

# “Sharing Smart Grid Experiences through Performance Feedback”

## An Article for Smart Grid News

### The Smart Grid Transition—Getting Started

We are on the ground floor of a Smart Grid transition that is leading us out of a centralized, information-limited infrastructure into an intelligent, modernized electric system. Simply put, our aim is to achieve a smarter grid, one that is merged with ubiquitous information and communication technologies that support a balance of centralized and distributed resources of all kinds and the active engagement of its consumers.

Since 2005, a great deal of work has been done to define the vision for the Smart Grid and to communicate that vision to stakeholders. As a result, **understanding** has increased and many stakeholders, but certainly not all, have generally **aligned** behind these Smart Grid concepts. Government incentives and profit opportunities have **motivated** some of the aligned stakeholders to make Smart Grid investments, conduct pilots, and begin projects to deploy Smart Grid technologies and processes. These projects will soon produce **results** that subsequent projects can then build upon.

Today’s projects will generate a significant experience base, which if shared with other stakeholders, will provide substantial benefits to the industry and society in general. The sharing of “Lessons Learned”, which can prevent mistakes from being repeated, and “Best Practices”, which can enable others to benefit from proven techniques, can make the Smart Grid transition more effective and efficient. But progress may be limited if project successes and difficulties are not shared in a way that goes beyond marketing hype. Sharing actual experiences through a performance feedback program can provide this vital “**sharing and coaching**” aspect of the Smart Grid change management process, where those who’ve blazed the trail share their experiences with others.

### The Smart Grid Transition—Achieving Success

Sharing of Smart Grid experiences is being done today to some degree. Much is shared at numerous Smart Grid conferences and through Smart Grid publications and case studies. Many of these experiences originate from obvious and clear cut issues spread by word-of-mouth or through other media channels. But are we missing other opportunities and issues that may not be quite so obvious? Are we missing the opportunity to share the pitfalls so others can avoid them? Is there a need for a more structured program that could create a stream of experiences that, if broadly shared as lessons learned or best practices, might benefit all stakeholders?

The NETL Smart Grid Implementation team, believing the answer is yes, has developed the following vision statement for a Smart Grid Performance Feedback Program (PFP) aimed at increasing the level of collaboration and experience-sharing:

*“The Smart Grid Performance Feedback Program facilitates the sharing of Smart Grid experiences and learnings, thereby allowing stakeholders to continuously improve, avoid pitfalls,*

*and build upon the best practices of others to more effectively, efficiently, and safely achieve their Smart Grid vision.”*

Achievement of this vision will require work in at least four areas:

- **Performance Monitoring**—creation of processes that identify issues and opportunities where experience-sharing could benefit the larger stakeholder community. All smart grid activities—including project planning, design, engineering, construction, testing, maintenance, and operations, as well as the impacts of externalities such as legislation and regulatory policy and the input from and relationship with consumers—should be included
- **Analysis**—objective evaluation of the results from the performance monitoring processes in order to reach meaningful conclusions
- **Results and Validation**—ensuring the data, information, and conclusions reached are true and accurate and the results and recommendations are right, reasonable and relevant.
- **Communication and Education**—getting the word out in a timely fashion with insightful content using effective media channels

### **Smart Grid Performance Feedback Program—Value and Challenges**

The value in putting a PFP in place is expected to be real and positive as it provides mechanisms for making the Smart Grid transition more effective and efficient. For example, a PFP can help reduce implementation costs by taking advantage of lessons learned to avoid “missteps” and preventing the “reinvention of the wheel” as best practices are applied. Getting it right the first time and reducing rework can greatly reduce implementation costs.

Also, by sharing the progress of the Smart Grid transition through the communication of key performance indicators, stakeholders can see what progress is being made. When progress is positive, all are encouraged and momentum is increased. When progress is not, areas for improvement can be more easily identified for resolution. With either outcome, the resulting timeframe for achieving a Smart Grid vision can be reduced.

Another benefit is that best practices often lead to future codes and standards which if applied universally are beneficial to all stakeholders. The PFP is expected to generate a large number of best practices, many of which could lead to future standards that might not otherwise be identified. One example in the computer industry is the use of anti-virus software which began as a best practice and today has essentially become a standard for personal and business computing.

***But, the sharing of Smart Grid experiences faces a number of challenges including:***

- Processes and methods for generating a rich stream of Smart Grid experiences that can be broadly shared are not currently in place
- Stakeholders may be reluctant to share their Smart Grid experiences, particularly lessons learned.

These challenges must be addressed if stakeholders wish to see an effective PFP move forward.

## Summary

The Smart Grid transition must not be carried out as a series of independent and isolated events. If it is, the Smart Grid may still be achieved ultimately— but not without numerous stops and starts, significant amounts of rework, unfavorable pushback from stakeholders, unnecessary costs, and unexpected delays. It's not enough to just "get the Smart Grid implementation ball rolling" and assume it will be successful in finishing on its own. Experience-sharing during the transition, to identify what works and what doesn't, can help prevent many of these problems.

Sharing Smart Grid experiences is one way to streamline the transition process. Such sharing should be applicable to all areas of the Smart Grid transition including planning, design, construction, testing, operations, maintenance, regulatory policy, and the interfaces with all Smart Grid stakeholders including customers, vendors, and third parties. The PFP could provide a timely, widely-recognized and easily accessed stream of validated Smart Grid experiences and conclusions. Best practices and lessons learned could be identified early and broadly shared among the stakeholder groups. Unresolved issues that limit the progress of the Smart Grid transition could be more readily identified and resolved. Experience-sharing can accelerate the progress of those just beginning their Smart Grid journey as well as those who are well on their way.

## Next Steps

The concept of a PFP has not yet been fully discussed or understood among the Smart Grid stakeholder groups. To "raise the level of debate", the SGI team has developed a white paper on this topic, "[Sharing Smart Grid Experiences through Performance Feedback](#)".

This paper discusses opportunities for identifying and sharing best practices and lessons learned, leading to a more efficient and effective Smart Grid transition that will benefit all stakeholders. The ideas presented are not offered as a prescription but rather as a vehicle to stimulate discussion and to encourage the various stakeholders to consider those aspects that fit their unique situations. Possible solutions for some of the challenges facing the development and implementation of these performance feedback concepts are also discussed.

Smart Grid stakeholders are encouraged to review this paper and offer comments and suggestions at [smartgrid@netl.doe.gov](mailto:smartgrid@netl.doe.gov). While our ideas in the area of performance feedback are still preliminary, we are optimistic that experience-sharing will provide substantial value to the Smart Grid community.