

Re: compressed air to store wind energy

Source: <http://sci.tech-archive.net/Archive/sci.energy/2005-03/0414.html>

analyst41_at_hotmail.com

Date: 03/17/05

Date: 17 Mar 2005 05:49:12 -0800

Don Kelly wrote:

> <analyst41@hotmail.com> wrote in message
> news:1111020255.806234.183730@o13g2000cwo.googlegroups.com...
> >
> > bigcat@meeow.co.uk wrote:
> > > analyst41@hotmail.com wrote:
> > > > bigcat@meeow.co.uk wrote:
> > > > > Bruce Sinclair wrote:
> > > > > In article
> > > <1110934909.812320.33720@l41g2000cwc.googlegroups.com>,
> > > > analyst41@hotmail.com wrote:
> > > > > bigcat@meeow.co.uk wrote:
> > > > > > Brian Elmegaard wrote:
> > >
> > > If your negativity is based on expertise, I can't challenge
that.
> > > Please feel free to provide relevant facts and figures to prove
its
> > a
> > > "hopeless idea".
> > >
> > Have you run the numbers yet or not?
> >
> > Have you ?
> >
> > I am not making a positive assertion and am only enquiring if the
> > concept is viable. I do not claim to be an expert on the economics
of
> > energy storage . You are making a negative assertion regarding
CAES –
> > the burden of proof is on you.
> >
> > If you check out the website I provided, you would find
> >
> > http://www.espcinc.com/CAES_AI_Novel.htm
> >
> > start quote:

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> >
> > *This concept, due to its lowest cost, is the best alternative for*
> > *improvement of economics of wind power plants and other renewable*
> > *energy sources by storing the renewable energy (whenever it is*
> > *produced) and by releasing it in a controlled fashion as needed*
during
> > *peak hours.*
> >
> > *end quote.*
> -----
> *The concept is not new. Nor has your reference anything to do with*
wind
> *power. It has all to do with separating the compressor from the gas*
turbine,
> *allowing a larger generator and electrical output with the same*
turbine as a
> *source.*
> *The "economics" involved are not those with wind as a source. They*
are the
> *economics involved with the difference in electricity costs at peak*
and off
> *peak periods and that a gas turbine will require about 30% of the*
input
> *energy to compress air for combustion– the scheme simply uses off*
peak
> *energy which is far cheaper to do this and allowing more output bang*
for the
> *buck at the gas turbine.*
>
> *The proposal to use wind energy has nothing to do with this.*
> *Direct operation of compressors by wind turbines is unlikely to be*
feasible
> *or economic as good operating speeds for compressors and for wind*
turbines
> *are not really compatible. I doubt if anyone has really crunched the*
numbers
> *or looked seriously at design problems.*
> *It is probably more feasible and ultimately more efficient and*
cheaper to
> *use wind energy to produce electricity as done now, rather than a*
dedicated
> *wind unit –compressor facility. Dump the wind energy into the*
electrical
> *grid when it is available. Draw energy from the grid at off peak*
hours to
> *compress air. If the wind is blowing, it will supply some of this*
energy, if
> *not, some other source is needed.*
> --
> *Don Kelly*
> *dhky@peeshaw.ca*

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> *remove the urine to answer*

>

> >

I now understand where all the negativity is coming from – there are allegedly estimates that compressing air and decompressing it later for power generation can lose up to 80 pct of the input energy. What we need to know is if this loss is imposed by Physics or is it a current engineering limitation that exists because this has not been aggressively researched. After all, from what I understand, wind-turbine efficiencies have increased by an order of magnitude in the past 20–30 years.

It would be interesting to see how the Iowa project is coming along.

<http://www.idea.iastate.edu/isep/>