

## Template for Evidence(s) UI GreenMetric Questionnaire

University : IFSULDEMINAS  
Country : BRAZIL  
Web Address : <https://www.ifsuldeminas.edu.br/index.php>

### [2] Energy and Climate Change (EC)

#### [2.5] Renewable Energy Sources in Campus

| IFSULDEMINAS Photovoltaic Electric Energy Production (kWh) |                |               |                |               |               |               |               |               |               |                |               |
|--|----------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|
| Year   | Months         | Total         | CDM            | TCO           | INC           | MCH           | MUZ           | PAS           | PCS           | POA            | RET           |
| 2020   | oct            | 64.085        | 3.023          | 4.792         | 5.930         | 7.940         | 7.990         | 7.650         | 10.110        | 7.870          | 8.780         |
|  | nov            | 77.132        | 3.622          | 5.790         | 7.480         | 9.070         | 10.200        | 9.400         | 12.350        | 9.090          | 10.130        |
|  | dec            | 63.839        | 3.154          | 4.855         | 6.270         | 7.420         | 8.060         | 7.850         | 9.600         | 8.140          | 8.490         |
| 2021   | jan            | 76.606        | 3.906          | 5.870         | 9.080         | 8.200         | 9.460         | 8.940         | 11.380        | 9.520          | 10.250        |
|  | feb            | 60.473        | 2.849          | 4.394         | 7.870         | 6.050         | 7.550         | 7.290         | 9.030         | 7.440          | 8.000         |
|  | mar            | 71.783        | 3.613          | 5.200         | 9.220         | 7.980         | 9.030         | 8.450         | 10.550        | 8.380          | 9.360         |
|  | apr            | 66.604        | 3.419          | 4.755         | 8.440         | 7.760         | 8.340         | 7.950         | 10.000        | 7.000          | 8.940         |
|  | may            | 52.888        | 2.483          | 3.705         | 6.810         | 6.820         | 6.830         | 6.560         | 7.540         | 5.040          | 7.100         |
|  | jun            | 50.121        | 2.452          | 3.349         | 6.180         | 6.540         | 6.000         | 6.010         | 7.770         | 5.280          | 6.540         |
|  | jul            | 55.176        | 3.031          | 3.485         | 6.890         | 7.680         | 6.900         | 6.660         | 7.370         | 5.820          | 7.340         |
|  | aug            | 59.310        | 3.326          | 3.494         | 7.480         | 9.050         | 7.580         | 6.430         | 8.530         | 6.540          | 6.880         |
|  | sep            | 61.787        | 3.260          | 4.317         | 7.720         | 9.030         | 8.260         | 6.980         | 9.250         | 6.870          | 6.100         |
|  |                | <b>Total</b>  | <b>759.804</b> | <b>38.138</b> | <b>54.006</b> | <b>89.370</b> | <b>93.540</b> | <b>96.200</b> | <b>90.170</b> | <b>113.480</b> | <b>86.990</b> |
|  | <b>Average</b> | <b>63.317</b> | <b>3.178</b>   | <b>4.501</b>  | <b>7.448</b>  | <b>7.795</b>  | <b>8.017</b>  | <b>7.514</b>  | <b>9.457</b>  | <b>7.249</b>   | <b>8.159</b>  |

IFSULDEMINAS Photovoltaic Electric Energy Production  
2020-2021 - Campi

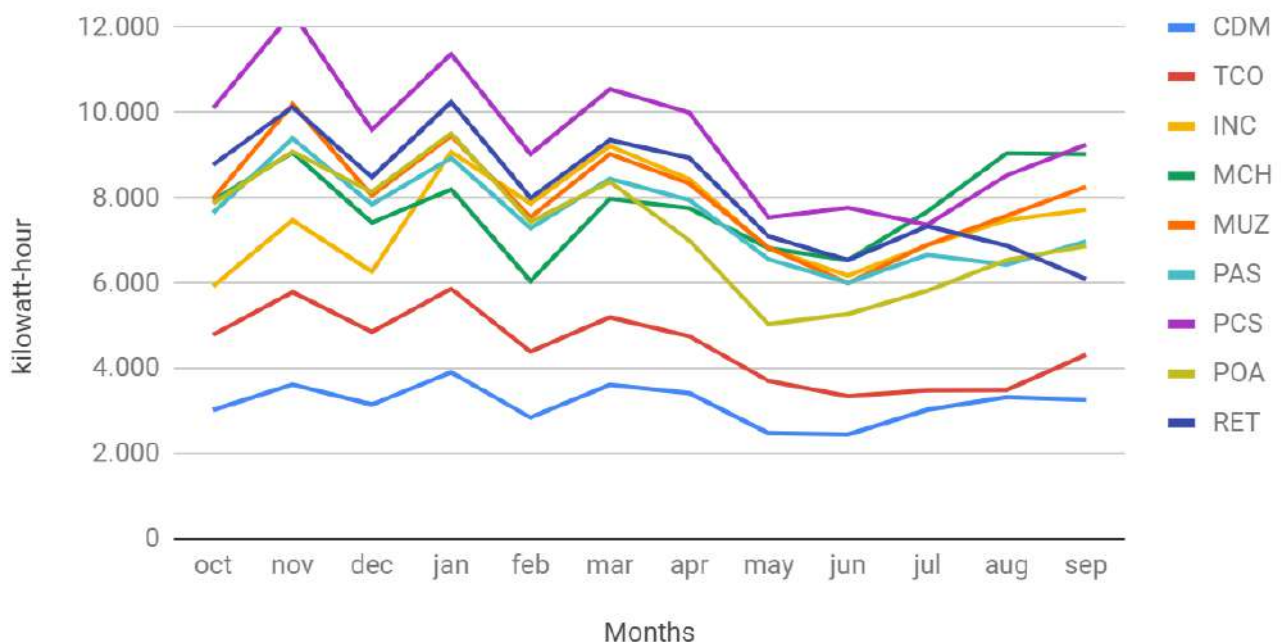




Figure 1: Campus Inconfidentes solar power plant.



Figure 2: Campus Machado solar power plant.



Figure 3: Campus Muzambinho solar power plant.



Figure 4: Campus Passos solar power plant.



Figure 5: Campus Poços de Caldas solar power plant.



Figure 6: Campus Pouso Alegre solar power plant.



Figure 7: Campus Carmo de Minas solar power plant.



Figure 8: Campus Três Corações solar power plant.





Figure 9: Rectory solar power plant.



Figure 10: Solar Seal, certification awarded to IFSULDEMINAS



Figure 11. Small Hydro Power Plant - PCH



Figure 12. PCH Generators.



Figure 13. Swine waste treatment unit for biogas production.



Figure 14. Swine waste treatment unit for biogas production.



Figure 15. Inconfidentes Campus Solar water heating system.



Figure 16. Inconfidentes Campus Solar water heating system.





Figure 17. Machado Campus Solar water heating system.



Figure 18. Muzambinho Campus Solar water heating system.



Figure 19. Muzambinho Campus CeCAES Solar water heating system.

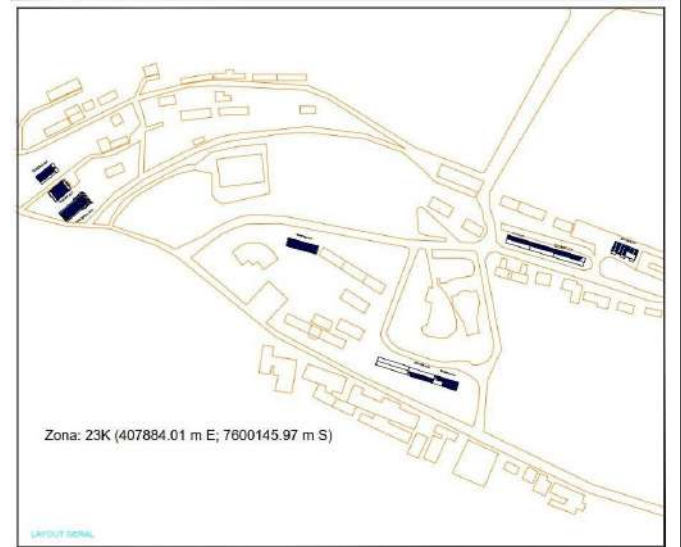


Figure 20. Muzambinho Campus new photovoltaic modules to be installed in 2020/2021.



Figure 21 : Campus Machado expansion of the photovoltaic plant.



Figure 22: Inconfidentes Campus [expansion of the solar power plant.](#)

## Description

IFSULDEMINAS have nine (9) solar photovoltaic power plants who generated **759,804 kWh** in the last 12 months. This result represents an approximate savings of US\$ 85,340. Each power plant installed cost US\$ 114,405 and is expected to be paid in approximately 8 years. The plants have a useful life of 25 years (Figures 1 to 9).

Muzambinho Campus has a Hydropower / Hydroelectric Power plant who generated **301,350 kWh** in the last 12 months (Figures 11 and 12).

Muzambinho Campus has a Clean Biomass / Biogas plant which generated **57,714 kWh** in the last 12 months (Figures 13 and 14).

Muzambinho (400 m<sup>2</sup>), Machado (60 m<sup>2</sup>) and Inconfidentes (70 m<sup>2</sup>) Campi have solar water heating systems that generated the equivalent of **305,280 kWh** in the last 12 months (Figures 15 to 19).

IFSULDEMINAS is finishing the installation of 77 new modules of photovoltaic solar panels in all units, expected to generate more 2,010 MWh annually (Figure 20).

The Solar Seal is a certification awarded to IFSULDEMINAS by the Institute for the Development of Alternative Energies in Latin America - Ideal Institute (Figure 10). Available at:

<https://portal.ifsuldeminas.edu.br/index.php/institucional-geral/76-acontece-nos-campus/2238-sustentavel-instituto-federal-do-sul-de-minas-recebe-selo-solar>.

Source: IFSULDEMINAS.