

Testing was done using Laravel Dusk, this utilizes a chrome driver to simulate using the webpage and interacting with the elements.

```
vagrant@homestead:~/code$ php artisan dusk
PHPUnit 9.5.10 by Sebastian Bergmann and contributors.

..... 26 / 26 (100%)

Time: 00:43.261, Memory: 22.00 MB

OK (26 tests, 51 assertions)
vagrant@homestead:~/code$
```

```
public function testSubmit()
{
    $this->browse(function (Browser $browser) {
        $browser->visit('/')
            ->keys('#vs1_combobox > div.vs__selected-options > input','Test','[ENTER]')
            ->click('#mapSelect')
            ->assertValueIsNot('#latitude','0')
            ->assertValueIsNot('#longitude','0')
            ->attach('#mainForm > div:nth-child(1) > div > div > div:nth-child(4) > div > div > input', '/home/vagrant/code/tests/Browser/monthdata_cleaned.csv')
            ->click('#mainForm > div.submit-container > button')
            ->screenshot('summaryTest1')
            ->waitFor('#roiValue', 30)
            ->assertSee('219');

        $browser->scrollIntoView('#app > div.extra > div:nth-child(2) > div:nth-child(1) > div:nth-child(1) > div > header > h3')
            ->screenshot('summaryTest2');
    });
}

public function testErrorLatitude()
{
    $this->browse(function (Browser $browser) {
        $browser->visit('/')
            ->keys('#latitude','235')
            ->assertSee('Invalid latitude - must be between -90 and 90')
            ->keys('#latitude','-95')
            ->assertSee('Invalid latitude - must be between -90 and 90')
            ->keys('#latitude','er')
            ->assertSee('Invalid latitude - must be between -90 and 90');
    });
}

public function testGoodLatitude()
{

```

```
public function testErrorLatitude()
{
    $this->browse(function (Browser $browser) {
        $browser->visit('/')
            ->keys('#latitude','235')
            ->assertSee('Invalid latitude - must be between -90 and 90')
            ->keys('#latitude','-95')
            ->assertSee('Invalid latitude - must be between -90 and 90')
            ->keys('#latitude','er')
            ->assertSee('Invalid latitude - must be between -90 and 90');
    });
}

public function testGoodLatitude()
{
    $this->browse(function (Browser $browser) {
        $browser->visit('/')
            ->keys('#latitude','23')
            ->assertDontSee('Invalid latitude - must be between -90 and 90')
            ->keys('#latitude','-90')
            ->assertDontSee('Invalid latitude - must be between -90 and 90')
            ->keys('#latitude','90')
            ->assertDontSee('Invalid latitude - must be between -90 and 90');
    });
}
```

Screenshot from the Laravel Dusk tester

Inputs

Summary

About

Panel Name *

310W Black Frame 60 cell Mono-PERC 35mm T4 CANADIAN MM

Module Efficiency *

0.164

Module Area *

1.6664

Panel Unit Cost *

USD 222

Panel Wattage *

310

Panel Name *

Longi - LR4-60HPB-360M - Mono - Black

Module Efficiency *

0.198

Module Area *

1.82189

Panel Unit Cost *

USD 281.76

Panel Wattage *

360

Panel Name *

Longi - LR4-72HPH-450M, Monofacial, 35mm

Module Efficiency *

0.184

Module Area *

2.290836

Panel Unit Cost *

USD 322.79

Panel Wattage *

450

Available Roof Area *

400

Interest Rate *

15

Available Grants *

500

Cost of a kWh *

KWh 20

Roof Direction: North

0°

Start Date

Fri, Jan 1, 2021 12:00 AM

End Date

Sat, May 1, 2021 12:00 AM

Calculate

Inputs

Summary

About

Total Return on Investment:

\$7,701,585.00

Full Credit Generation Value Vs. Over Generation Value

Full Credit Value: 390.8 %

Annual KWH Generated:

8013.879254972105 KWH

Annual KWH Generated

Month	Generated (KWH)	Consumed (KWH)
Jan	~1000	~1000
Feb	~1000	~1000
Mar	~1000	~1000
Apr	~1000	~1000
May	~1000	~1000

Cash Flow Estimation

Annual KWH Generated

Month	Generated (KWH)	Consumed (KWH)
Jan	~1000	~1000
Feb	~1000	~1000
Mar	~1000	~1000
Apr	~1000	~1000
May	~1000	~1000

Best Panel Setup

The optimal panel setup is:

219 Longi - LR4-60HPB-360M - Mono - Blacks

Angled at 30° degrees