

Robert Gray

Subject: Reducing Carbon Pollution - Vote for a strong reach code this Tuesday

-----Original Message-----

From: bruce@preville.net <bruce@preville.net>

Sent: Friday, November 29, 2019 8:58 PM

To: Council <Council@losgatosca.gov>; Town Manager <Manager@losgatosca.gov>

Subject: Reducing Carbon Pollution - Vote for a strong reach code this Tuesday

Dear Mayor Jensen, Vice Mayor Spector, and Council Members Leonardis, Rennie, and Sayoc:

As a father and Los Gatos resident, I am happy to see a Reach Code vote on Tuesday's agenda, and I urge you to vote to adopt a strong Reach Code ASAP. Buildings are a significant source of carbon pollution emissions in the Bay Area, and we have the opportunity to significantly reduce these emissions through adopting a strong a Reach Code.

We absolutely cannot afford to put new gas infrastructure into our homes and into the ground. Any new gas lines that we build would be an expensive mistake that we will pay for down the road, especially when electricity becomes so much less expensive than "natural" (fracked methane) gas. It is also a threat to the health and safety of our families, since natural gas burned in homes pollutes indoor air with harmful chemicals and causes nearly half of all residential fires.

We should be building all-electric new construction. All-electric buildings are cheaper to build, healthier and safer to live in, and will greatly reduce gas emissions. 100% clean electricity is already available to Los Gatos homes and businesses through Silicon Valley Clean Energy.

The science is clear and the engineering is ready. All we need now is political willpower. I hope you act now to protect our future generations.

Sincerely,

Bruce Preville

101 El Porton, Los Gatos 95032

Robert Gray

Subject: Vote for a strong reach code this Tuesday

From: Alaina Beeman <alaina.beeman@gmail.com>

Sent: Saturday, November 30, 2019 2:26 PM

To: Council <Council@losgatosca.gov>; Town Manager <Manager@losgatosca.gov>

Subject: Vote for a strong reach code this Tuesday

Dear Mayor Jensen, Vice Mayor Spector, and Council Members Leonardis, Rennie, and Sayoc:

As a mother and Los Gatos resident, I am happy to see a Reach Code vote on Tuesday's agenda, and I urge you to vote to adopt a strong Reach Code ASAP. Buildings are a significant source of greenhouse gas emissions in the Bay Area, and we have the opportunity to significantly reduce these emissions through adopting as strong a Reach Code as possible.

We absolutely cannot afford to put new gas infrastructure into our homes and into the ground. Any new gas lines that we build are an expensive mistake that we will pay for down the road. They are also a threat to the health and safety of our families, since "natural" (fracked methane) gas burned in homes pollutes indoor air with harmful chemicals and causes nearly half of all residential fires.

We should be building all-electric new construction. All-electric buildings are cheaper to build, healthier and safer to live in, and will greatly reduce greenhouse gas emissions. 100% clean electricity is already available to Los Gatos homes and businesses through Silicon Valley Clean Energy.

The science is clear and the engineering is ready. All we need now is political willpower. I hope you act now to protect our future generations.

Sincerely,

Alaina Beeman
16218 George St
Los Gatos, CA 95032

Robert Gray

Subject: Support for Los Gatos Reach Code!

From: Yen, Natasha <21natashay@students.harker.org>

Sent: Saturday, November 30, 2019 2:36 PM

To: Council <Council@losgatosca.gov>

Subject: Support for Los Gatos Reach Code!

Dear Councilmembers Rennie, Sayoc, Jensen, Spector, and Leonardis,

As a youth, I urge you to pass a strong all-electric reach code this month. It's vital for the health and safety of my future and the generations after me that all new buildings be powered by clean, renewable energy, not harmful, polluting fossil fuels. Building all-electric buildings is actually less expensive, too. So, please show climate leadership and join the wave of Bay Area cities and towns passing strong reach codes and gas bans this year.

Thank you!

- Natasha

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"Believe you can and you're halfway there." - Theodore Roosevelt

Robert Gray

Subject: Vote in favor of reach code!

From: Melanie Wendt <melanie_wendt@icloud.com>

Sent: Saturday, November 30, 2019 10:54 PM

To: Town Manager <Manager@losgatosca.gov>; Council <Council@losgatosca.gov>

Subject: Vote in favor of reach code!

Dear Mayor Jensen, Vice Mayor Spector, and Council Members Leonardis, Rennie, and Sayoc:

As a resident of Los Gatos, I am happy to see a Reach Code vote on Tuesday's agenda, and I urge you to **vote to adopt a strong Reach Code ASAP**. Buildings are a significant source of greenhouse gas emissions in the Bay Area, and we have the opportunity to significantly reduce these emissions through adopting as strong a Reach Code as possible.

We absolutely cannot afford to put new gas infrastructure into our homes and into the ground. Any new gas lines that we build are an expensive mistake that we will pay for down the road. **They are also a threat to the health and safety of our families**, since "natural" (fracked methane) gas burned in homes pollutes indoor air with [harmful chemicals](#) and causes nearly [half of all residential fires](#).

We should be building all-electric new construction. All-electric buildings are cheaper to build, healthier and safer to live in, and will greatly reduce greenhouse gas emissions. 100% clean electricity is already available to Los Gatos homes and businesses through Silicon Valley Clean Energy.

The science is clear and the engineering is ready. All we need now is political willpower. I hope you act now to protect our future generations.

Sincerely,
Melanie Wendt

17800 Foster Road

Los Gatos, CA 95030

Sent from my iPhone

Robert Gray

Subject: Vote for a strong reach code this Tuesday

From: Thomas Wendt <tom_wendt@me.com>

Sent: Saturday, November 30, 2019 10:59 PM

To: Council <Council@losgatosca.gov>; Town Manager <Manager@losgatosca.gov>

Subject: Vote for a strong reach code this Tuesday

Dear Mayor Jensen, Vice Mayor Spector, and Council Members Leonardis, Rennie, and Sayoc:

As a Dad and Los Gatos resident, I am happy to see a Reach Code vote on Tuesday's agenda, and I urge you to **vote to adopt a strong Reach Code ASAP**. Buildings are a significant source of greenhouse gas emissions in the Bay Area, and we have the opportunity to significantly reduce these emissions through adopting as strong a Reach Code as possible.

We absolutely cannot afford to put new gas infrastructure into our homes and into the ground. Any new gas lines that we build are an expensive mistake that we will pay for down the road. **They are also a threat to the health and safety of our families**, since "natural" (fracked methane) gas burned in homes pollutes indoor air with [harmful chemicals](#) and causes nearly [half of all residential fires](#).

We should be building all-electric new construction. All-electric buildings are cheaper to build, healthier and safer to live in, and will greatly reduce greenhouse gas emissions. 100% clean electricity is already available to Los Gatos homes and businesses through Silicon Valley Clean Energy.

The science is clear and the engineering is ready. All we need now is political willpower. I hope you act now to protect our future generations.

Sincerely,
Tom Wendt

Robert Gray

Subject: Presentation for Dec 3 Town Council Meeting
Attachments: Lipp REACH Presentation.pdf

From: Robert Lipp <ebob@2lipps.com>
Sent: Sunday, December 01, 2019 4:22 PM
To: Clerk <Clerk@losgatosca.gov>
Cc: Council <Council@losgatosca.gov>
Subject: Presentation for Dec 3 Town Council Meeting

I wish to present a short overview of the attached presentation at the Dec 3 Council Meeting for discussion on the REACH agenda item. item.

Please confirm receipt of this material and distribute it to the Council

Thank you

Robert Lipp

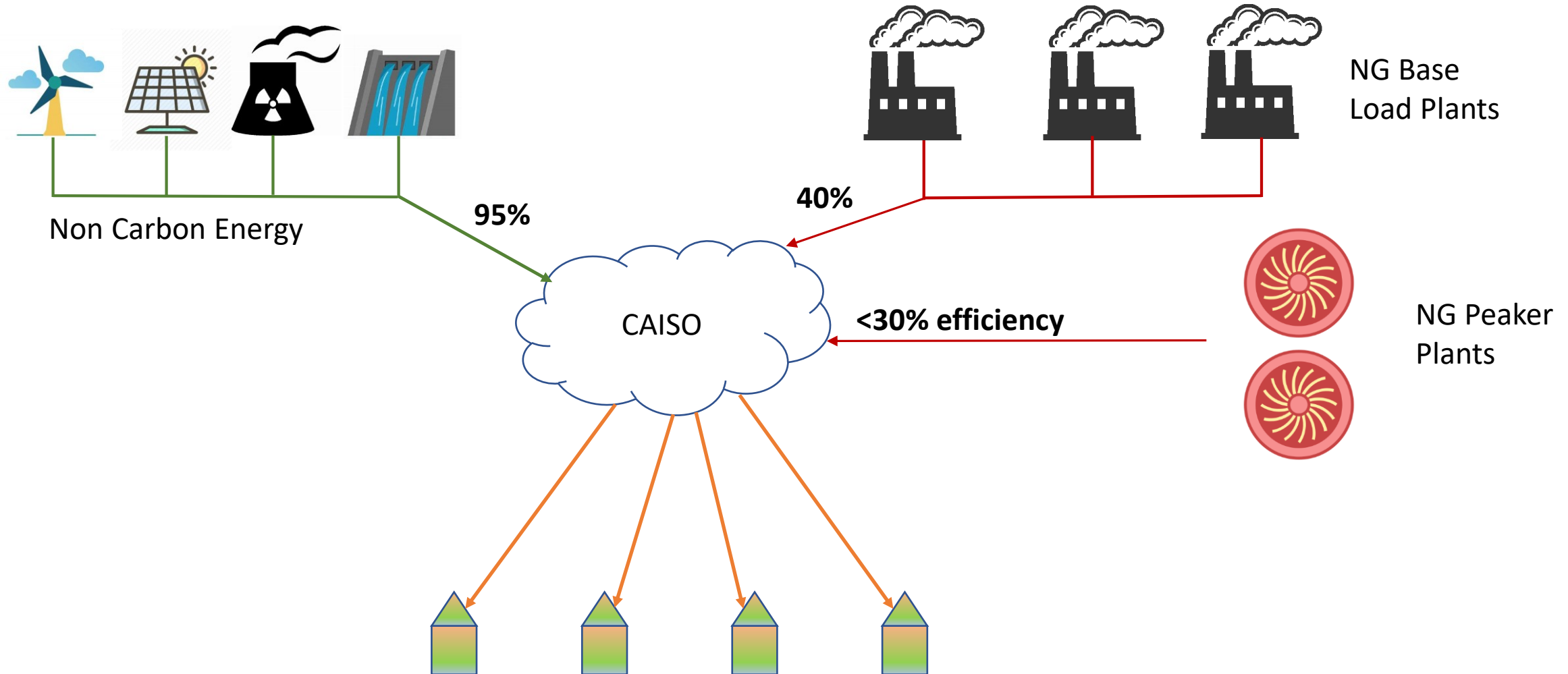
Thoughts on REACH

**“The world has just over a decade to get
climate change under control”**

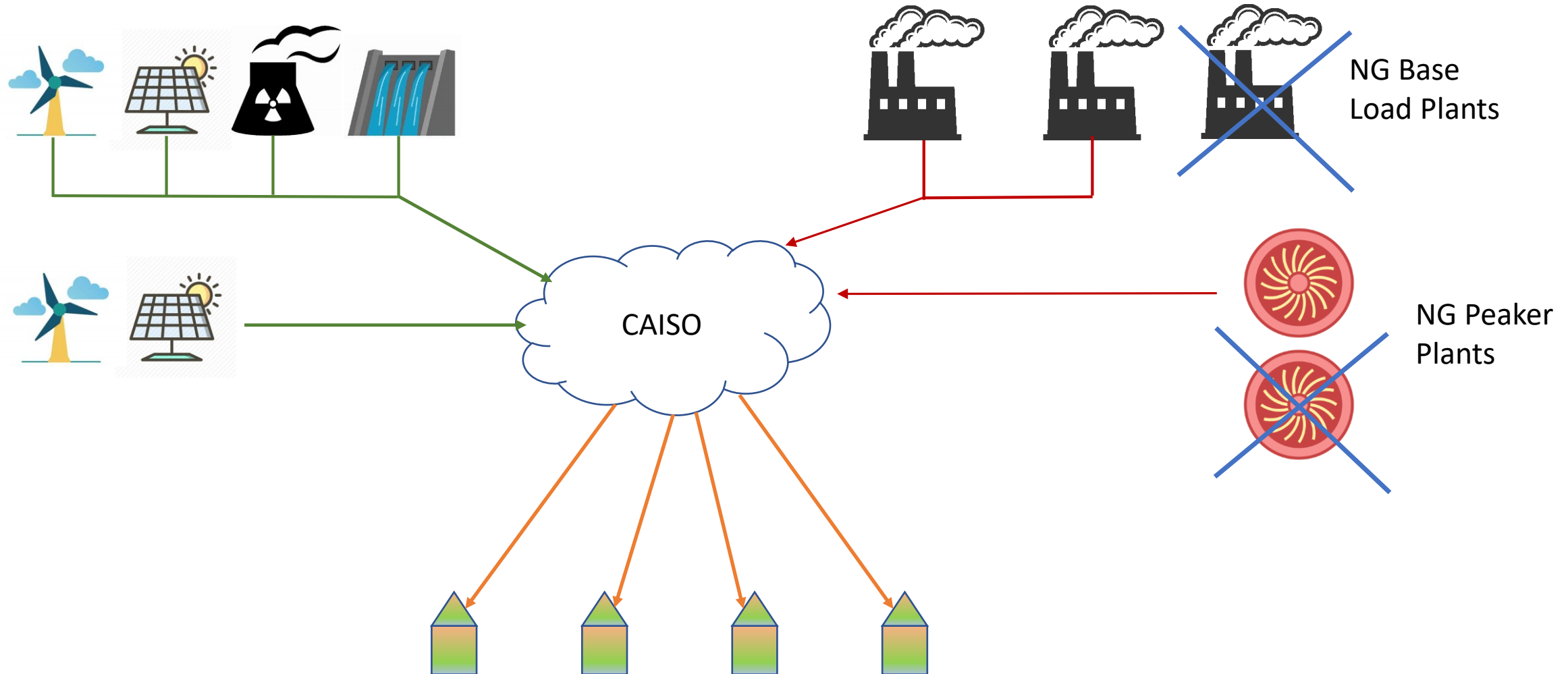
U.N. Intergovernmental Panel on Climate Change

REACH would increase Energy Consumption
– Where would that energy come from?

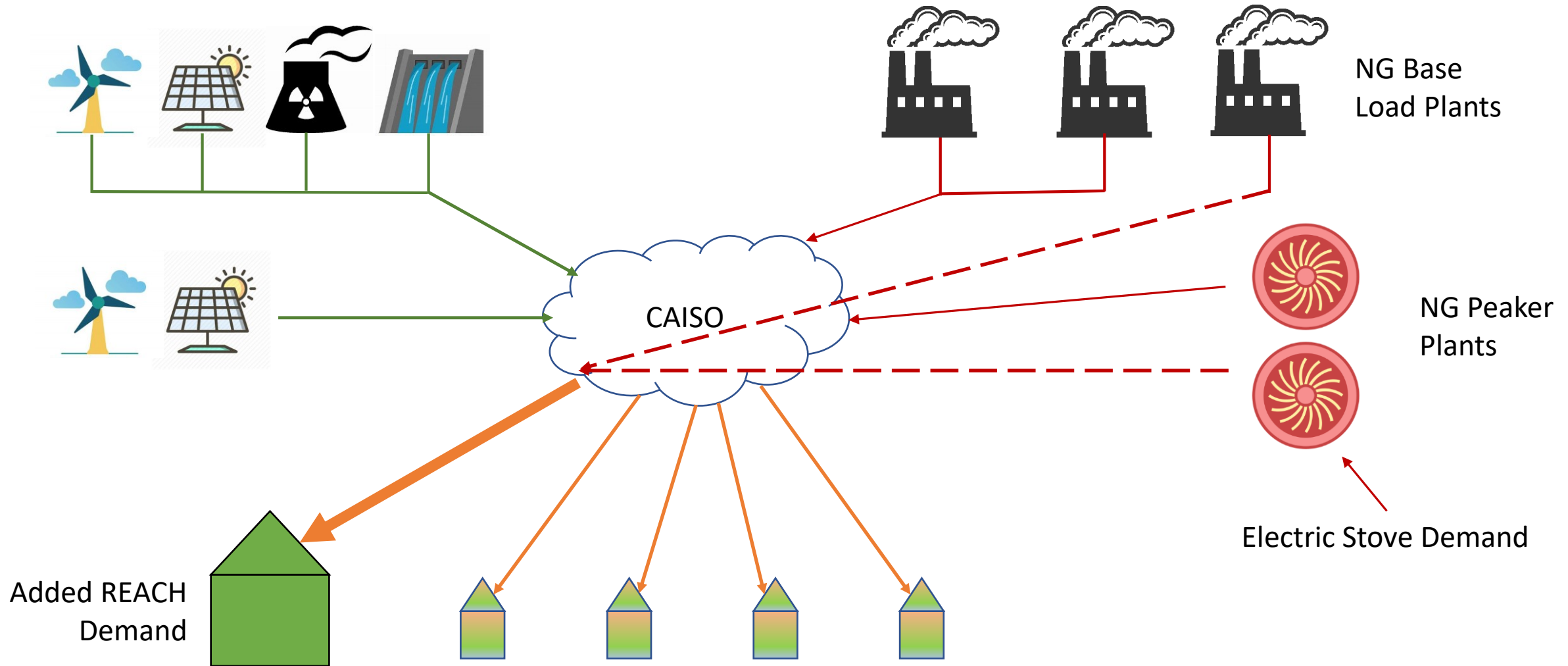
Today's Electrical Grid



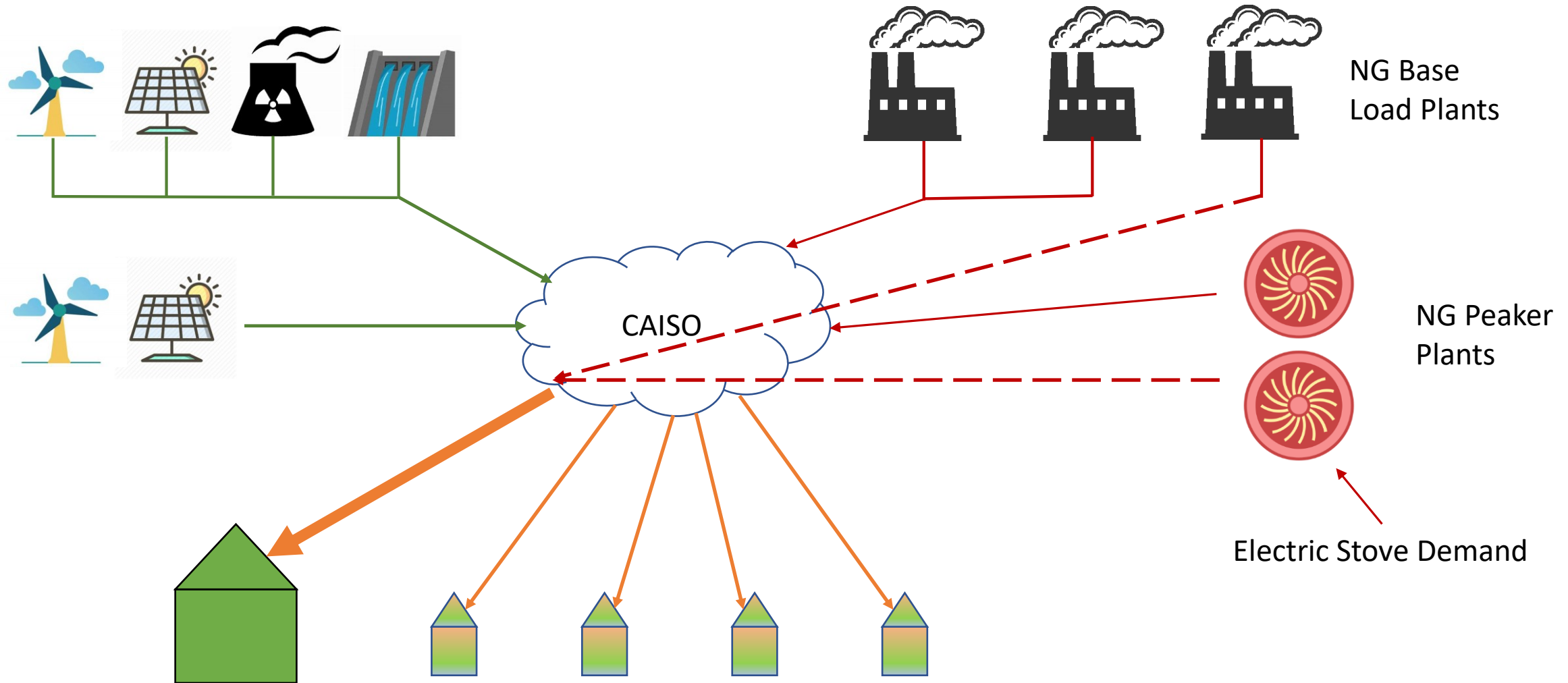
Current Trend without REACH by 2030



Consequences of Implementing REACH



Purchasing 100% Green is only Paperwork Transaction



Energy Myths

Electricity is Green & Clean

Can Purchase 100% Green Energy

Electricity More Efficient than NG

Electricity costs comparable to NG

Energy Truths

~~Electricity is Green & Clean~~

CA Electricity is only 30% Renewables

Can Purchase 100% Green Energy

Electricity More Efficient than NG

Electricity costs comparable to NG

Energy Truths

~~Electricity is Green & Clean~~

CA Electricity is only 30% Renewables

~~Can Purchase 100% Green Energy~~

Can't Get It Delivered to Our Homes

Electricity More Efficient than NG

Electricity costs comparable to NG

Energy Truths

~~Electricity is Green & Clean~~

CA Electricity is only 30% Renewables

~~Can Purchase 100% Green Energy~~

Can't Get It Delivered to Our Homes

~~Electricity More Efficient than NG~~

Not for Most Residential Uses

Electricity costs comparable to NG

Energy Truths

~~Electricity is Green & Clean~~

CA Electricity is only 30% Renewables

~~Can Purchase 100% Green Energy~~

Can't Get It Delivered to Our Homes

~~Electricity More Efficient than NG~~

Not for Most Residential Uses

~~Electricity costs comparable to NG~~

Electricity 6-12x More Expensive

Fruitless Future-Proofing

Remodeled home 20 years ago - added Cat 5 internet & phone lines

Today Exclusively WIFI & cell phones

Same professionally: I almost always guessed wrong!



Recommended Actions

- Do no harm
- Do not mandate fully electric
- Require minimum futureproofing without too many specifics
 - e.g. run EV conduits but not wiring
 - Consider dual meters to allow mixed tariffs for different applications
- Work toward big wins – REACH Further
 - Work with other cities and agencies (CEC, PUC, SVCE, EPA) to promote better tariffs
 - Insist bankrupt PG&E terminate long term contracts for dirty energy
 - Speed up Green Energy Deployment
- Give mountain people a break – unreliable PG&E, fires, mudslides earthquakes are hazards. Never insist upon full electric for remote areas. They need their propane for cooking, boiling water and heat in an emergency.

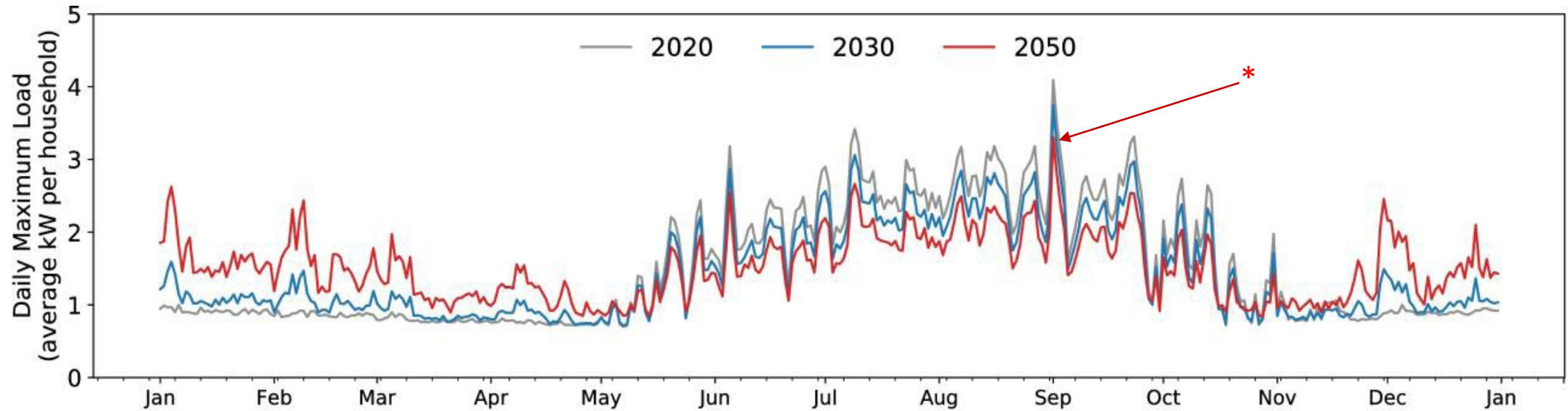
Backup Slides

Other Myths and Reality

- Natural gas leaks increase methane emissions and GHG
 - Yes, but mostly upstream. Very little escapes in residences. REACH does not address upstream
 - But, residential refrigerant losses from heat pumps are also a GHG source
- Natural gas pollutes indoor air more than electric cooking
 - Rubbish! Unvented electric ovens and spatters on electric elements are way more polluting

CEC chart

Figure 3-32: Daily average household maximum loads from electrifying all end uses in a high building electrification scenario



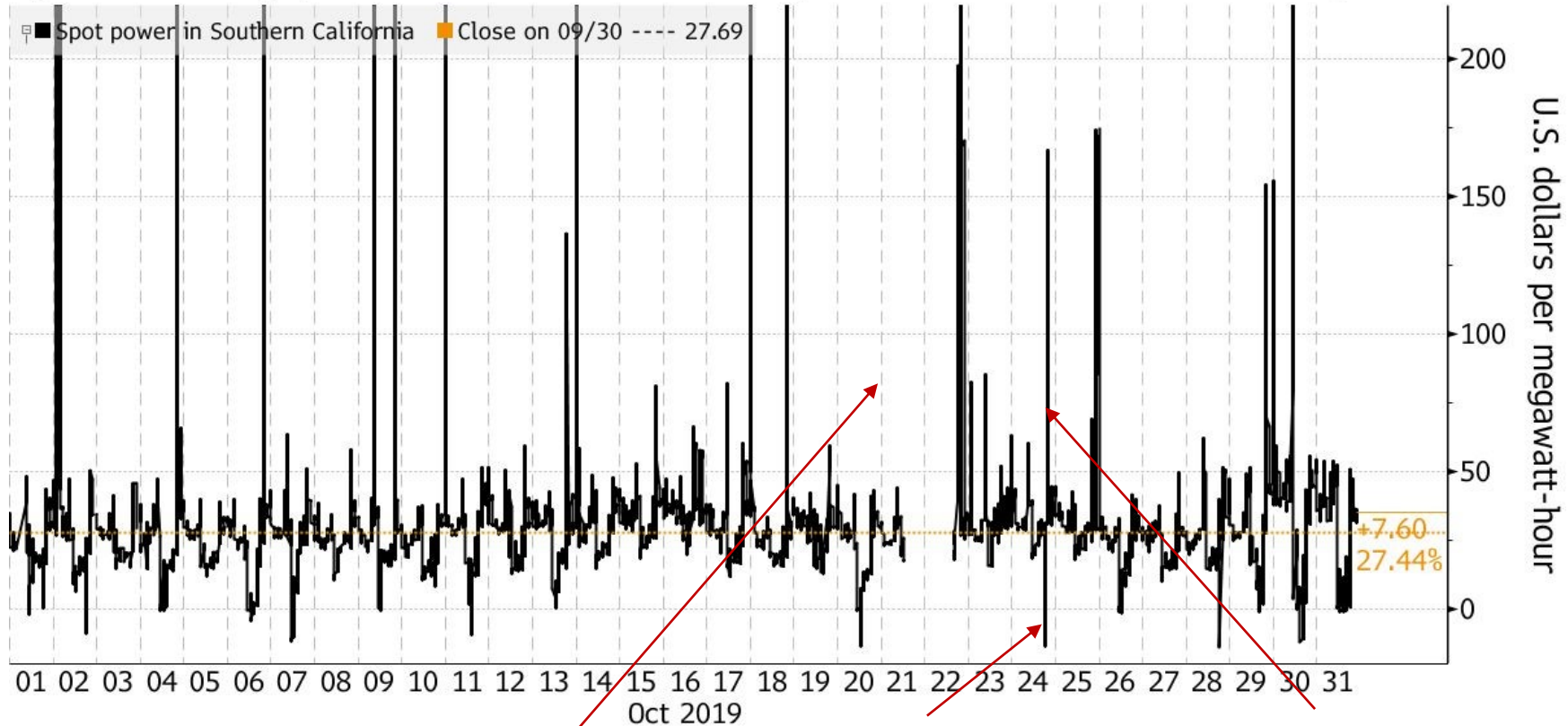
* The average load per household reflects a changing share of natural gas-fueled vs. all-electric homes

- Change appliances from gas to electric and somehow electric usage goes down!

** Very questionable assumption that peak loads are dramatically reduced in 2050 as more homes are fully electrified, and a couple of EVs are added*

Solar's Power

Spot electricity prices in California often dip below zero on excess solar power



Source: Data compiled by Bloomberg

Windy during peak hours

Negative Pricing - Too Much Solar, too little storage

Electric Stoves Turning On a Couple of Hours Later?

Primarily supplied by low efficiency Peaker Plants

Greatest mismatch in usage/generation occurs on a hot September afternoon during sunset as solar generation declines but AC is still on and cooking starts – how is that peak mismatch generated?

Generating Heat from Electricity

It's basically crazy to burn NG to generate steam to spin a turbine then send it tens to hundreds of miles through lossy transformers and transmission lines

Using a 40% efficiency of the heat content of NG delivered to the consumer:

Compared to NG:

- An electric dryer generates 250% more GHG
- A conventional water heater generates 200% more; a heat pump based water heater generates 50% less
 - But, heat pump water heaters cost about \$1,000 more, cost twice as much to operate, and chill the room they are in – which may lead to increased space heating – e.g. using an electric space heater in that garage workshop

Cooking with Electricity

A Dirty Way to Go

- A conventional electric stove generates 135% more GHG than NG at base load times
 - Efficiency per CEC : NG 40%, resistive electric 74%, inductive electric 84%
 - Really? They can calculate this down to 1% accuracy? Huge variation based on pan sizes and cooking temperatures
- Cooking that evening meal during peak usage times (4-8PM) requires deployment of low efficiency peaker plants
 - A conventional electric stove actually generates 200% more GHG at peak hours
- An electric oven generates 250% more GHG than NG
- Imagine how many low efficiency peaking generators would go off line if everyone cooked with NG!

Heat Pump Space Heating

- A potentially very big win in our climate
- COP* can be as high as 5 (though typically <4 in real life operations)
 - e.g. dirt accumulation and defrost cycling
- However, current tariffs penalize heat pumps - both tiered pricing and time-of-day
 - Electrical energy costs over 6x more than NG
 - Tier prices designed to reduce energy usage make heat pumps an expensive proposition
 - If I want to cook with gas I cannot get the fully electric tier tariff, a huge disincentive for heat pump heating!
 - Heat pumps should be operated without large rapid changes in temperature
 - Engages resistive heating to meet sudden demand
 - Turning down the thermostat way down while away at work, nights or during peak pricing periods may actually increase electrical usage rather than save it.

*COP (coefficient of performance) = energy out/energy in

Axioms

- Grid operators will always use available green energy first unless forced otherwise by long term contracts as the variable cost is near zero. All demand above that will be supplied by NG
- Less than 40% of the energy content of power plant fuel gets delivered to your home (basic thermodynamics puts a strict limit on this)
 - For the common NG turbine peaking plants (jet engines) it is under 30%
- Increased REACH demands will be met by slowing down retirement of NG fired plants since the supply of green energy at any time is finite
 - Essentially all new (i.e. REACH electrification) demand will be supplied from existing dirty energy sources!
- Other GHGs such as NG leaks and refrigerant leaks happen but pretty much net out on overall tradeoffs according to CEC estimates

A Personal Aside

- I changed my kitchen from fully electric to a NG stove. I think anyone doing a major remodel wouldn't seriously worry about the reverse - running electric wires on a kitchen remodel if they were changing from NG to electricity. It's a small expense in the scheme of things.
- I installed a fancy electric wall oven. It is unvented and fills the house with cooking fumes. It is too far from my super large 1,200cfm stove fan. The manufacturer says it cannot be vented. My guess is a NG stove would have to be vented by code. I waste a huge amount of energy (fan power and heat/AC loss) by running the fan on high trying to reduce the fumes (a double whammy on energy efficiency).
- Having had both electric and NG kitchens, my experience is electric cooking is a far greater contributor to in-house pollution than gas
 - Spatters smoke on conventional electric stoves, while a spatter on a NG stove is unlikely to hit the hot flames and when it does it is consumed.
 - Electric broilers are essentially unusable due to grease spatters on the elements. NG broilers consume most of the fumes from cooking and don't have much of a spatter issue.

Electric Car Hookups

- Electric cars are a big win as conventional gas engines are only 20% efficient and use high carbon fuel
- Dual meters are interesting – one for electric car charging so better tariffs can be developed for them (but, who knows what will happen!)
 - Electric cars are potentially a big win but need to be better integrated with the grid operation and grid pricing
 - New meters are an expensive retrofit
- Wait for more standards before making possibly counterproductive rules
 - Faster charging options may be developed
 - Electric cars may someday be integrated with grid storage
 - Whatever is done now will be obsolete

Residential Batteries

- Storage is a big issue with renewables
- Large scale grid battery storage can be implemented at a fraction of the cost of residential batteries and be better maintained and integrated with grid operations and pricing
- Residential batteries a marginal idea
 - A 10kW \$3,500 Tesla battery stores less than \$0.30 worth of electricity at normal wholesale prices (~\$3 at peak prices)

Robert Gray

Subject: PLEASE vote for a strong reach code this Tuesday

From: Deborah Johnson <dejohns70@gmail.com>

Sent: Sunday, December 01, 2019 10:06 PM

To: Council <Council@losgatosca.gov>; Town Manager <Manager@losgatosca.gov>

Subject: PLEASE vote for a strong reach code this Tuesday

Dear Mayor Jensen, Vice Mayor Spector, and Council Members Leonardis, Rennie, and Sayoc:

As a mother and Los Gatos resident, I am happy to see a Reach Code vote on Tuesday's agenda, and I urge you to **vote to adopt a strong Reach Code ASAP**. Buildings are a significant source of greenhouse gas emissions in the Bay Area, and we have the opportunity to significantly reduce these emissions through adopting as strong a Reach Code as possible.

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We should be building all-electric new construction. All-electric buildings are cheaper to build, healthier and safer to live in, and will greatly reduce greenhouse gas emissions.

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The science is clear and the engineering is ready. All we need now is political willpower. I hope you act now to protect our future generations.

Sincerely,

Deborah Johnson

150 Robin Way, Los Gatos, 95032

Sent from my iPad

Robert Gray

Subject: Council Hearing Re: Reach Codes

From: Terry Martin <terry@tma-arch.com>
Sent: Monday, December 02, 2019 12:19 PM
To: Robert Gray <RGray@losgatosca.gov>
Subject: Council Hearing Re: Reach Codes

Mr Gray,

I received an email from one of my colleagues today in regards to the adoption of the 2019 CBC and CRC along with the other codes as they have been thoroughly reviewed and vetted over the last three year though IBC and all of their partners.

My concern is that the reach codes are just being tacked into approval without proper review and due process.

There has been no reach out to the local architects or the AIASVC in regards to the reach codes prior to this proposal.

San Jose adopted these codes with no process in place to deal with the issues involved with electric only buildings and the implications with designing and processing these buildings. Please understand that as an architect that any residential building that I would have to be submitting in January or February would already need to be in my cue going through the state Title 24 and Cal Green process which does not allow for the reach codes today.

My concern is that Los Gatos is going down the same process.

When I look at the state mandates and where we are going and how CalGreen is working with Title 24 energy to ultimately be Net zero (No Gas) over the next 10 years, I am not sure why the town would ignore this trusted system and try to implement something early. The industry as a whole is not ready for these Reach Codes.

My recommendation is that you have council pull the reach code add from the approval of the 2019 CBC adoption on Dec 3rd town council hearing.

Sincerely

Terry Martin
CA Architect Lic C23221

Terry J Martin AIA
TMA ARCHITECTS
Commercial & Residential Architecture
61 East Main Street, Suite D
Los Gatos, California 95030
408.395.8016
terry@tma-arch.com
Certified Green Point Rater