

# History of U.S. Energy Standards (2 hrs)

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**2.0 contact hrs** for engineers, contractors, designers and certified energy professionals

## Course Description

Since the 1980s we have seen more and more energy standards and criteria affecting almost every energy-consuming device, building, house or piece of equipment made, built or installed. But that was not always true. Countless old buildings and homes were designed and built well before the 1980s. Many older citizens as well as older engineers and contractors were educated or trained well before the 1980s. So it is helpful not only to retrace how we evolved to today's situation, but also to understand what it was like before modern energy standards and what it may be like in the future.

This course presents a brief history of USA's energy markets, conditions and events before there were widely applied energy standards. In the early and middle 20<sup>th</sup> century USA had plentiful supplies of low-cost domestic energy. But in the 1960s and 1970s USA began to experience troublesome domestic energy supply shortages and price increases which led to one energy crisis after another. Heating demands expanded enormously during several consecutive record-breaking winters in the 1970s while domestic natural gas supplies were becoming insufficient and seeming unable to grow. Cooling demands expanded rapidly as air conditioning became suddenly more widespread in the 1980s and 1990s, causing stress on USA's electricity supplies and distribution grids. Rapid growth of conditioned space in new housing and commercial buildings also began to cause rapid increases in demands for natural gas and electricity. USA's domestic petroleum supplies were also appearing to dwindle in the 1970s, while international political crises in the Middle East and South America began to reduce our access to imported petroleum at a low price. Then some big oil spills and a Pennsylvania nuclear powerplant's partial meltdown caused sudden environmental concerns about our energy future.

All this caused our governments to react with new policies and laws, including a Department of Energy (DOE) which began to encourage and mandate tighter energy efficiency standards for appliances, equipment and vehicles, then eventually commercial and residential energy codes. Some consumers and businesses began to deploy energy strategies beyond efficiency improvement, like generating their own energy with renewable energy equipment which had become cheaper and more available.

While fracking began to improve domestic conventional energy supplies and lower prices for natural gas and petroleum in the early 2000s, concerns rose about the increased carbon and methane emissions from burning these fossil fuels as well as coal. This course will offer some hints about possible future energy standards and criteria which might result from these mounting concerns about climate change.

## Learning Objectives

- Appreciate the large amount of change in USA's energy situations over the last century
- Understand when, how and why USA began to introduce energy efficiency standards
- Become familiar with the objectives of these standards and how successful they have been
- Learn about possible future energy standards which might evolve relative to climate change

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