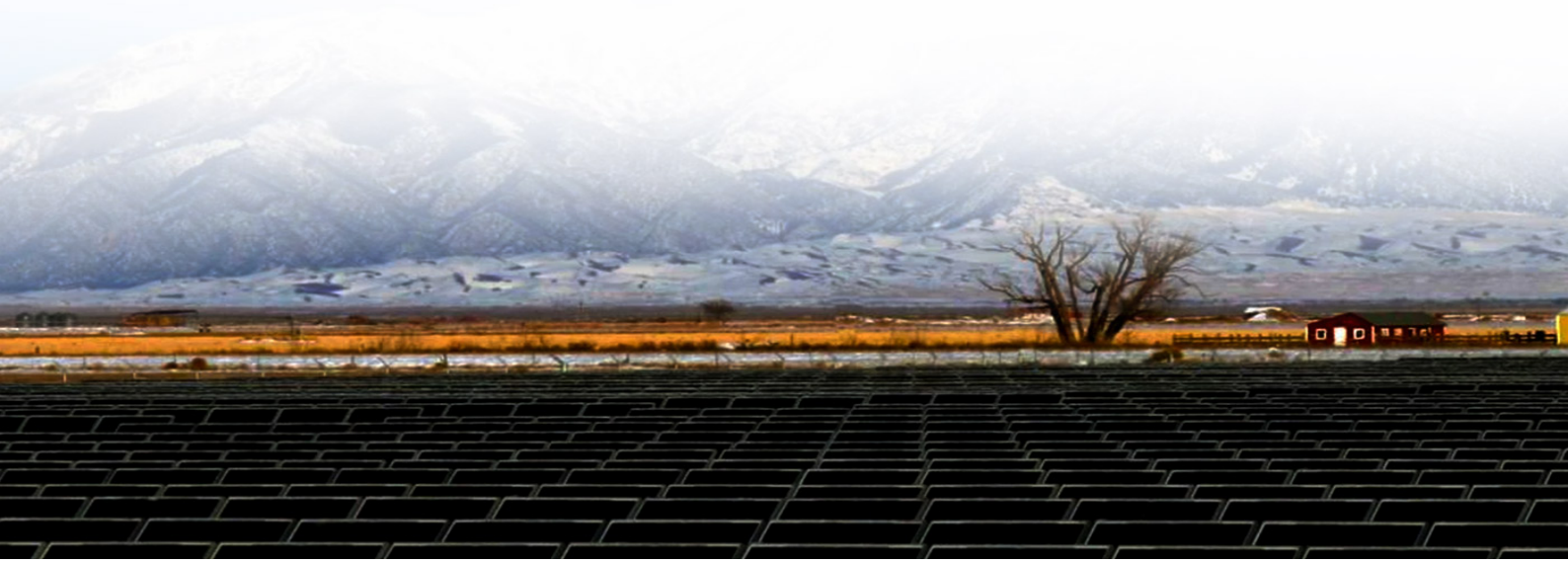
It is known that an lti system has no energy storage initially



Overview

An LTI system is "initially relaxed" or "at rest" if all its initial conditions are zero before an input is applied. This means there is no stored energy in the system. A consequence of being initially relaxed is that if the input to the system is zero for all time (x (t) = 0 x(t) = 0 or x [n] = 0. Very general signals can be represented as linear combinations of delayed impulses. By the principle of superposition, the response y [n] of a discrete-time LTI system is the sum of the responses to the individual shifted impulses making up the input signal x [n]. A discrete-time signal can be. In particular, by substituting eq. 41) into the convolution sum, eq.

It is known that an lti system has no energy storage initially

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The response of a continuous-time LTI system can be computed by convolution of the impulse response of the system with the input signal, using a convolution integral, rather than a sum.

LTI System

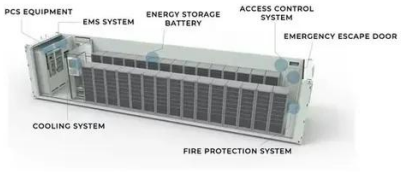
Long-term behavior in a system is predicted using LTI systems. The term "linear translation-invariant" can be used to describe these systems, giving it the broadest meaning possible.

The initial no energy storage of an lti system

The zero-input response, which is what the system does with no input at all. This is due to initial conditions, such as energy stored in capacitors and inductors. The zero-state response, which is the ...

module1-2_LTI_AT

Since most periodic (non-periodic) signals can be decomposed into a summation (integration) of sinusoids via Fourier Series (Transform), the response of a LTI system to virtually any input is ...



The LTI system is said to be initially relaxed system when

An LTI system is "initially relaxed" or "at rest" if all its initial conditions are zero before an input is applied. This means there is no stored energy in the system.

Linear time-invariant system

Any system that can be modeled as a linear differential equation with constant coefficients is an LTI system. Examples of such systems are electrical circuits made up of resistors, inductors, and ...

PROPERTIES OF LINEAR TIME-INVARIANT SYSTEMS

If a discrete-time LTI system has an impulse response h[n] that is not identically zero for n ± 0, then the system has memory. An example of an LTI system with memory is the system given by eq. (2.42).

Linear Systems I Lecture 3

Def. (relaxed system): A system is said to be relaxed at t0 if its initial state x(t0) is 0. In this case the output y(t), t > t0 is excited exclusively by the input u(t) for t > t0.

State Variable Description of LTI systems

Set of variables of smallest possible size that together with any input to the system is sufficient to determine the future behavior (I.e., output) of the system.

[It is known that an lti system has no energy storage initially]

For LTI systems, these two concepts capture the same essential property of dynamical systems, that is, a system with this property does not generate its own energy but only stores and dissipates

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