



NGS, BOR WRO &lt;ngs@usbr.gov&gt;

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**NGS can be retooled to make Solar cells using natural gas**1 message

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**Vincent Yazzie** [REDACTED]

Tue, May 23, 2017 at 9:30 AM

Reply-To: Vincent Yazzie [REDACTED]

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May 23, 2017

Vincent Yazzie

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Bureau of Reclamation (BOR)

Dear BOR,

NGS is a cheap power source which can be retooled to burn natural gas to make solar cells including a Navajo Manufacturing industry.

Takes lot of energy to make solar cells. About 1 ton of coal to make 1 kg of electronic grade silicon.

Electronic grade silicon (CVD process): 7,590-7,755MJ (2,108,700 to 2,154,900 watt-hours).

How much energy does it take (on average) to produce 1 kilogram of the following materials?

**How much energy does it take (on average) to produce 1 kilogram of the foll...**

Wood (from standing timber): 3-7MJ (830 to 1,950 watt-hours).

Steel (from recycled steel): 6-15MJ (1,665 to 4,17...

About 5 tons of polysilicon is required to manufacture 1 [megawatt](#) (MW) of conventional solar modules.<sup>[2]</sup> Polysilicon is distinct from [monocrystalline silicon](#) and [amorphous silicon](#)

Vincent Yazzie

[Polycrystalline silicon](#)

### **Polycrystalline silicon**

Polycrystalline silicon, also called polysilicon or poly-Si, is a high purity, polycrystalline form of silicon, ...