

Just Right

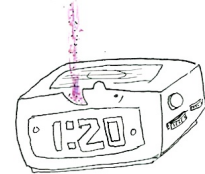
You wake up in the morning and the power is out—no lights, no heat, the milk is getting warm in the fridge. What do you do? If you are Bobby Jennerik, you hop on your bike and find out what went wrong, and what you, your family, and your whole town can do to keep it from happening again, while also helping the planet.



A FUNNY MORNING

Mornings in Bauville, like so many towns across the land, finds its good citizens up and moving. Neighbors turn on lights, make breakfast, take showers. Air conditioners start, computers and tv's come to life, workers open stores. Factories restart after being silent and still.

And like everywhere else, Bauville citizens own, use, and appreciate Zervs. Most have a basic group of Zervs, while others have Zervs for special tasks. Even the poorest residents of Bauville have a few Zervs.



Zervs come in all sizes, they do all kinds of work, and they all eat just one food (Zervberries). Some eat much more than others. Zervs can eat all the time if they need to. If they don't need to work, they don't eat. But, in order to work, a Zerv must have Zervberries!

Zervs heat water, cook food, wash clothes, make light, wash the dishes, run telephones, TV's, computers, clocks, alarm systems, blenders, furnaces, freezers, flashlights. Baby Zervs eat just a few Zervberries—most eat them all



the time, keeping the portable phone charged, the HDTV ready for instant on, the internet modem running 24/7, the clock accurate. Mama Zervs chill food, wash

clothes, run the furnace fan. Papa Zervs heat water for showers, dry clothes, bake potatoes.

The Zervberries come in fast moving streams from the Zervberry Factory. Whenever a Zerv works, it eats, so it calls out with its unique Cry for Zervberries. The Food Factory hears the call and sends just the right amount of Berries to keep the Zerv working. All the Zervs in every house in Bauville call the Zervberry Factory whenever they need Berries. You might think with all those Berry requests coming all the time that it would be Really Noisy at the Berry Factory! Actually, the Zervberry Call can't be heard by the good people of Bauville—it is a tiny high pitched Zerv Squeak, too quiet for the citizens of Bauville to hear. Should Zervs need to work but there is no food, they don't die—they just go to sleep. They can sleep for a long long time, until the Berry Factory sends Berries.



The Jennerik Family lives on Peaceful Lane in Bauville: Mother Linda, Dad Ralph, Big Brother Bobby, and Little Sister Samantha. One morning, Linda, who always gets up first, discovered

that every Zerv in their home was hibernating. The light Zervs were asleep. The alarm clock Zervs were asleep. The furnace Zervs were asleep. The house was really quiet. The stove didn't work, the garage door wouldn't open, the refrigerator was getting warm.



Sometimes just a part of a Zerv would fail. At first, Linda thought that the part of the Zerv that makes light had failed. (She flipped the bathroom wall switch on and off a few times, but that didn't help.) She tried the Zerv that operates the bathroom fan, and when that didn't work, she knew that all the Zervs were out of Berries.

"This is really inconvenient!" she said to herself. She could not make coffee. She could not make her usual hot breakfast. She did not want to take a shower in cold water. She couldn't even tell what time it was.

There was a knock on the door. Linda, feeling even more frustrated because she was still in her robe, saw that it was Cog, the elderly next door neighbor. "What's up?" she said opening the door.

"Nothing in my house is working!" Cog said. "How about here?"

"No, all the Zervs are asleep here too. I'll send Bobby over to the Zervberry Factory to find out what is going on." Cog shuffled back home. Bobby, yawning but dressed and ready for breakfast, came in to the kitchen.



"Bobby, the Zervs are all asleep. Can you ride your bike over to the Zervberry Factory and find out what happened?"

"Sure Mom. I'll go over right now."

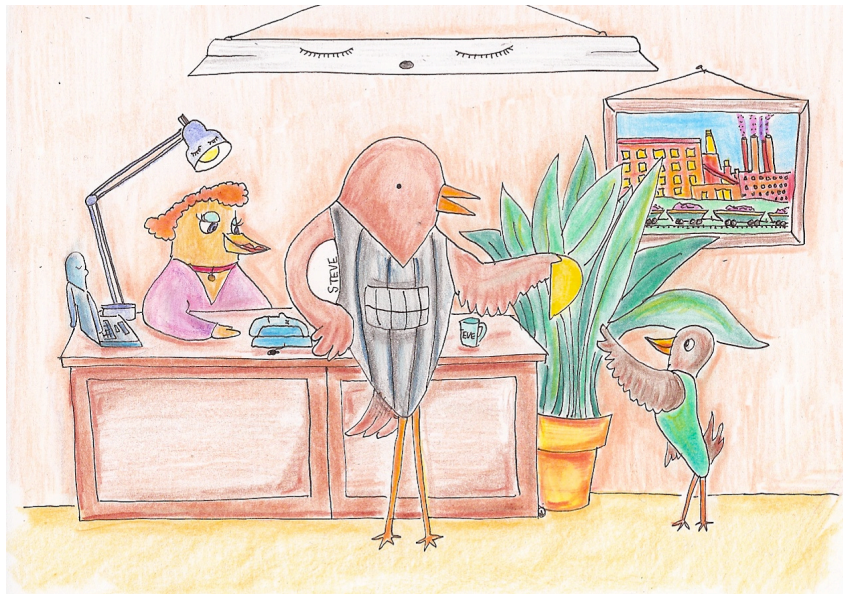
WHAT WENT WRONG

The overhead garage door wouldn't budge. Bobby wrestled his bike through the side door and took off for the Zervberry Factory. After parking his bike, Bobby went into the main office, where the receptionist was talking to the Berry Factory Manager. Bobby waited until they were finished, then asked if someone could tell him why there were no Zervberries. The manager said "A steam turbine cracked

trying to keep up with the demand for Zervberries. We're waiting for the replacement to arrive. Meanwhile, would you like a tour of the Factory? I would be happy to show you what we do here and explain why we can't make Zervberries." Bobby said "Sure."

"Let me introduce myself. My name is Steve. I'm the Manager. "

"My name is Bobby. I live about a mile away in Bauville."



"Well, Bobby, let's get started. You'll need to wear this visitor's hard hat." Steve handed Bobby a bright yellow hard hat and put a white one on his own head.

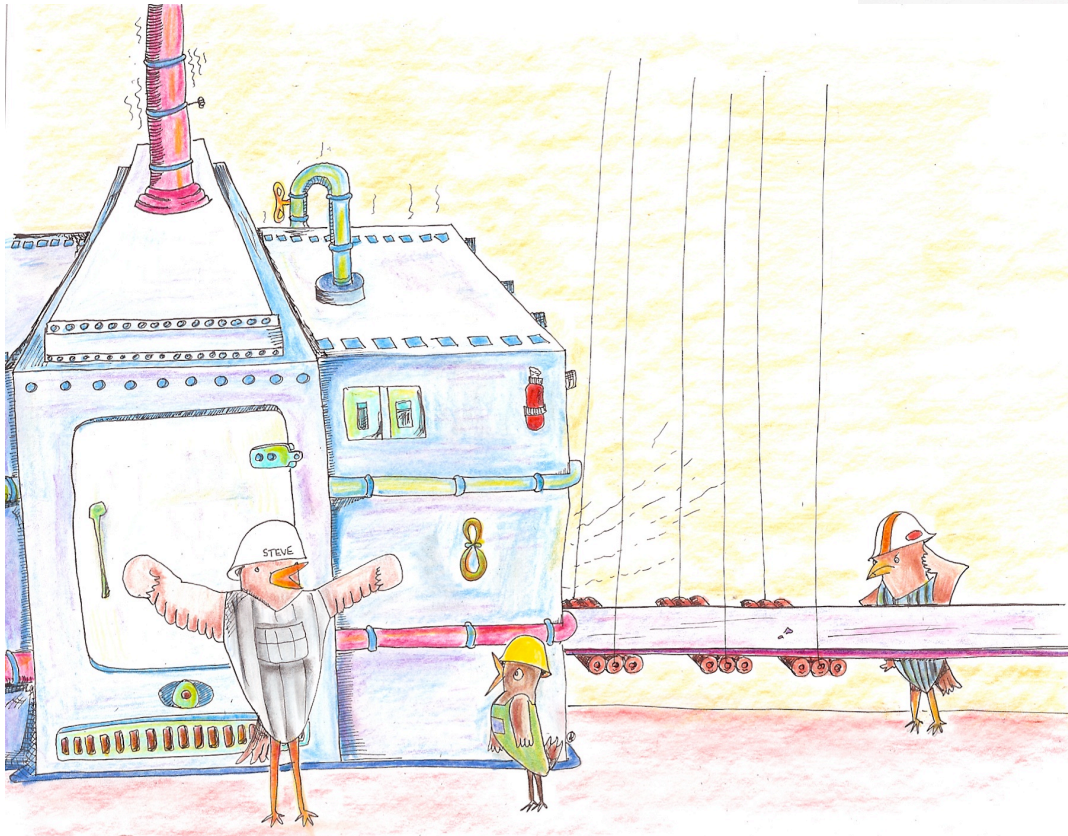
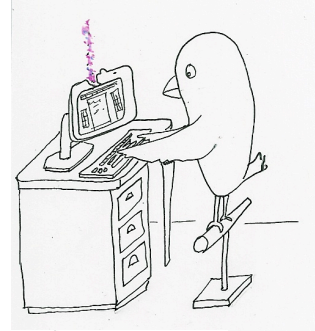
"I am guessing you don't know where the raw ingredients for Zervberries come from, or do you?" Steve asked.

"No, actually, I don't know anything about

Zervberries. Usually the Zervs just get whatever Berries they want so they can do all the things we want them to do. I don't really think about it. I guess my parents pay the Zervberry bill every month. Otherwise, I don't know anything about what you do here."

Steve pointed to a huge pile of purple rocks. "Over here is one of the main ingredients we use to make Zervberries. These rocks come from the mountains several hundred miles away. They come by train. We grind up these rocks and put them in the Furnace, which makes Zervberries. If we didn't have these rocks, we

couldn't make the Berries. We also need water, lots of water, so that's why the Factory is next to the river. Some of the water is used to mix with the rocks to make Zervberries, and some of the water is used to cool the Furnace, because it gets really hot. We have to have a hot oven, but we also need to cool the outside of the oven so the factory won't catch on fire."



"Every day we get a whole trainload of purple rocks, and every day we put all of those rocks in the Furnace to make Zervberries. Our furnace is big, but it is only So Big." Steve held out his hands as if he were describing the size of a large fish he might have caught. "We can't make the Berry Furnace any bigger, at least not very quickly."

Bobby looked at the Berry Furnace. It was huge. He thought it could make tons and tons of Zervberries. "Gosh, Steve, it seems to me that this factory would be able to make a humongous amount of Berries. I don't understand why all our Zervs were hibernating today."

"Sometimes your Zervs are forced into hibernation because the flyway that sends the Berries to your house is broken. We have to send trucks out to fix the flyway so the Berries can fly on their path to your home. As you know, flyways don't break very often, and they are fairly easy to fix. Today we have a much bigger problem."

"What is that?" Bobby inquired.

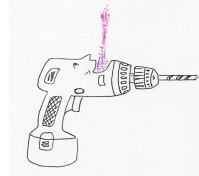
"Today," said Steve, "we can't make all the Berries that everyone wants. I don't know what happened. Maybe because so many people have moved into Bauville. Maybe because there was a sale on new Zerv High Definition Theater Size



Viewscreens at the Want-mart, and lots of people went out to get them. It was really hot yesterday, and maybe the good citizens of Bauville turned up their Zerv Air Conditioners to make their homes cooler. It could both of those things, and more. What we know is that so many more Berries were being sent to all the homes yesterday afternoon that the Factory was working over its limit, and this morning, when people got up and turned all their Zervs on, it broke down."

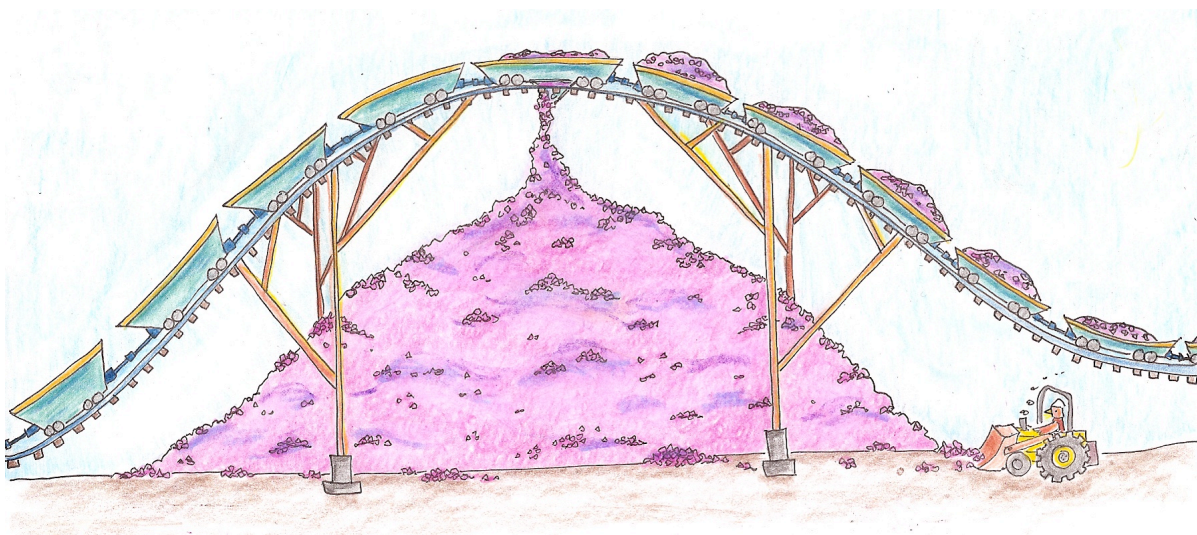
INTERESTING AND COMPLICATED

"Gosh. What will you do now?" Bobby wondered. He was thinking that he couldn't play games on his Zerv computer.



"First, we have to fix the Furnace so we can make Berries. Then we have to tell everyone that they can't ask for all the Berries they want for the Zervs all at the same time. We may have to build another Factory to make more Berries. Or we have to ask everyone to use some Zervs in the middle of the night when the Factory isn't working very hard instead of in the middle of the day when everyone is awake and has become used to getting all the Berries they want whenever they want them.

"The problem with building another Factory is that it will take years and millions of dollars to get the Factory working. And it means that we will need to build another railroad track because the purple rocks we already use for the Factory we already have take up the whole train track each day. We also have to build another train—



each Purple Rock Train has one hundred cars which are filled and emptied each day! And then we have to get the people who live near the mountain where the purple rocks come from to let us take Even More purple rocks from the mountain they call their backyard. Many people there don't want us to take any purple rocks even now.

And there's another problem with the Factory that we already have. The Furnace mixes those crushed purple rocks and water to make the Berries, but it also makes something else that no one knows what to do with. We call it Ceeotu. We don't need it or want it, so we throw it out the window. The wind takes it away. Fortunately

that Ceeotu is so tiny you can't see it, and fortunately it doesn't smell. For a long time no one worried about it—since we couldn't see or smell it, it didn't seem to bother anyone. Now we realize that it didn't just somehow disappear, but it went "somewhere". Because we couldn't see it, we didn't realize it was piling up, and, you know, Bobby, that the Earth is Big"—Steve stretched out his hands again like he



was describing a really Big Fish —"but it is only So Big, and that Ceeotu we were throwing out is now clogging the sky!

Can you believe it? It was hard for me to believe at first. I mean, look at the sky! Does it seem

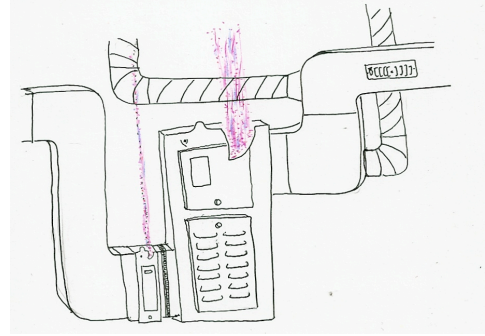
clogged? But then, you can't see this Ceeotu, and now we know that a clogged sky means we have to do something different. We can't just keep throwing this stuff out the window.

"Some people say they don't care about the clogged sky. These people take as many Zervberries as they want, whenever they want it, and when their Zervs don't work all the time, they get very unhappy. Other people want to use less Zervberries so there will be less sky clogging and less of the purple rock mountain that has to be loaded on to the train every day."

"Wow, Steve, I didn't know any of this. What should I tell my mom and dad?"

"Well, Bobby, first I'd let them know that we are fixing the Berry Factory as quickly as we can. Then I'd tell them that they should get to know their Zervs better. There are Baby Zervs that don't eat many Berries. There are Mama Zervs that eat a mom size diet, and there are Papa Zervs that eat a lot of Berries. The first thing to do is for you and your family to talk about the different size Zervs

that you have and see if there is a way to get the hungrier Papa Zervs to eat only at night.



"You see, there are a number of problems with the way we created the whole Zerv system that no one really thought about. One problem is that Zervs eat whenever they are working, no matter how many Berries the Factory can make. And there are so many more Zervs doing all kinds of useful things! There are way more people! Each family has way more Zervs than when I was a kid like you. So if you have many more people and each one of them has many more Zervs and each of the Zervs eats more Berries, it all adds up quickly to a Lot of Berries. And when the Zervs eat whenever they want, rather than having some kind of agreement that some get to eat sooner and others get to eat later, then the Berry Factory has to be able to make a whole lot of Berries during part of the day—sometimes more than it can handle—and yet at other times, like two o'clock in the morning, the Factory produces almost no Berries because most of the Zervs are hibernating then.

"And, unlike regular food, Zerv Berries are very special. They must be eaten within a few seconds of when they are made, or the Berry evaporates! Also, they all have to be made exactly the same or the Zervs will get sick. If the Zerv Berries aren't perfect, the Zervs can't eat them, and if they can't eat, they won't work! As you can see, it takes a very special factory to make millions of perfect Zerv Berries."

"Wow. This is really interesting, and it is really complicated! I don't think I can take in much more right now," said Bobby. "I'll tell my mom and dad all about what you said. Thanks so much for the tour of the Berry Factory!"

WHY SHOULD WE HAVE TO THINK ABOUT IT?

Bobby rode back home. He was hungry and his head was full of questions. At home, he told his mom and dad what he learned about Zervs from Steve. While they were talking, Berries began to arrive again; the Zervs woke up and started doing their



chores. The Zerv Refrigerator began to hum. The Zerv lights in the kitchen went on. The whole family let out a small cheer! Hooray!

"We can get back to normal now" said Ralph.

"No, wait, no we can't!" said Linda. "If we keep doing what we've been doing, and everyone else does what they've been doing, this is going to happen again, maybe

even later today or tomorrow! We have to talk about the eating habits of our Zervs! Not only do those Berries cost money, but there is only So Much!" and she held out her hands like she was describing a big fish.

"Wait!", said Samantha, who was always quick to ask questions. "Why do we have to figure out what each Zerv eats? Why can't we just have the Zervs tell us what they eat?"

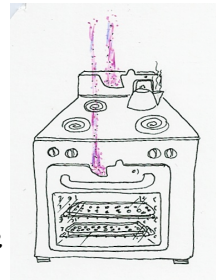
"Actually, they DO tell us what they eat. Each one of them has a label somewhere which says how many Berries they eat. But what we don't know is WHEN they eat," said Bobby, not wanting his younger sister to take the floor.

"Well, no one has the time to go around and read all the labels. We know when some Zerv's eat. We tell them what we want, like when we flip on the lights, or make toast or turn on the dryer. But some Zerv's eat when they choose to, like the hot water Zerv, or the refrigerator Zerv. What we Don't Know is how many Berries that they are all eating here at any one time. Who wants to figure that out? And then, we don't know what all the other Zervs in all the homes and shops and factories in Bauville all want to eat, and whether the Berry Factory can supply all that food whenever the Zerv's say they're hungry and have to eat Right Now," said Linda.



"This seems way too complicated and way way too much bother," said Ralph. "Look, we've never had to think about this before. Why should we have to think about it now? The whole Berry Factory System—that's not our job. We pay for the Berries our Zerv's eat. It's up to the Factory to make sure there's plenty of Berries ready whenever we, or anyone, needs it. I don't have time to mess with this, and I have no interest either. I pay the Berry bill. That's all I can do and that's got to be enough."

"Well, that's the way it **used to be**," said Linda. "But things are changing. Remember when the kids were young? They didn't have to have special car seats. Today kids have special seats so they are safe if there is a crash. Remember when we were kids? We didn't have smoke detectors. Now we do and I'm glad that everyone has to have one. I wouldn't want Samantha going over to Annie's house for a sleepover if I knew Annie's parents had no smoke detectors."



"Did you know that the rocks for the Berry Factory come from the mountains that are right next to the Great Buffalo National Park? If we have to have another Berry Factory, we are going to have to have more rocks to make the Berries, and it will mean that the National Park may have to close. I think we should try to prevent that. And, like the Berry Factory manager said, there will be more waste clogging



the sky, which means the food that Aunt Millie and Uncle Bobbie grow on their farm may not grow because the more the sky is clogged the less rain there is. Last year was their worst year ever.

"Guys, it's time to put the day on the map," Ralph said. "We've already had a major disruption. The Berries are back on line. I've got to get to work. You kids have got to get to school. Linda has to help at the hospital."

"Ok Dad," Bobby said. "But maybe we can think about this and talk tonight."

EVERYONE LEARNED SOMETHING THAT DAY

At dinnertime, Samantha spoke first. "Hey everyone, I've been thinking about the Zerv Berry problem. It seems that the Berry Factory works hard during the day and is pretty slow at night. Couldn't we have some of the Zervs do their work at night? Like what about washing clothes?"

"Great idea, Samantha," Linda said. "I've been thinking about this too. I wish there were a way we could know when the Berry Factory is getting close to maxxing out. I know we couldn't turn off some Zervs, but we could choose to not do other things until later."

"Well, everyone, I heard something at work," Ralph said. "My boss told us that the company is going to save money if we shift from making certain things during the day when the Berry Factory is close to producing its maximum amount of Berries—he called it the "peak". If we delay producing some things, we won't need Zervberries right then, and the Berry Factory will give us a big discount. We can

produce those things in the evening, and save money. The Berry Factory will tell us when it wants us to turn off some of our Zervs. My boss said that we would be buying Berries during the off-peak period. I guess he means when the Berry Factory isn't working so hard."

"Well, maybe we could get the same discount here at the house," Linda said.

"What if everyone in our neighborhood were buying Berries during the off peak period. We'd be saving as much as your whole company! We might be able to save enough so we can help the kids go to college."

Bobby piped in. "Because the Berries all stopped in Bauville today, my science teacher decided to teach us about conservation—using less Berries—and efficiency—getting the Zervs to eat less Berries while doing the same work. She said that the price of Berries will be different at different times of the day. She said the old system where everyone pays the same cost for Berries no matter what time of day it is, no matter how stressed the Berry Factory is, won't work any more. She said that a new system, where the Berry Prices changes during the day, is better for everyone. It's simple: when the Berry Factory is working really hard, the Berry Price will be higher. When the Factory is not working hard, like at midnight, Berries will cost less."

"But how are we going to know what the cost of Berries is?", asked Samantha.

Bobby continued, "She told us that soon everyone will have a Berry Price Meter that tells us what the Berry price is every minute. The Berry Factory will send out the price like a text message on your cell phone. She thought most people would



put the Price Meter on the refrigerator door where everyone can see it, because almost everyone in every house likes to be in the kitchen. The Price Meter will also



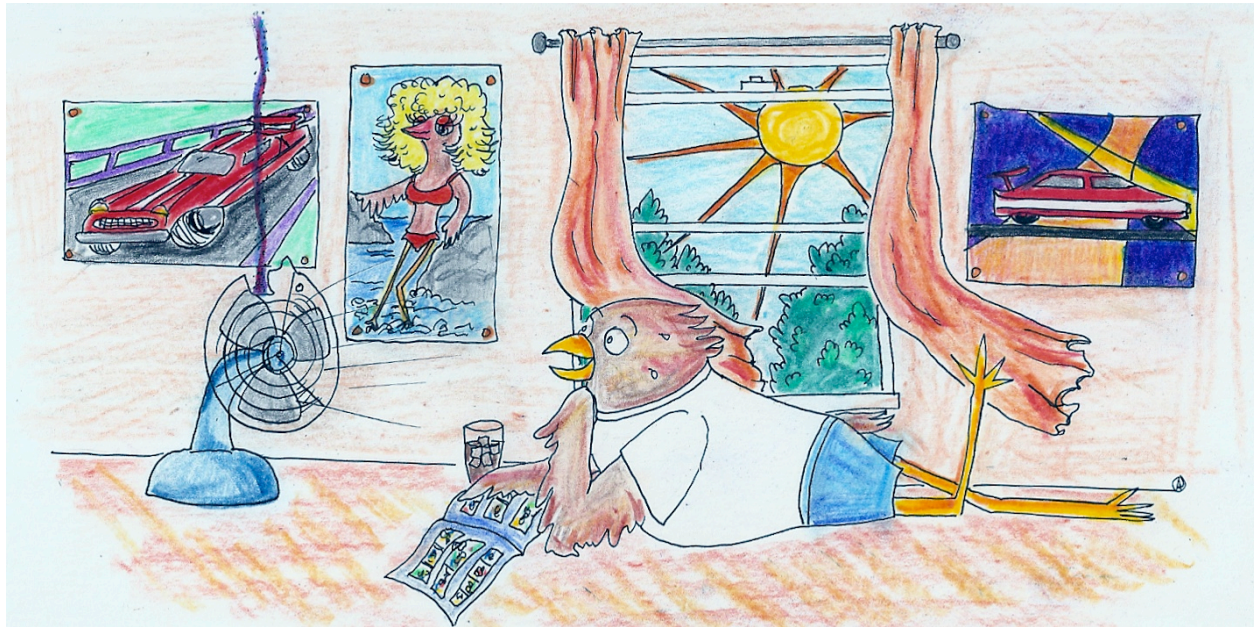
say what the Berry price will be at night, and on weekends, so we can decide whether we really need to have the Zervs work for us right then, or whether we can have the work done when the Berries are less expensive. She said that there will be two periods during the day: an expensive time and an inexpensive time. She called the expensive time the "peak" period, which might be between 1 in the afternoon and 6 o'clock at night, and the inexpensive time she called "off-peak" that would be any other time of day or night."

"I don't get it," said Ralph. "Why is the expensive time in the afternoon?"

"I bet I know!", said Samantha. "It's because everyone is working really hard then!"

"Yes," said Bobby, "and also because that's when it is the hottest part of the day, and all the Zerv Air Conditioners are working really hard, and because they are Papa Zervs, they eat lots of Berries."

"Gee," said Ralph, "when I was a kid we didn't have Zerv Air Conditioners. We only



had fans."

"Well," said Linda, "I sure like the Zerv Air Conditioners. They make the house way more comfortable than just a fan."

"Yes, that's true," said Ralph. "But it looks like we need to pay more attention to what and when we ask the Zervs to do for us if we don't want our Berry Bill to go through the roof."

"And," said Linda, "we don't want the sky to be clogged. Today at the Hospital I heard that the weather patterns are changing—it is getting hotter and there is less rain."



"But if it gets hotter," said Samantha, "it means our PapaZerv Air Conditioners will have to eat more Berries, and it will cost more!"

"Yes," said Linda, "and since everyone in Bauville will want their PapaZerv Air Conditioners to work harder, the Berry Factory might break down again, and then no one will be cool."

"I don't want the sky to keep getting clogged," said Samantha. "Our teacher said that even if we stopped throwing all the Ceeotu out the window today, it will take a hundred years to get the sky and the weather back to normal."

"There must be something we can do now to do our part," said Ralph.

WE'RE ALL IN THIS TOGETHER

"Well, there is!" said Bobby. "I heard that the old fashioned Zerv lights eat five times as many Berries to make the same amount of light as the new Zerv lights."



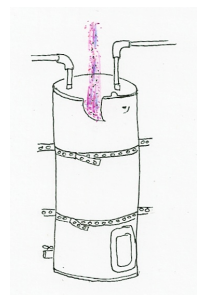
"That must be 'efficiency'", said Samantha, "just like what your teacher was saying."

"Right. So we could make sure that we get rid of the old Zerv lights and put in new Zerv lights. It will make our Berry Bill go down!" said Ralph, who liked the idea of spending less money on the Berry Bill.

"My teacher told us that new MamaZerv Refrigerators are like the new Zerv light bulbs—they eat way fewer berries to keep our food just as cool," said Bobby.

"Maybe we don't have to have the PapaZerv Air Conditioner work as hard. Maybe we could all be just a little warmer inside on hot days," said Linda.

"My teacher said that if everyone in Bauville did these kinds of things we wouldn't have to build another Berry Factory," said Bobby.



"Wow!" said Ralph. "That would save a lot of money and save the sky

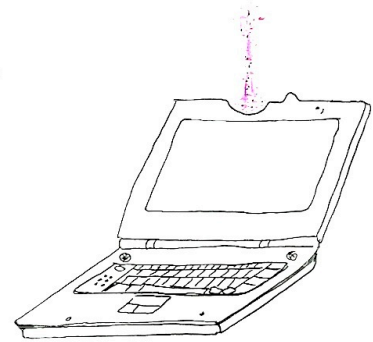
too!"

"I like to think that we're all in this together" said Linda. "Everyone in Bauville uses Berries. Each of us thinks there are plenty of Berries, but only the Berry Factory knows how much it all adds up to. I didn't know we were wasting Berries, and I'll bet Cog and all my other neighbors didn't know that either, and I'll bet most of us didn't know about how the Ceeotu clogs the sky. We used to think that there was plenty of everything for everyone, but since there are so many more people and so many more Zervs, it looks like it adds up really much faster than anyone thought! The Earth is only so big!" She stretched out her arms to show the size of a Really Big Fish.



Your opinions matter! Please offer them in this [30 second survey](#).





(<http://www.doebay.net/Proactricity/justrightsurvey.html>)



For more information, see the next page.

For More Information:

The following are just a tiny fraction of the resources available regarding the smart grid, time of use electrical energy pricing, efficiency, conservation.

	<p>U.S. Government Energy Star Information</p>	<p>http://www.energystar.gov/</p>
	<p>Real time view of power consumption in California</p>	<p>http://www.caiso.com/outlook/outlook.html</p>
	<p>Home energy monitoring</p>	<p>http://www.wattzon.com/</p>
	<p>Rocky Mountain Institute "Reinventing Fire"</p>	<p>http://rmi.org/rmi/</p>

Did you know?

- * BAU is an acronym for 'Business As Usual'
- * Coal is the fuel source for about half of the electricity made in America. Coal is delivered to power plants in trains pulling one hundred cars of coal. These are called "unit trains." See John McPhee's "Coal Train" New Yorker, 3 Oct 2005
- * PHEV is an abbreviation for "Plug-in Hybrid Electric Vehicle", like the Toyota Prius?
- * The Smart Meter is a replacement power meter that allows both you and your utility company to know how much power you use during peak and off-peak periods during the day. Many utilities charge different prices, called "time of use" rates, based on the time of day that power is used.

Intention:

Just Right tells the story of a regular family in a regular town that learns about the impact of all the electricity they use. The Jennerik family discovers that all the electrical energy used by all the families in their town creates several problems that impact everyone. They learn how each person and family can work to conserve, be more efficient, and shift consumption off peak so that disruptions and environmental damage can be prevented.

Just Right points toward the smart grid, the issues of peak vs off-peak consumption, personal responsibility toward efficiency and conservation, and the interplay between utilities, regulators, electrical equipment manufacturers (including appliance manufacturers), energy consultants and educational systems.

Just Right is intended to educate the 120 million American households about the emerging new realities of the production, distribution and consumption of electricity as the country faces environmental, cost, and regulatory challenges.

Just Right is the first in a series of teaching-stories using the Jennerik family. Future stories introduce distributed power generation (solar panels, wind, tidal, geothermal, etc.), off-peak storage, the smart garage, the smart grid, and greater depth regarding incentives and models for making the transition to an electrical production-distribution-consumption energy reality consistent with sustainable and environmentally-sound stewardship.

Background:

- * Electrical energy is part of America's critical infrastructure.
- * The PG&E Bakersfield class action lawsuit over smart meters shows that pitchforks at the castle gate can be costly. Utilities have considerable a considerable public relations upside regarding transitions to efficiency, conservation, alternative energy.
- * Kids may not pay utility bills now but they will in a decade. They need to know what the emerging electrical world is.

- * The fastest way to a parent's consciousness is thru their children. If a parent reads the story to her/his children, he/she will get the message.
- * The **Just Right** audience is every residential customer in the country. Everyone has children, or grandchildren, or neighbor's kids, or students, or church social work family kids. The story represents a friendly, upbeat, easily digestible, realistic, transparent paradigm-shift path.

Just Right was written by Joe Symons and illustrated by Anita Orne, residents of Orcas Island in Washington State. Learn more about these artists and a variety of centripetal projects at centripetus.org