and necessary in order for significant change to take place. The second was that problems of significant scale and complexity are best approached through systems thinking—a formal discipline of mapping the forces that animate large-scale systems in order to generate insights for change.

While respecting the strategic, decision-making, and grant-making autonomy of the participating organizations, RE-AMP succeeded in engaging a group of diverse stakeholders in a structured systems-thinking exercise. Together they developed a common understanding of the large driving forces in the Midwest energy system and distilled that understanding into key insights about how to leverage change. They have progressed to the point of agreement on common goals and shared strategies for reaching those goals and are about to begin the implementation phase of the project.

What makes the upper Midwest such a good place to demonstrate the practicality of a large-scale shift to clean energy? The first reason is feasibility. The area has abundant resources of wind and biomass. Much of the technology enabling the cost-effective use of these resources have also originated in the region. The second reason is timing. There are

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* Clean energy is electricity generated without contributing to global warming or otherwise threatening human health and safety.

The participants not only identified a mutual long-term goal, but also developed a common understanding of the system they must influence.

currently proposals to construct dozens of new coal-fired generation plants in the area, each of which represents a powerful opportunity to educate the public and decisionmakers about the feasibility and practicality of clean energy generation and how to reduce demand for dirty energy. The third reason is political. Unlike the Northeast and West Coast states, the Midwest has historically been unfriendly to legislative initiatives on issues like global warming. However, Midwesterners are increasingly concerned about their region's heavy dependence on dirty coal, nervous about the safety and security of nuclear, and believe that innovative new technologies can produce clean, efficient energy while creating good jobs and increasing regional energy independence and security. If RE-AMP can influence the energy politics of the Midwest, it could be the tipping point for more progressive U.S. and international policy on the issue.

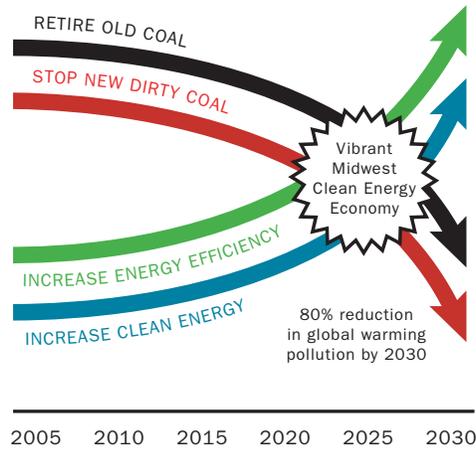
As an active learning community of some of the region's most established foundations and most capable advocacy groups, RE-AMP has already committed substantial time and resources to building a user-friendly lever for change in the Midwest. However, more human and financial resources will be required to make the region a clean energy leader. We welcome other foundations and organizations to contact us to learn more and perhaps become involved in this innovative work. For more information, please contact the RE-AMP Steering Committee, c/o Rick Reed (beeline@mbay.net).

THE RE-AMP VISION & BACKGROUND

The RE-AMP process began in 2003, when the Garfield Foundation invited thirteen non-governmental organizations and seven funders working on energy issues in the upper Midwest to examine long-term goals (i.e. what needs to be accomplished over the next 25 years) and the factors that will determine whether those goals are achieved. Through a professionally-led process, participants analyzed and mapped the region's energy system, detailed the conditions and forces that encourage or discourage the development of clean energy, identified key interrelationships and potential intervention points, and evaluated the effectiveness of current clean energy advocacy in the region.

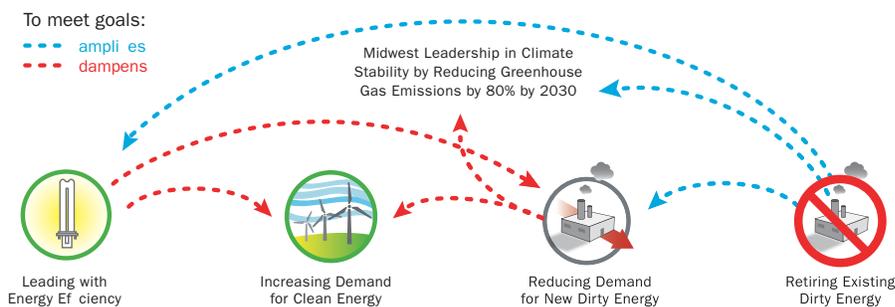
The participants not only identified a mutual long-term goal, but also developed a common understanding of the system they must influence to achieve that goal (including identifying the four major "drivers" controlling the system and agreeing on key action points). This mutual understanding of the destination and the landscape ahead allows the creation of aligned strategies and metrics for tracking progress. Participants are now ready to implement mutually supporting strategies that take advantage of the best available opportunities to move the system toward positive change. RE-AMP identified four drivers that will determine the degree to which the regional energy sector shifts to clean energy. They are:

1. Benefits in retiring existing coal generation.
2. Demand for new pulverized coal generation facilities.
3. Market demand for clean energy.
4. Achievable levels of energy efficiency.



Beginning in January 2005, 30 carefully selected non-governmental organizations were organized into four planning teams and provided with funding to examine each of these drivers in detail. The organizations bring wide-ranging expertise. Their work underscores the interdependence of these drivers and makes it clear that the ultimate goal, shifting the ways electricity in the region is produced and consumed, cannot be reached without an integrated strategy that simultaneously addresses all four drivers. Simply increasing demand for clean energy over time, for example, cannot succeed if new pulverized coal facilities are approved and consequently lock in dependence on dirty energy sources for decades to come.

Each team has produced a strategic plan for its focus area, including broad 25-year goals, detailed intermediate goals, and comprehensive strategies for achieving those goals. The teams also had professional assistance in developing indicators that will allow the success of each strategy to be evaluated and tracked. These plans are summarized in the following sections (details are available on request).





Leading with Energy Efficiency

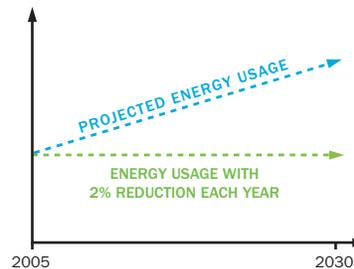
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Improving efficiency is by far the most cost-effective, technologically-ready, and productive way to re-tool the electrical system. Projected increases in Midwestern electrical demand of 1.8 to as much as 2% per year throughout the next 25 years are driving proposals to construct dozens of new coal-fired generation plants. This will increase the region's over-dependence on obsolete, polluting coal, and old 20th century technology. To reduce the need to construct these plants, the Energy Efficiency team proposes to increase efficiency in order to flatten the growth or slightly reduce consumption over time. Their goal is to achieve energy efficiency program savings equivalent to 2 to 2.5% of annual electricity use per year, thereby reducing net electricity consumption by 20% from current levels in Illinois, Wisconsin, Minnesota, and Iowa by 2030.

Reductions of this amount are certainly feasible. Japan, for example, is saving 4% of national electricity use annually through improvements in efficiency. Although the best programs in the Midwest are currently achieving only 1% reductions, RE-AMP's analysis shows that past and current energy efficiency efforts in these states vary considerably and that much more efficiency can be gained by installing existing improved technologies. More savings will come with innovation and new technology. There are also enormous energy efficiency opportunities in Michigan, Indiana and Ohio because historically they have had virtually no energy efficiency programs.

Approximately three-fourths of the needed energy efficiency will come through advanced utility sector (ratepayer funded and financed) energy efficiency programs. These broad programs reach out to energy users and help them make good decisions that result in lowered energy consumption. They provide information, financing and installation of energy efficient technologies. The team proposes to put a policy framework and climate of expectation in place that makes it possible for utilities to willingly finance and participate as appropriate in state energy efficiency programs.

The balance of the Energy Efficiency goal can be achieved through enacting new building energy efficiency codes and appliance standards, together with improvements in and greater adoption of combined heat and power projects/technology (where waste heat from electrical generation is used to warm homes, buildings, factories, etc.).



A 2% energy efficiency program savings each year translates into usage 50% below projected levels in 25 years.

Achieving energy efficiency sufficient to totally eliminate the need for any new coal-fired plants is already within the cost-effective limits of available technology. Strong leadership and political will is all that is needed to achieve, or even exceed, the goal of 2 to 2.5% reductions per year.

25-YEAR GOAL:

1. Reduce electrical electricity consumption demand by 2 to 2.5% per year for each of the next 25 years, to 20% from current levels in the states of Illinois, Wisconsin, Minnesota and Iowa.

5-YEAR GOALS:

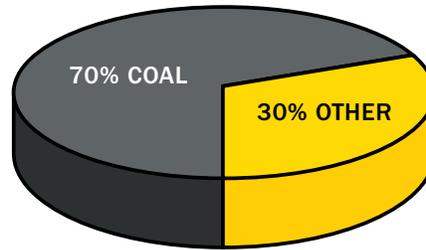
1. Create a shift to re-define energy efficiency as the crucial and most cost-effective first step toward achieving a 21st century clean energy system in the Midwest. This should be expressed to leaders, policy makers, regulators, and the general public.
2. Create conditions that benefit utilities participating in building efficiency by establishing effective ratepayer-funded energy efficiency programs in each target state. Create a regulatory and policy environment where utilities are willing participants and partners in energy efficiency; and ensure that significant ratepayer-funded programs are in place in each state to effectively implement energy efficiency measures.
3. Set the stage for stepped-up action (and achieve the remaining 25% of the 25-year goal) by enacting a comprehensive suite of energy efficiency policies, including building codes, appliance efficiency standards, financial incentives, and policies that support greater use of combined heat and power in each target state.

Blocking the construction of pulverized coal-fired plants must be a top priority if a significant shift to a clean energy system in the Midwest is to be achieved.



Reducing Demand for New Dirty Energy

While energy use increases in the Midwest, federal policy (and Midwestern utilities) are aggressively promoting new facilities that will create even greater dependence on outdated coal technology. Despite the region's over-dependence on coal (70% of the Midwest's electricity comes from coal-fired plants), 24 new pulverized coal plants are now proposed. If approved and built, these new coal plants would block the development of clean technologies and lock in a heavily polluting power system for the next 30 to 50 years. Operation of even a handful of new coal-fired plants could make it absolutely impossible to reduce regional CO₂ pollution to 50 million tons, the total aimed for by RE-AMP's 2030 timeline. Two of the proposed plants (Peabody's dual 750 MW Illinois plants) would by themselves generate nearly 35 million additional tons of heat-trapping CO₂ per year. Blocking the construction of pulverized coal-fired plants must be a top priority if a significant shift to a clean energy system in the Midwest is to be achieved.



70% of the Midwest's electricity comes from coal plants

The Reducing Demand for New Dirty Energy team proposes to launch an all out effort to make new coal-fired plants less attractive to utilities and investors by stimulating public opposition, initiating legal challenges, and building momentum behind a movement to shift at least some of the costs of coal-related pollution (especially the emission of global warming pollutants) onto utility shareholders. This effort is likely to gain significant public support in the Midwest. Midwesterners understand coal's negative impact on human health and the environment, and they are concerned about the region's over-dependence on coal. Any significant increase in active opposition to new plants or threat of future costs being shifted to shareholders would make old coal technologies less viable and increase support for clean energy sources.

25-YEAR GOAL:

1. Ensure that no new coal-fired plants are constructed in the Midwest unless they can effectively capture and store CO₂.

5-YEAR GOALS:

1. Use litigation, grassroots opposition and media work to block construction of any new pulverized coal plants.
2. Make investors nervous about supporting new pulverized coal plants by building a strong movement demanding that utilities pay at least a share of the cost of coal-related pollution and that all future carbon regulation costs be shifted away from ratepayers.
3. Counter investment in coal and provide economic incentives for a shift to clean energy by achieving approval and developing a substantial (\$5 billion) transmission and clean energy generation project.



Increasing Carbon-Neutral Energy Supply and Demand

Without reliable and competitively priced alternatives to coal, a significant shift to diversified energy sources won't happen. To meet the RE-AMP goals, fully 30% of the region's electrical power will have to come from clean sources by 2030. This means the Midwest will need about 58 times as much clean generation capacity as exists today.

A significant proportion of this power can be generated from existing wind resources. Wind is already cost-competitive with new coal electric generation, and wind generation of electricity is growing at 20% per year internationally. Importantly, the upper Midwest contains many of the best sites for wind power development in the United States. The best engineering analysis shows that, using current technology, 20% of the region's electrical demand could reliably be met with wind and adequate transmission facilities.

The economic benefits of large-scale development of the region's wind resources would also be significant. The Increase Carbon-Neutral Energy Demand team envisions, for example, constructing a viable \$5 billion Midwestern wind generation project along a new transmission route, encompassing the Dakotas, Minnesota, and Wisconsin.

Achieving a 58-fold increase in clean energy generation will use emerging technologies. Several of them, including air compression (to store wind energy for use when needed), biomass and coal gasification with carbon sequestration are promising. Facilitating innovation and technology development will be critical to creating a clean, reliable energy system. To achieve the scale of change envisioned by the RE-AMP participants, the public debate must shift from why we need a clean energy future to how we will achieve it. The Increase Carbon-Neutral Energy Demand team will create dialogues among stakeholders from all parts of the energy system to forge a new political consensus. This consensus will underscore the economic development opportunities that an energy transition creates, including: reinvigorating the regional industrial base by manufacturing and exporting low-carbon energy technologies, taking advantage of the best wind power sites in the United States, as well as linking up with and expanding the growing bioeconomy.

25-YEAR GOAL:

1. Achieve a 58-fold increase in new carbon-neutral energy generation in the six-state upper Midwest region.

5-YEAR GOALS:

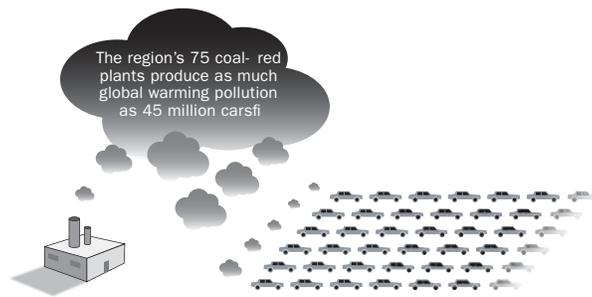
1. Change the terms of the debate to favor a rapid transition to a clean, efficient energy system, with increasing grassroots, leadership, and business support.
2. Fully realize regional wind potential by facilitating public policy changes and private investment to develop the region's wind resources.
3. Develop commercial support for regional ventures in clean energy such as air compression technology and biomass.

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Retiring or Modernizing Dirty Energy Generation Facilities

Seventy-five coal-fired plants form the heart of the upper Midwest's current electrical generation system. These plants are effectively subsidized, because they do not have to account or pay for the actual cost of their pollution. Together, in the Midwest, they produce as much global warming pollution as 45 million cars. For the needed shift to take place, 80% of these plants will have to be retired or converted to cleaner fuels over the next 25 years.



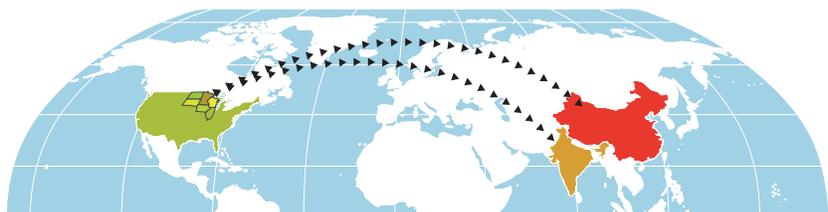
The Retirement of Dirty Energy team believes the utility and coal industries recognize that they must find a way, through technological innovation, for coal to be part of a 21st century clean energy system.

How we get there must begin with all parties agreeing that coal can be part of the future energy mix only if it significantly reduces its contributions to global warming pollution.

In practical terms, this means demonstration of coal gasification and carbon sequestration technologies (a.k.a. Integrated Gasification Combined Cycle or IGCC) on a commercial scale. Such projects must be supported in the near term, with the results used to determine the role new coal technologies will play in a clean energy future.

Perfecting cleaner coal technologies would be a breakthrough with impact worldwide. China and India, for example, currently have hundreds of coal-fired generation plants slated for construction. If the technology is proven, the Midwest could become a major manufacturer and exporter of such systems and experience.

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Clean coal technology pioneered in the Midwest can be exported to India and China, currently the world's two fastest growing markets for dirty coal plants.

25-YEAR GOALS:

1. Retire or modernize 80% of the coal-fired plants in the region.
2. Demonstrate coal gasification technology in the Midwest and, if proven, export the technology abroad.

5-YEAR GOALS:

1. Retire or replace some of the most polluting coal-fired plants in the region by using traditional advocacy, earned and paid media, regulatory intervention, and legal action targeting out of compliance plants.
2. Test combined cycle coal gasification (IGCC) in the region to determine if the technology will work and if carbon can be efficiently captured and stored.
3. Create partnerships with entities in China and India to export expertise in carbon-neutral coal technology and accelerate learning in both regions.
4. Build a regional stakeholder consensus on a transition strategy away from old coal technologies, while advancing development of the region's wind power and other energy resources, by engaging the coal and utility industry in a discussion of a carbon-neutral future (aimed at finding a "way forward for coal").

RE-AMP's...progress has been achieved thanks to the commitment to applying a collaborative planning approach rooted in systems thinking.

Implementation Phase

During the planning phase, participating foundations met in parallel with the four planning teams. The group grew as foundations outside the region heard about the collaboration and saw the promise of its work. The foundation team remains open to any foundations with an interest in this work. With the publishing of the planning team reports, individual organizations are now being encouraged to submit proposals in support of the identified strategies and goals. The RE-AMP Steering Committee, composed jointly of foundations and NGOs, will continue to facilitate and steward the process, working with all project teams to track and report on performance as measured by the previously identified indicators.

A Learning Community

RE-AMP is an active learning community. Four of the foundations have already adjusted their grantmaking strategies as a result of the learning that has occurred. RE-AMP involvement is changing how many of the NGO participants think about, and carry out, their work.

RE-AMP's impressive progress has been achieved thanks to the participants' commitment to applying a collaborative planning approach

rooted in systems thinking. It is rare for funders and grantees to invest the time necessary to carefully map out the terrain of a system in need of reform, to painstakingly analyze the best ways of intervening to catalyze fundamental progressive change, and to align strategies and long-term goals. As RE-AMP moves from planning to implementation, one of the primary challenges is to keep vital the collaborative network and the systems perspective while fostering the strategically independent work that will allow simultaneous progress on each of the four fronts.

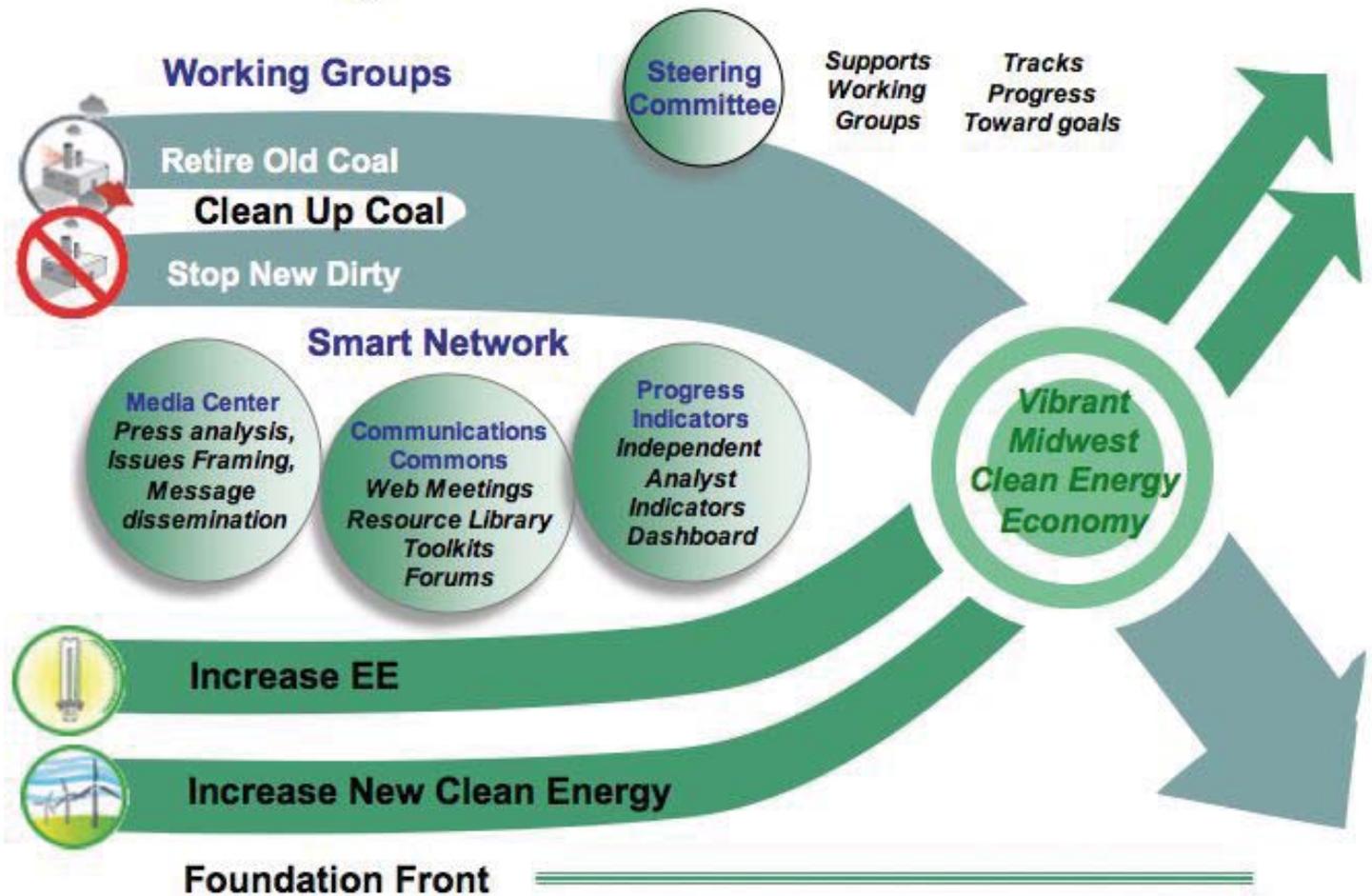
For this reason, participants will be linked via a “Smart Network”. The RE-AMP Smart Network is a dynamic learning infrastructure that will allow the RE-AMP community to learn, re-evaluate and re-tool strategies when necessary. It consists of the following components:

- **RE-AMP Commons** A proprietary online community supporting document storage, forums, web conferencing and e-mail, that will continue to link participants as in the planning phase.
- **Progress Indicators Dashboard** Each funded project will monitor the identified indicators of progress and report them to an independent analyst. The independent analyst will track all work across the network, reflect on and synthesize it, and report results back through an online status dashboard, bi-yearly web conferences and a yearly two-day in-person conference. Through these conferences, participants will have the opportunity to discuss the performance of various strategies, reflect on what has been learned, and participate in designing adjustments. This will help all participants maintain a broad perspective and ensure that everyone’s understanding and strategies evolves together.
- **RE-AMP Media Center** Influences public discourse by reframing it, so that the existing overwhelming public preference and support for clean, innovative and efficient energy can be translated into effective policy action in the upper Midwest and nation.

Changing the direction of a system as complex and powerful as the Midwest’s electric energy generation and distribution system is not a simple or straightforward process. To achieve change on a scale none could aspire to on their own, a significant number of the region’s most experienced foundations and NGOs have aligned their strategies and goals, and have committed to learning and working together over time.

Far more human and financial resources will be needed, however, to create a diversified, clean, efficient and secure energy system in the Midwest. Anyone interested in learning more or joining in this exciting endeavor is invited to contact the RE-AMP Steering Committee, c/o Rick Reed (beeline@mbay.net).

RE-AMP Organization



RE-AMP is now composed of three interdependent working groups (Retire Old Coal and Stop New Dirty have united into an inclusive "Clean Up Coal"). Representatives of these groups, three foundations, plus three at large members elected from the network as a whole, make up the Steering Committee. It oversees a core operational budget and supports the working groups by helping them secure the resources they need, organizing meetings of the whole, and retaining an analyst to track progress towards specific goals. The Smart Network--a Media Center, on-line Commons, and Progress Indicators Dashboard--support the network as a whole. A Foundation working group also meets regularly.