

PRE AND POST-WORKSHOP SURVEY RESULTS

Pre and Post Workshop Mean Understanding Ratings

		N	Mean	Std. Dev.	Std. Error
Renewable Energy	Pre	20	3.10	.72	.16
	Post	20	4.20	.62	.14
Energy Conservation	Pre	20	3.10	.72	.16
	Post	20	4.00	.73	.16
Solar Energy	Pre	20	3.10	.72	.16
	Post	20	4.10	.85	.19
Wind Energy	Pre	20	2.85	.59	.13
	Post	20	4.20	.70	.16
Geothermal Energy	Pre	20	2.25	.64	.14
	Post	20	4.30	.66	.15
Biofuels	Pre	20	2.65	.93	.21
	Post	20	3.75	.79	.18
Hydropower	Pre	20	2.60	.82	.18
	Post	20	3.65	.67	.15
Energy Audit Practices	Pre	20	2.00	.92	.21
	Post	20	3.70	.73	.16

Pre and Post Workshop Mean Importance Ratings

		N	Mean	Std. Dev.	Std. Error
Renewable Energy	Pre	20	3.40	1.10	.24
	Post	20	4.30	.66	.15
Energy Conservation	Pre	20	3.40	1.10	.24
	Post	20	4.35	.67	.15
Solar Energy	Pre	20	2.65	1.09	.24
	Post	20	3.80	1.11	.25
Wind Energy	Pre	20	2.65	.81	.18
	Post	20	4.00	.79	.18
Geothermal Energy	Pre	20	2.35	1.31	.29
	Post	20	4.20	.77	.17
Biofuels	Pre	20	2.85	1.09	.24
	Post	20	4.05	.69	.15
Hydropower	Pre	20	2.35	1.04	.23
	Post	20	3.75	.79	.18
Energy Audit Practices	Pre	20	2.30	1.22	.27
	Post	20	3.80	.95	.21

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Overall Workshop Rating

	Frequency	Percent
OK	1	5.0
Good	11	55.0
Excellent	8	40.0
Total	20	100.00

Training Worth Your Time

	Frequency	Percent
Moderately	1	5.0%
Very	13	65.0%
Extremely	6	30.0%
Total	20	100.0%

Specific Workshop Ratings

	Poor		Fair		Good		Very Good	
	N	%	N	%	N	%	N	%
Content	0	.0	0	.0	8	40.0	12	60.0
Organization	1	5.0	6	30.0	10	50.0	3	15.0
Use of Instructional Aids	0	.0	3	15.0	13	65.0	4	20.0
Creating Interest in Topics	0	.0	3	15.0	8	40.0	9	45.0
Involvement of Participants	0	.0	4	20.0	12	60.0	4	20.0
Pace of Delivery	0	.0	6	30.0	10	50.0	4	20.0
Effectiveness of Training Kits	0	.0	2	10.0	9	45.0	9	45.0

How Much Info is Useful

	N	%
0-20%	0	.0
21-40%	0	.0
41-60%	3	15.0
61-70%	5	25.0
71-80%	6	30.0
81-100%	6	30.0

Recommend Workshop to Others

	N	%
Yes	20	100.0

Overall Level of Workshop Content

	N	%
Too basic	0	.0
About right	20	100.0
Too advanced	0	.0

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Tour Ratings

	Very Poor		Below Average		Average		Above Average		Excellent	
	N	%	N	%	N	%	N	%	N	%
	LSC Biotech Institute Tour	0	.0	1	5.0	4	20.0	6	30.0	9
Green Bldg. Resource Center	0	.0	0	.0	6	30.0	7	35.0	7	35.0

Overall Usefulness of Workshop for Prof. Development

	N	%
Not at all	0	.0
Slightly	0	.0
Moderately	2	10.0
Very	15	75.0
Extremely	3	15.0

How Well Workshop Met Expectations

	N	%
Far below	0	.0
Below	0	.0
Met Expectations	7	35.0
Above	11	55.0
Far above	2	10.0

How Much Workshop Increased Knowledge and Skills

	N	%
Not at all	0	.0
Slightly	0	.0
Moderately	2	10.0
Very	9	45.0
Extremely	9	45.0

Current (Post Workshop) Understanding

	Poor		Fair		Good		Very Good	
	N	%	N	%	N	%	N	%
Renewable Energy	0	.0	2	10.0	12	60.0	6	30.0
Energy Conservation	0	.0	5	25.0	10	50.0	5	25.0
Solar Energy	0	.0	6	30.0	6	30.0	8	40.0
Wind Energy	0	.0	3	15.0	10	50.0	7	35.0
Geothermal Energy	0	.0	2	10.0	10	50.0	8	40.0
Biofuels	1	5.0	6	30.0	10	50.0	3	15.0
Hydropower	1	5.0	6	30.0	12	60.0	1	5.0
Energy Audit Practices	0	.0	9	45.0	8	40.0	3	15.0

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Pre-Workshop Importance Placed on Topics

	Very Low		Low		Average		High		Very High	
	N	%	N	%	N	%	N	%	N	%
Renewable Energy	0	.0	4	20.0	9	45.0	2	10.0	5	25.0
Energy Conservation	0	.0	4	20.0	9	45.0	2	10.0	5	25.0
Solar Energy	2	10.0	8	40.0	7	35.0	1	5.0	2	10.0
Wind Energy	1	5.0	8	40.0	8	40.0	3	15.0	0	.0
Geothermal Energy	6	30.0	7	35.0	3	15.0	2	10.0	2	10.0
Biofuels	1	5.0	8	40.0	6	30.0	3	15.0	2	10.0
Hydropower	4	20.0	8	40.0	6	30.0	1	5.0	1	5.0
Energy Audit Practices	7	35.0	4	20.0	6	30.0	2	10.0	1	5.0

Post-Workshop Importance Placed on Topics

	Very Low		Low		Average		High		Very High	
	N	%	N	%	N	%	N	%	N	%
Renewable Energy I	0	.0	0	.0	2	10.0	10	50.0	8	40.0
Energy Conservation I	0	.0	0	.0	2	10.0	9	45.0	9	45.0
Solar Energy I	1	5.0	1	5.0	5	25.0	7	35.0	6	30.0
Wind Energy I	0	.0	0	.0	6	30.0	8	40.0	6	30.0
Geothermal Energy I	0	.0	0	.0	4	20.0	8	40.0	8	40.0
Biofuels I	0	.0	0	.0	4	20.0	11	55.0	5	25.0
Hydropower I	0	.0	1	5.0	6	30.0	10	50.0	3	15.0
Energy Audit Practices	0	.0	2	10.0	5	25.0	8	40.0	5	25.0

General Workshop Outcomes Ratings

	Disagree		Neither Agree nor Disagree		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%
Helped me better understand the issue	0	.0	1	5.0	7	35.0	12	60.0
Provided information relevant to my work	0	.0	2	10.0	12	60.0	6	30.0
Were based on current, up-to-date information	0	.0	1	5.3	7	36.8	11	57.9
Addressed the topic identified in the title	0	.0	0	.0	6	31.6	13	68.4
Were well organized	1	5.0	7	35.0	8	40.0	4	20.0
Were easy to understand	0	.0	4	21.1	8	42.1	7	36.8
Will be of great use to me	0	.0	2	10.5	10	52.6	7	36.8

Plan to Use Info From
Workshop

	N	%
Yes	20	100.0

**To what extent will you be able
to teach content due to this
workshop**

	N	%
Not at all	0	.0
Very little	0	.0
Somewhat	1	5.0
Quite a bit	13	65.0
A great deal	6	30.0

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How Well Workshop Motivated

	Poor		Fair		Good		Excellent		N/A	
	N	%	N	%	N	%	N	%	N	%
Motivated me to want to learn more	0	.0	0	.0	9	45.0	11	55.0	0	.0
Motivated me to do something different	0	.0	2	10.0	5	25.0	11	55.0	2	10.0

Workshop changed attitude about energy conservation

	N	%
Yes	17	85.0
No	3	15.0

Stay in Huntsville Satisfactory

	N	%
Yes	20	100.0

OPEN-ENDED ITEM RESPONSES
(Listed Verbatim)

Three most helpful things from workshop

Wind Energy Schooling Opportunities in our coastal area	Geo Thermal would be interesting for us to look at when building our new high school	Solar Energy because there is such a growth in the San Antonio area
Tours	Kits	Speakers
Resource Kits	Powerpoint Presentations	Hands On Experiences
geothermal presentation	wind presentation	solar presentation
Getting expert advice on renewable energy	Obtaining kits to take back to my classroom	Touring the different field trips and receiving instruction there
Learning more about solar and wind energy	Seeing the work being done at LSC labs	Learning about energy audits
Knowledge on Geothermal solutions	The advances in Biotechnology	The kits!!!
Training Kits	Energy Audit Speaker	Wind Turbine Speaker
Tours	Hands-on materials	
Geothermal	Solar Energy	Energy Aidits
Web sites to go back to	kits provided	speakers
wind turbines	receiving instructional aids to use in my classroom	learning about energy audits
Expanded my knowledge base on Geo-thermal	Learned how cost ineffective solar power is	
The information presented in the tours because those are places I can take my students.	The information about wind power and the geothermal power.	The information presented from the energy co-op.
Operational information connected to field trips	Instruction linked to job opportunities for students	Kits!!!
Content	Tours	Classroom resources
The presentations and the power points.	The hands on activity with the solar panels.	Working on the kits
Building the solar panels was very interesting	seeing the algae tank at Lone Star College was interesting	Geothermal powerpoint and speaker was very interesting and I think I am going to look into it at my house
Emerging technologies in the Sustainable Energy field	Biofuel technologies	Networking with business industry partners and players
Geothermal info	Wind energy careers	LSC tour

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Most Liked About Workshop	Least Liked About Workshop
I thoroughly enjoyed putting together the kits and seeing them work. I know this will be something my kids will enjoy as well. I also liked touring the Green Building because it showed lots of techniques for conserving resources and energy.	Putting together the outside solar panels outside was my least favorite part only because it we encountered so many problems.
Learning about a variety of topics	Some of the speakers were a little dull
Wind Energy Information and building of turbine	Trip to the Green Building Resource Center
Geothermal presentation	biofuels
** I really enjoyed the models and team building exercises. I also enjoyed the field trips and tours.	** I did not enjoy the lectures that were unorganized and incomplete.
Building the solar array and the trip into Houston	Waiting for presenters to set up the computer equipment
The field trip to Lone Star College...Amazing	The BioFuel discussions were a little too basic and more like a browser search than an educational discussion.
I enjoyed putting to use the knowledge we gained from the speakers by using the training kits.	The biofuels and SolPower People presentations were not very organized or planned out.
The tours!	Efficiency of timing, needs to be stricter with timing to keep things moving.
Geothermal was the most interesting	Tour of Lone Star College
Hands on	Coop speaker. It was informative but I thought he was going to end how to use the information he provided with HS students
I really enjoyed the hands-on activities. They allowed me to learn how to work the training tools that were provided to that I can take them and use them in my classroom	I was somewhat disappointed in the solar energy hands-on activity. It seemed like the presentors did not know very much about it.
The Sam Houston Co-op presentation was pretty interesting.	The man at the Green Building Center was not very friendly
I liked the field trips the most. I thought it was really cool to see the things that we had been talking about being put into action. I also liked since I teach in the Houston area I can take my students to these locations.	The solar portion of the workshop because it was a little too high of a level for the teachers to take back and share with their students. I think if we had talked about it on a more basic level and how costly it is or isn't and how efficient the solar panels are.
Solar panel demonstration	The instruction covering wind energy-presenter wasn't prepared.
Tours	Solar lab. This portion needs to be more organized by the company presenting.
The part of the workshop that I liked the most was the information given and the kits. I wish we had more time with them and how to implement them with the information given.	The part of the workshop that I liked the least was that I need more time to work with the kits and know how to use them with the students. How would I tie the information with the kits? Although I do like

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	the kits, maybe we could have time to write a lesson plan with the information and the kits.
Putting the solar panels together was great hands on experience	The Powerpoint on electricity. I felt that it was either common knowledge or way over our heads. I feel that we could have been fine without it.
The tours were excellent and the kits were fun and informative.	I did not leaving the facilities to get lunch. Provide lunch next year. :)
LSC Tour	Solar power

Suggestions for Workshop Improvement

Overall I think things went very well. The problems that did arise were not the fault of the coordinator.
Great workshop
It sounded more like a job fair and less about how to teach this to our kids.
The workshop needs a little better planning. Speakers not showing up on time or at all needs to be fixed. Seemed like a lot of downtime throughout the week that could have been filled with more speakers or more hands on activities. I would have someone try all the kits before workshop so that they can walk the teachers through the kits and show them how they work.
** My overall comment on the conference is positive. I have the desire to learn more about these things due to my occupation and interests. I wish it would have been more organized and the lecture/presenters were more in tune to their audience. **Any time you bring in a presenter, they need to be aware of there machinery/model and know how to expertly use it. Solar energy became a joke by the end of the week due to the presentation we listened to that was sub-par.
Leave for Houston earlier in the morning so more time could be spent at the two sites
Overall this was a great workshop. It ranks very close to being the best workshop I've been to. I would suggest that you make changes to the biofuel discussions. It might be beneficial to bring someone in who uses this technology in the field. It was very nice to see the cutting edge research being done in this field --- amazing actually. It would be nice to also see a company using it or planning to use it.
I enjoyed the workshop, I would say to allow more time for the kits to be put together.
I think the workshop was very interesting however the time management though out the week needs to be a little less flexible.
Overall I enjoyed and learned a lot. I would leave out Lone Star College tour and maybe add another place.
More hands on
I would suggest to improve organization and try to break up some of the lectures with more activities.
Incorporate more ideas on how to teach this information.
I enjoyed the workshop a lot I think my big suggestion was to work on the solar workshop because it was a lot of time outside in the heat and I feel like that was the one workshop that I didn't really gain much knowledge from. Other than this workshop I feel like in general the workshop was awesome and I gained a lot of knowledge out it.
Couple energy audit instruction with demonstration of a facility.

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Shorten the amount of days for the workshop. I think all information could be covered in less days. More organization.
<ol style="list-style-type: none"> 1. Need time to come up with a lesson plan on how to implement the information and the use of the kits. 2. Have us come back next year or during the year for a follow-up conference to discuss what we did/doing with the information. 3. Have a set time throughout the workshop. 4. If you are going to have part of the workshop outside, please tell the participants about bringing sunscreen and a hat/cap.
Having more hands on experiences would make the workshop more memorable. I would suggest additional help when we are making the kits so that we can have working models (fully functioning) that we could take to school.
Please see above. Additionally, more tours would have provided more insight into the field of sustainable energy. A tour to the new wood chip facility would be awesome.
Build the solar panels in the morning session.

How will you use information

The kits will fit in perfectly with our Energy and Natural Resource Curriculum as well as our Ag Hot Topics where we talk about new technologies happening in our industry.
Teaching my students in the classroom
In all my units discussing Energy Sources
I plan to teach it to my students. I plan to incorporate the different alternative energy systems into my curriculum and to show students the potential careers and opportunities in the different fields.
** I will definitely be using the information in my teaching curriculum as well as incorporate the kits into lab days.
When we discuss energy, I will have examples to use and I will try to incorporate alternate energy sources into our electricity project.
I will make sure to include a unit on renewable energy as well as encourage students to explore/consider these topics for their science fair projects.
I plan to implement the renewable energy concepts in my Environmental Systems classes next year.
If I teach an environmental class I would use the kits that I received and constantly be introducing the information given to us at this workshop to my students.
When we talk about electricity and plumbing I will have the kids go home and do energy audits at their houses.
Use the PPT provided for extra back up on curriculum. Use the kits provided as samples for understanding. Contact speakers for guest pert tours.
I would really like to implement energy conservation basics in my freshmen and horticulture classes.
I plan on incorporating it in the majority of my classes
I plan to incorporate the information from the workshop into my classes even though I don't have a whole course based on this information I plan to do small mini lessons in my current classes that relate to renewable energy.
Having insight into the construction of the kits connects instruction for the kinesthetic student for which it was quite obvious we all enjoyed.
Natural and reusable resources until.

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Since I teach Environmental Systems, I teach about pollution, conservation of land, air, & water, and renewable/nonrenewable resources, I can definitely teach about alternative resources (solar, wind, and water).
I currently do not teach a renewable energy course but I am planning on teaching it in the future.
I am currently renovating a old home and will use the information to benefit my family. Additionally, those skills and information will translate to my students through teaching.
I plan to use the kits to make it easier for the students to understand our other energy options.

How attitude has changed

We will be doing an energy audit in our house to see what we can do to conserve energy. Also, we are looking at replacing our old AC unit with a more energy efficient unit.
my attitude towards building materials and energy management practices that help with energy conservation
I better understand the workings of alternate energy systems and as a result will further research them to use them in practice
I realize it is more important than I thought.
I want to learn more about geothermal energy as a energy conservation option.
I knew we needed to be more energy friendly but I wasn't sure to the extent. Now I will be able to explain better methods to my students and help justify reasons why we need to do this.
I will begin looking at aspects of my teaching were I can apply the information learned from the workshop.
try to put the info in use through teaching it as a part of Horticulture
I really enjoyed learning about the geothermal energy system.
I feel like I now know more information about it so I think that I can now put more emphasis on this topic since I know enough about the topic now.
It helped bring the application into a realm of we can all do something personally and not just corporation and other select groups.
I understand the importance more clearly and what it takes to conserve.
I need to do more for the environment and to teach it to my students. I may have my students research more on alternative resources.
i had no clue about geothermal energy
I am currently renovating a old home and will use the information to benefit my family. Additionally, those skills and information will translate to my students through teaching.
I have a newfound interest in geothermal benefits.

What you gained that was unexpected

A better understanding of geothermal which was virtually unknown to me prior to this workshop. I also learned of numerous job / education resources that are available to my students.
Knowledge of geothermal systems
All the kits made available to us
My interest in the geothermal climate control systems was unexpected

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** Everything that was learned was expected. I am glad I attended the workshop.
The level of work being done at the junior college level and the information about geothermal energy
Knowledge and it was fun!!!
I gained a knowledge of thermal energy and wind energy that I did not have before.
I gained information about the different types of energy conservation that I didn't know about like geothermal and how many companies and homes are being built using this new technology today.
Geothermal energy I had no idea about it.
The info on the solar was good
I gained in interest in implementing a geothermal energy system in my house that we are starting planning to build.
I did not realize how geo thermal energy worked and found that it is very interesting and would like to see it utilized more.
Learning about the field trip locations was something I didn't expect and a nice way to take my students places to get them excited about the information.
Capability of personal application.
I can use these practices and the information learned in my daily life.
I learned more than I expected. There was information that I did not know about. Now that I am aware of it, I can teach the information in a different way using the kits. I may have my students work on a project or do research on alternative resources.
Many fun facts to share with my students.
Current technologies in the HVAC systems through the use of Geothermal technology.
The different impact that was made on the overall power grid by the different energy options.

How was your stay

I had a good time learning about how the future of energy is dependent on renewable resources and the jobs that will soon be available to my students when they graduate.
Decent hotel, conveniently located, easy drive to SHSU campus; plenty of eateries nearby.
N/A I drove from home each day.
Everything was well done. May be more great videos on subjects. Ways we as a HS could partner up with companies to get more student involvement by hands on research and projects for them to work on.
I really enjoyed learning about energy conservation. Although, I still think we have a lot to work on in some areas I believe we are headed in the right direction and more people need to be educated about the issue in order to reach where we need to go with renewable energy.
There was plenty of time to do what was expected of us (instruction, breaks, lunch was not rushed, field trips etc.).
I learned a lot of information that I did not know and refreshed what I already knew. Thank you for everything. All of the topics were very interesting and most of them are important to the topic I teach.
It was a great experience. Thanks!!!!
Had a great time at the workshop and played golf in the evenings.