



VIT®
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

ITE 1002

Web Technologies

Project Review 1 (Client Side)

Slot: A2

Faculty: Mareeswari V

Made By:

Syed Arsal Abbas (20BIT070)

Sahil Nandal (20BIT0010)

Arihant Jain (20BIT0006)

TOPIC

Renewable Energy Blogspot

INTRODUCTION:

WIREFRAMES (MADE USING FIGMA):

We made this wireframe to plan the layout of our project to make the developing experience more efficient.



Why renewable?

Lorem ipsum dolor sit amet, consectetur adipiscing elit.
Velit risus vestibulum facilisi amet amet, condimentum.
Lorem ullamcorper a eget phasellus magna vitae, fringilla
cursus elementum. Felis, risus quis id quis. Quam tempor
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sed nisi eget in consequat et. Velit dis velit, nibh

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Diam Auctor Dictumst Arcu Justo Ridiculus Interdum.

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Lorem Ipsum Dolor Sit Amet, Consectetur Adipiscing Elit. Diam Fringilla Purus
Diam Auctor Dictumst Arcu Justo Ridiculus Interdum.

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Adipiscing Elit. Diam Fringilla Purus
Diam Auctor Dictumst Arcu Justo
Ridiculus Interdum.

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The Landing Page:

Ren-Future

Why Renewable?

Lorem, ipsum dolor sit amet consectetur adipisicing elit. Itaque animi cupiditate distinctio excepturi aspernatur! Recusandae sunt repellat sit doloremque consectetur voluptatem architecto minus sapiente accusamus vero facere, nam provident odio animi excepturi necessitatibus ipsum labore. Incidunt, mollitia repudiandae. Sint modi tempore culpa quas quis eaque inventore optio libero placeat, aliquid atque repellat! Harum quam natus, debitis architecto dolorum vero? Accusantium, culpa sunt. Nesciunt iusto sequi dolore saepe alias veritatis minima quod totam dolor accusantium eum querat dolorum nulla rem iste perspicacis earum nemo accusamus recusandae suscipit at, sunt nihil dignissimos. Tempora voluptatem, assumenda consectetur obcaecati consequatur iusto odit laboriosam deserunt?

The future is green energy, sustainability and Renewable Techniques!

Top Blog | Research | Innovation

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Why Renewable?

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A transition to clean energy is about making an investment in the Future!

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A transition to clean energy is about making an investment in the Future!

Why Renewable?

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There's an immense potential in renewable energy to change the world!

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Why Renewable?

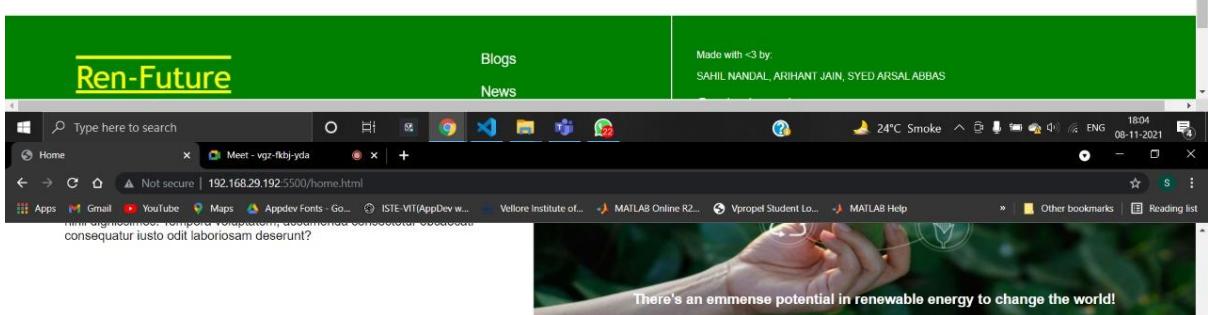
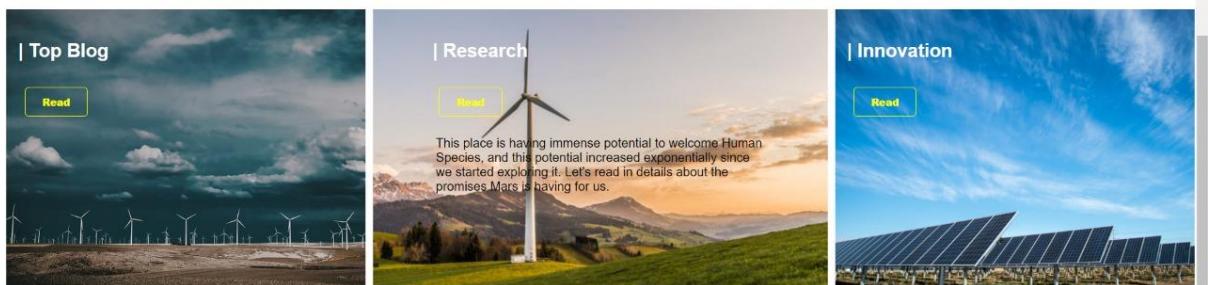
There's an immense potential in renewable energy to change the world!

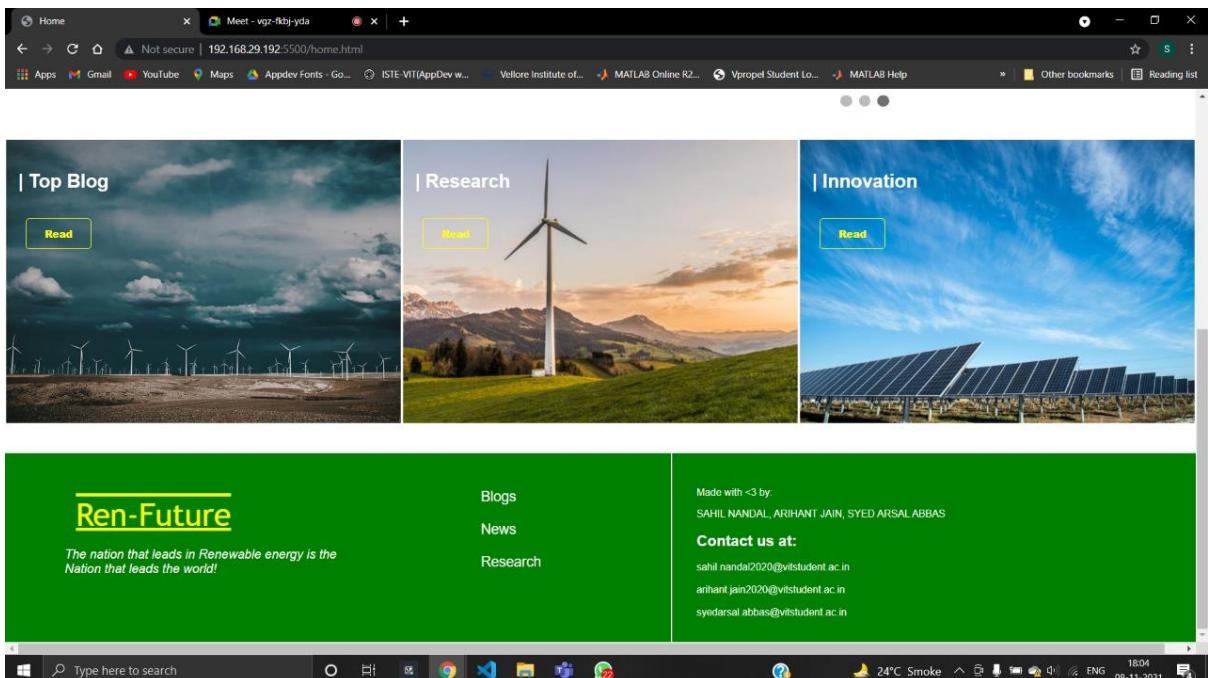
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RENEWABLE ENERGY BLOGSPOT





Home.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Home</title>
    <link rel="stylesheet" href="style.css">
    <link rel="#" href="Graphik-Bold.woff">
</head>

<body>
    <!-- Navbar -->
    <div class="navbar">
        <div class="name nav">
            <u>Ren-Future</u>
        </div>
        <div class="links nav">
            <a class="active-pg" href="home.html">Home</a>
            <a href="blogs.html">Blogs</a>
            <a href="#research">Research</a>
            <a style="border-right: 2px solid white;" href="#">About</a>
            <a id="bloghost" href="#">Host a blog</a>
        </div>
    </div>
</body>
```

```

<!-- body -->
<div class="container">
    <div class="left">
        <h3>Why Renewable?</h3>
        <p>Lorem, ipsum dolor sit amet consectetur adipisicing elit.
Itaque animi cupiditate distinctio excepturi
            aspernatur! Recusandae sunt repellat sit doloremque
consectetur voluptatem architecto minus sapiente
                accusamus vero facere, nam provident odio animi excepturi
necessitatibus ipsum labore. Incidunt,
                    mollitia repudiandae. Sint modi tempore culpa quas quis eaque
inventore optio libero placeat, aliquid
                        atque repellat! Harum quam natus, debitis architecto dolorum
vero? Accusantium, culpa sunt. Nesciunt
                            iusto sequi dolore saepe alias veritatis minima quod totam
dolor accusantium eum quaerat dolorum nulla
                                rem iste perspiciatis earum nemo accusamus recusandae suscipit
at, sunt nihil dignissimos. Tempora
                                    voluptatem, assumenda consectetur obcaecati consequatur iusto
odit laboriosam deserunt?</p>
    </div>
    <div class="right">
        <!-- slideshow -->
        <div class="slideshow-container">

            <div class="mySlides fade slide1">
                
                    <div class="text"><b>A transition to clean energy is about
making an investment in the Future!</b></div>
            </div>

            <div class="mySlides fade slide2">
                
                    <div class="text"><b>The future is green energy,
sustainability and Renewable Techniques!</b></div>
            </div>

            <div class="mySlides fade slide3">
                
                    <div class="text"><b>There's an emmense potential in
renewable energy to change the world!</b></div>
            </div>
        </div>
    </div>

```

```
<a class="prev" onclick="plusSlides(-1)">#10094;</a>
<a class="next" onclick="plusSlides(1)">#10095;</a>

</div>
<br>

<div style="text-align:center">
    <span class="dot" onclick="currentSlide(1)"></span>
    <span class="dot" onclick="currentSlide(2)"></span>
    <span class="dot" onclick="currentSlide(3)"></span>
</div>

<script>
var slideIndex = 1;
showSlides(slideIndex);

function plusSlides(n) {
    showSlides(slideIndex += n);
}

function currentSlide(n) {
    showSlides(slideIndex = n);
}

function showSlides(n) {
    var i;
    var slides = document.getElementsByClassName("mySlides");
    var dots = document.getElementsByClassName("dot");
    if (n > slides.length) {slideIndex = 1}
    if (n < 1) {slideIndex = slides.length}
    for (i = 0; i < slides.length; i++) {
        slides[i].style.display = "none";
    }
    for (i = 0; i < dots.length; i++) {
        dots[i].className = dots[i].className.replace(" active",
"");
    }
    slides[slideIndex-1].style.display = "block";
    dots[slideIndex-1].className += " active";
}
</script>
</div>

<br>
<br>
```

```

<!-- transition -->
<div class="container">
    <div id="col1" class="col">
        <p class="top-left"><b> | Top Blog</b></p>
        <button type="button" class="read-btn">Read</button>
        <p class="t-text">This is the blog about the infinite possibilities
the space contains in itself,
            and we're just at the doorstep of exploring all of them. Let's
explore the view of this doorstep! </p>
    </div>
    <div id="col2" class="col">
        <p class="top-left"><b> | Research</b></p>
        <button type="button" class="read-btn">Read</button>
        <p class="t-text">This place is having immense potential to welcome
Human Species, and this potential increased
            exponentially since we started exploring it. Let's read in details
about the promises Mars is having for us. </p>
    </div>
    <div id="col3" class="col">
        <p class="top-left"><b> | Innovation</b></p>
        <button type="button" class="read-btn">Read</button>
        <p class="t-text">This is the blog about the infinite possibilities
the space contains in itself,
            and we're just at the doorstep of exploring all of them. Let's
explore the view of this doorstep! </p>
    </div>
    <br>

    <br>
    <!-- footer -->
    <footer id="footer">
        <div class="container">
            <div class="footl">
                <p style="margin-bottom: 0%; color: yellow;" class="name"> <u>
Ren-Future </u></p><br>
                    <i>The nation that leads in Renewable energy is the Nation
that leads the world!</i>
            </div>

            <div class="footm">
                Blogs <br><br>
                News <br><br>
                Research <br><br>
            </div>
        </div>
    </footer>

```

```

        </div>
    <div class="footr">
        <p>Made with <3 by:</p>
        <p>SAHIL NANDAL, ARIHANT JAIN, SYED ARSAL ABBAS</p>

        <h2>Contact us at:</h2>
        sahil.nandal2020@vitstudent.ac.in <br><br>
        arihant.jain2020@vitstudent.ac.in <br><br>
        syedarsal.abbas@vitstudent.ac.in

    </div>
</div>
</footer>
</body>

</html>

```

Style.css:

```

body{
    margin: 0%;
    font-family: Arial, Helvetica, sans-serif;
}

/* navbar */

.navbar{
    display: flex;
    padding: 1%;
    text-align: right;
    background-color: rgba(26, 155, 0, 0.911);
}

.nav{
    width: 50%;
}

.name{
    text-align: left;
    color: white;
    font-family: 'Trebuchet MS', 'Lucida Sans Unicode', 'Lucida Grande',
    'Lucida Sans', Arial, sans-serif;
    font-size: 250%;
    text-decoration: overline;
    padding-left: 4%;
}

```

```
}

.links{
    padding-top: 7px;
}
a{
    padding: 8px;
    margin: 5px;
    font-size: 120%;
    font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;
    color: white;
    text-decoration: none;
}

a.active-pg {
    color: white;
    border-radius: 5px;
    text-decoration: underline;
}

a:hover{
    color: black;
    background-color: white;
    border-radius: 5px;
}

#bloghost{
    background-color: white;
    border-radius: 5px;
    margin: 2px;
    color: black;
}

#bloghost:hover{
    margin: 0%;
    border-radius: 5px;
    border: 2px solid rgb(255, 255, 56);
    color: black;
    background-color: rgb(255, 255, 56);
}

/* Body */
.container{
    display: flex;
}
```

```
.left{
    width: 40%;
    padding: 5%;
}

.right{
    width: 60%;

}

h3{
    font-size: xx-large;
    color: rgba(26, 155, 0, 0.911);
    margin: 0%;
}

/* hr{
    border: 2px solid green;
    border-radius: 5px;
    width: 70%;
} */

/* transition */
.col{
    padding: 1%;
    transition: all 0.5s;
    height: 330px;
    margin: 0.1%;
    width: 33%;
}
#col1{
    background-image:
url("https://c4.wallpaperflare.com/wallpaper/222/179/659/wind-turbine-dark-clouds-field-energy-wallpaper-preview.jpg");
    background-size: cover;
}
#col2{
    background-image: url("https://images.pexels.com/photos/414837/pexels-photo-414837.jpeg?auto=compress&cs=tinysrgb&dpr=1&w=500");
    background-size: cover;
}
#col3{
    background-image: url("https://images.unsplash.com/photo-1508514177221-188b1cf16e9d?ixid=MnwxMjA3fDB8MHxzZWfY2h8MTB8fHJlbmV3YWJsZSUyMGVuZXJneXx1bnwwfHwwfHw%3D&ixlib=rb-1.2.1&w=1000&q=80");
    background-size: cover;
}
```

```
.col:hover .t-text {  
    padding: 1%;  
    padding-top: 0%;  
    display: block;  
}  
  
.col:hover{  
    padding-left: 5%;  
    padding-right: 5%;  
    margin-left: 0.5%;  
    margin-right: 0.5%;  
}  
  
.top-left{  
    color: white;  
    font-size:x-large;  
}  
  
.t-text{  
    color:black;  
    display: none;  
    transition: display 1s;  
}  
  
.read-btn{  
    display: inline;  
    margin: 2%;  
    background-color: transparent;  
    border: 1px solid yellow;  
    border-radius: 5px;  
    color: yellow;  
    padding: 2%;  
    padding-left: 5%;  
    padding-right: 5%;  
    font-weight: 800;  
    font-size: 80%;  
}  
  
.read-btn:hover{  
    background-color: yellow;  
    color: black;  
}  
  
/* footer */  
footer{  
    background-color: green;  
    color: white;
```

```
}

.footl{
    width: 30%;
    padding: 1%;
    padding-left: 5%;

}

.footm{
    width: 20%;
    padding-left: 10%;
    padding-top: 3%;
    font-size: large;
}

.footr{
    width: 50%;
    padding: 2%;
    border-left: 2px solid #fff;
    font-size: 80%;

}

/* Slideshow */

.mySlides {display: none}
img {
    vertical-align: middle;
    filter: blur(0.5px);
}

/* Slideshow container */

.slideshow-container {
    max-width: 1000px;
    position: relative;
    margin: auto;
    margin-top: 2%;
}

/* Next & previous buttons */

.prev, .next {
    cursor: pointer;
    position: absolute;
    top: 50%;
    width: auto;
    padding: 16px;
    margin-top: -22px;
    color: white;
    font-weight: bold;
}
```

```
font-size: 18px;
transition: 0.6s ease;
border-radius: 0 3px 3px 0;
user-select: none;
}

/* Position the "next button" to the right */
.next {
  right: 0;
  border-radius: 3px 0 0 3px;
}

/* On hover, add a black background color with a little bit see-through */
.prev:hover, .next:hover {
  background-color: rgba(0,0,0,0.8);
}

/* Caption text */
.text {
  color: white;
  font-size: 18px;
  padding: 8px 12px;
  position: absolute;
  bottom: 8px;
  width: 100%;
  text-align: center;
}

/* Number text (1/3 etc) */
.numbertext {
  color: #f2f2f2;
  font-size: 12px;
  padding: 8px 12px;
  position: absolute;
  top: 0;
}

/* The dots/bullets/indicators */
.dot {
  cursor: pointer;
  height: 15px;
  width: 15px;
  margin: 0 2px;
  background-color: #bbb;
  border-radius: 50%;
  display: inline-block;
  transition: background-color 0.6s ease;
}
```

```
.active, .dot:hover {  
    background-color: #717171;  
}  
  
/* Fading animation */  
.fade {  
    -webkit-animation-name: fade;  
    -webkit-animation-duration: 1.5s;  
    animation-name: fade;  
    animation-duration: 1.5s;  
}  
  
@-webkit-keyframes fade {  
    from {opacity: .4}  
    to {opacity: 1}  
}  
  
@keyframes fade {  
    from {opacity: .4}  
    to {opacity: 1}  
}  
  
/* On smaller screens, decrease text size */  
 @media only screen and (max-width: 300px) {  
     .prev, .next,.text {font-size: 11px}  
}
```

Research Section:

Sahil Nandal | Page 20 | 59

Blogs Meet - vgz-fkbj-yda Research +

File | C:/Users/Sahil%20Nandal/OneDrive/Desktop/College/Sem%203/2.%20Web%20Tech%20ITE1002/Project/research2.html

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Research and Statistics

 Solar Energy

 Wind Energy

 Hydro Energy

 Geothermal Energy

 Biomass Energy

 Tidal Energy

News

- India unveils renewable energy ambitions with big solar push
- OPINION: A Green New Deal for India's energy intensive industries
- PM Narendra Modi's COP26 goals could mean a massive energy overhaul in India
- Long Duration Energy Storage Council – a new global industry body – launched at COP26 | Recharge
- International Energy Forum commends India on net zero goal
- Global roadmap to achieve clean energy transition by 2030
- Nepal to sell surplus electricity in India's energy exchange market
- Spain energy crisis: Soaring bills hamper recovery from Covid

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Research and Statistics



Solar Energy



Wind Energy



Hydro Energy



Geothermal Energy



Biomass Energy



Tidal Energy

News

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Type here to search



Geothermal Energy



Biomass Energy



Tidal Energy

- International Energy Forum commands India on net zero goal
- Global roadmap to achieve clean energy transition by 2030
- Nepal to sell surplus electricity in India's energy exchange market
- Spain energy crisis: Soaring bills hamper recovery from Covid
- Oil Prices Could Explode As U.S.' Largest Storage Hub Nears Empty

Wait for New Updates. We will update you at the fastest. ☺

More

Made with <3 by
SAHIL NANDAL, ARIHANT JAIN, SAYED ARSAL ABBAS

Contact us at:
sahil.nandal2020@vitstudent.ac.in
arihant.jain2020@vitstudent.ac.in
syedarsal.abbas@vitstudent.ac.in

RENEWABLE ENERGY BLOGSPOT

The screenshot displays three identical instances of a web browser window showing a blogspot titled "Ren-Future". The blog features a green header with the title "Ren-Future" and a navigation bar with links for Home, Blogs, Research, About, and Host a blog.

The main content area is titled "Research and Statistics" and contains six images representing different renewable energy sources:

- Solar Energy (image of solar panels)
- Wind Energy (image of wind turbines)
- Hydro Energy (image of a dam)
- Geothermal Energy (image of a geothermal power plant)
- Biomass Energy (image of a biomass facility)
- Tidal Energy (image of waves)

To the right of the main content, there is a "News" sidebar with several news items:

- India unveils renewable energy ambitions with big solar push
- OPINION: A Green New Deal for India's energy intensive industries
- PM Narendra Modi's COP26 goals could mean a massive energy overhaul in India
- Long Duration Energy Storage Council – a new global industry body – launched at COP26 | Recharge

A "More" button is located at the bottom right of the news sidebar.

The footer of the blog includes a quote: "The nation that leads in Renewable energy is the Nation that leads the world!" and contact information: "Made with <3 by: SAHIL NANDAL, ARIHANT JAIN, SAYED ARSAL ABBAS Contact us at: sahil.nandal2020@vitstudent.ac.in".

The browser interface shows multiple tabs open, including "Meet - vgz-fkbj-yda" and "Research". The status bar at the bottom right indicates the date as 08-11-2021 and the time as 18:09.

RENEWABLE ENERGY BLOGSPOT

Solar Energy

Wind Energy

Hydro Energy

Geothermal Energy

Biomass Energy

Tidal Energy

OPINION: A Green New Deal for India's energy intensive industries

PM Narendra Modi's COP26 goals could mean a massive energy overhaul in India

Long Duration Energy Storage Council – a new global industry body – launched at COP26 | Recharge

International Energy Forum commends India on net zero goal

Global roadmap to achieve clean energy transition by 2030

Nepal to sell surplus electricity in India's energy exchange market

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Oil Prices Could Explode As U.S.' Largest Storage Hub Nears Empty

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RENEWABLE ENERGY BLOGSPOT

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Geothermal Energy Biomass Energy Tidal Energy

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- Long Duration Energy Storage Council – a new global industry body – launched at COP26 | Recharge
- International Energy Forum commands India on net zero goal
- Global roadmap to achieve clean energy transition by 2030
- Nepal to sell surplus electricity in India's energy exchange market
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Geothermal Energy Biomass Energy Tidal Energy

What is Wind Energy?

Wind Energy is one of the fastest-growing renewable energy technologies. Usage is on the rise worldwide, in part because costs are falling. Global installed wind-generation capacity onshore and offshore has increased by a factor of almost 75 in the past two decades, jumping from 7.5 gigawatts (GW) in 1997 to some 564 GW by 2018, according toIRENA's latest data. Production of wind electricity doubled between 2009 and 2013, and in 2016 wind energy accounted for 16% of the electricity generated by renewables. Many parts of the world have strong wind speeds, but the best locations for generating wind power are sometimes remote ones. Offshore wind power offers tremendous potential.

Wind turbines first emerged more than a century ago. Following the invention of the electric generator in the 1830s, engineers started attempting to harness wind energy to produce electricity. Wind power generation took place in the United Kingdom and the United States in 1887 and 1888, but modern wind power is considered to have been first developed in Denmark, where horizontal-axis wind turbines were built in 1891 and a 22.8-metre wind turbine began operation in 1897.

Wind is used to produce electricity using the kinetic energy created by air in motion. This is transformed into electrical energy using wind turbines or wind energy conversion systems. Wind first hits a turbine's blades, causing them to rotate and turn the turbine connected to them. That changes the kinetic energy to rotational energy, by moving a shaft which is connected to a generator, and thereby producing electrical energy through electromagnetism.

The amount of power that can be harvested from wind depends on the size of the turbine and the length of its blades. The output is proportional to the dimensions of the rotor and to the cube of the wind speed. Theoretically, when wind speed doubles, wind power potential increases by a factor of eight.

Wind-turbine capacity has increased over time. In 1985, typical turbines had a rated capacity of 0.05 megawatts (MW) and a rotor diameter of 15 metres. Today's new wind power projects have turbine capacities of about 2 MW onshore and 3–5 MW offshore.

Commercially available wind turbines have reached 8 MW capacity, with rotor diameters of up to 164 metres. The average capacity of wind turbines increased from 1.6 MW in 2009 to 2 MW in 2014.

U.S. utility-scale electric generating capacity by initial operating year (as of Dec. 2016)

Fuel Type	Capacity (GW)
Wind	47.6
Coal	34.8
Natural Gas	33.2
Hydro	27.8
Oil	1.8
Other	0.8
Total	143.2

24°C Smoke 18:10 ENG 08-11-2021

commands India on net zero goal

- Global roadmap to achieve clean energy transition by 2030
- Nepal to sell surplus electricity in India's energy exchange market
- Spain energy crisis: Soaring bills hamper recovery from Covid
- Oil Prices Could Explode As U.S.' Largest Storage Hub Nears Empty

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Wind Energy

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Generator characteristics and Stability

Induction generators, which were often used for wind power projects in the 1980s and 1990s, require reactive power for excitation, so electrical substations used in wind-power collection systems include substantial capacitor banks for power factor correction. Different types of wind turbine generators behave differently during transmission grid disturbances, so extensive modeling of the dynamic electromechanical characteristics of a new wind farm is required by transmission system operators to ensure predictable stable behavior during system faults (see wind energy software). In particular, induction generators cannot support the system voltage during faults, unlike steam or hydro turbine-driven synchronous generators.

Induction generators aren't used in current turbines. Instead, most turbines use variable speed generators combined with either a partial- or full-scale power converter between the turbine generator and the collector system, which generally have more desirable properties for grid interconnection and have low voltage ride-through capabilities.[38] Modern concepts use either doubly fed electric machines with partial-scale converters or squirrel-cage induction generators or synchronous generators (both permanently and electrically excited) with full-scale converters.

Transmission systems operators will supply a wind farm developer with a grid code to specify the requirements for interconnection to the transmission grid. This will include the power factor, the constancy of frequency, and the dynamic behaviour of the wind farm turbines during a system fault.

Geothermal Energy

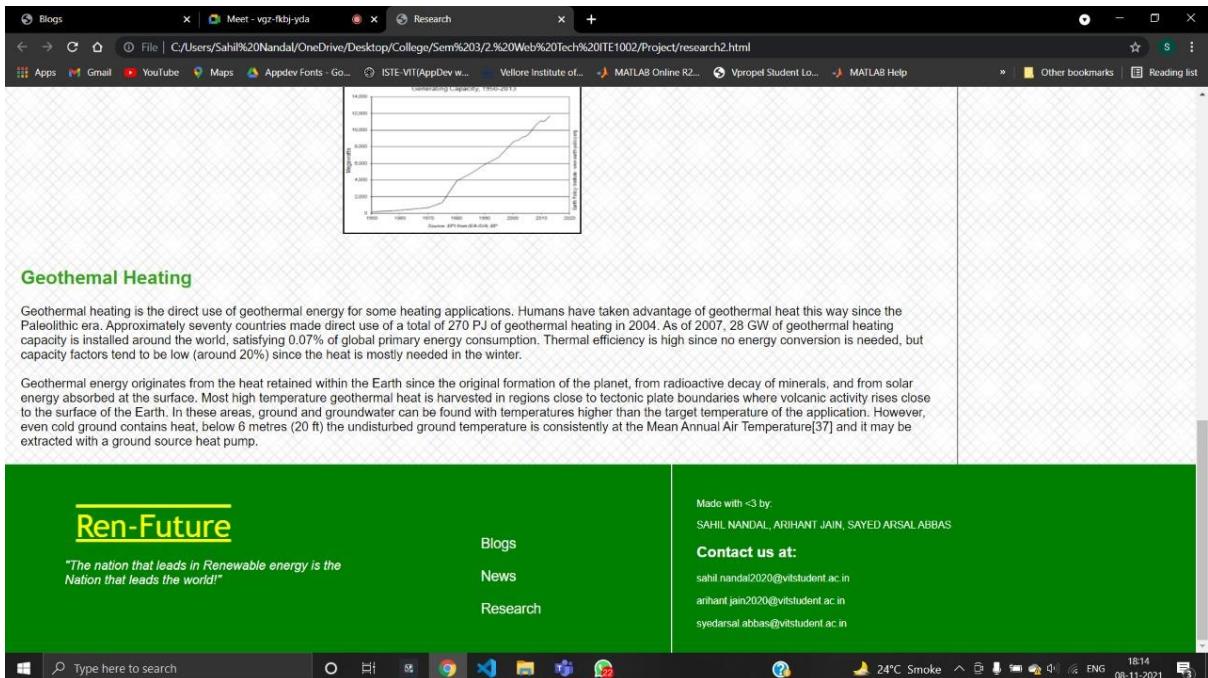
Geothermal energy is the thermal energy in the Earth's crust which originates from the formation of the planet and from radioactive decay of materials in currently uncertain but possibly roughly equal proportions. The high temperature and pressure in Earth's interior cause some rock to melt and solid mantle to behave plastically, resulting in parts of the mantle convection upward since it is lighter than the surrounding rock and temperatures at the core–mantle boundary can reach over 4000 °C (7200 °F).

Geothermal heating, for example using water from hot springs has been used for bathing since Paleolithic times and for space heating since ancient Roman times, however more recently geothermal power, the term used for generation of electricity from geothermal energy, has gained in importance. It is estimated that the earth's geothermal resources are theoretically more than adequate to supply humanity's energy needs, although only a very small fraction is currently being profitably exploited, often in areas near tectonic plate boundaries.

As a result of government assisted research and industry experience, the cost of generating geothermal power decreased by 25% over the 1980s and 1990s. More recent technological advances have dramatically reduced costs and thereby expanded the range and size of viable resource and in 2021 the U.S. Department of Energy estimates that geothermal energy from a power plant "built today" costs about \$0.05/kWh.

Worldwide, 13,900 megawatts (MW) of geothermal power was available in 2019. An additional 28 gigawatts of direct geothermal heating capacity is installed for district heating, space heating, spas, industrial processes, desalination and agricultural applications as of 2010.

Forecasts for the future of geothermal power depend on assumptions about technology, energy prices, subsidies, plate boundary movement and interest rates. Pilot programs like EWEB's customer opt-in Green Power Program show that customers would be willing to pay a little more for a renewable energy source like geothermal. About 100 thousand people are employed in the industry. The adjective geothermal originates from the Greek roots γῆ (gē), meaning Earth, and θερμός (thermós), meaning hot.



research2.html:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Research</title>

    <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
    <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
    <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular-animate.js"></script>

    <script src="JSresearch2.js"></script>

    <link rel="stylesheet" href="styleResearch2.css">
</head>

<body>
    <div class="navbar">
        <div class="name nav">
            <u>Ren-Future</u>
        </div>
        <div class="links nav">
            <a class="active" href="home.html">Home</a>
```

```
<a href="blogs.html">Blogs</a>
<a href="research2.html">Research</a>
<a style="border-right: 2px solid white;" href="#footer">About</a>
<a id="bloghost" href="#">Host a blog</a>
</div>
</div>

<div class="flexContainer">

<div class="left">

<h1>Research and Statistics</h1>

<div class="flexIn">

<div id="energy1">
<br><br><br><br><br><br>
<div class="energyArticle">Solar Energy</div>
</div>

<div id="energy2">
<br><br><br><br><br><br>

<div class="energyArticle">Wind Energy</div>
</div>

<div id="energy3">
<br><br><br><br><br><br>

<div class="energyArticle">Hydro Energy</div>
</div>

</div>

<div class="flexIn">

<div id="energy4">
<br><br><br><br><br><br>
```

```

        <div class="energyArticle">Geothermal Energy</div>
    </div>

    <div id="energy5">
        <br><br><br><br><br><br>

        <div class="energyArticle">Biomass Energy</div>
    </div>

    <div id="energy6">
        <br><br><br><br><br><br>

        <div class="energyArticle">Tidal Energy</div>
    </div>

    </div>

    <div id="showEnergy" style="display: none;">My name is
arihant</div>

    </div>

    <div class="right">
        <h1>News</h1>
        <div id="myList">
            <p class="news1"><a
href="https://www.aljazeera.com/gallery/2021/11/3/india-solar-renewable-
energy-electricity-climate-crisis"><span class="pen">#10002;</span> India
unveils renewable energy ambitions with big solar push</a></p>
            <p class="news1"><a
href="https://energy.economictimes.indiatimes.com/news/power/opinion-a-green-
new-deal-for-indias-energy-intensive-industries/87543625"><span
class="pen">#10002;</span> OPINION: A Green New Deal for India's energy
intensive industries</a></p>
            <p class="news1"><a
href="https://energy.economictimes.indiatimes.com/news/renewable/pm-narendra-
modis-cop26-goals-could-mean-a-massive-energy-overhaul-in-
india/87519688"><span class="pen">#10002;</span> PM Narendra Modi's COP26
goals could mean a massive energy overhaul in India</a></p>

```

```

        <p class="news1"><a href="https://www.rechargenews.com/energy-transition/long-duration-energy-storage-council-a-new-global-industry-body-launched-at-cop26/2-1-1094179"><span class="pen">#10002;</span> Long Duration Energy Storage Council – a new global industry body – launched at COP26 | Recharge</a></p>
        <p class="news2"><a href="https://energy.economictimes.indiatimes.com/news/renewable/international-energy-forum-commends-india-on-net-zero-goal/87531587"><span class="pen">#10002;</span> International Energy Forum commends India on net zero goal</a></p>
        <p class="news2"><a href="https://energy.economictimes.indiatimes.com/news/renewable/global-roadmap-to-achieve-clean-energy-transition-by-2030/87519745"><span class="pen">#10002;</span> Global roadmap to achieve clean energy transition by 2030</a></p>
        <p class="news2"><a href="https://energy.economictimes.indiatimes.com/news/power/nepal-to-sell-surplus-electricity-in-indias-energy-exchange-market/87509891"><span class="pen">#10002;</span> Nepal to sell surplus electricity in India's energy exchange market</a></p>
        <p class="news3"><a href="https://www.bbc.com/news/world-europe-59087189"><span class="pen">#10002;</span> Spain energy crisis: Soaring bills hamper recovery from Covid</a></p>
        <p class="news3"><a href="https://oilprice.com/Latest-Energy-News/World-News/Oil-Prices-Could-Explode-As-US-Largest-Storage-Hub-Nears-Empty.html"><span class="pen">#10002;</span> Oil Prices Could Explode As U.S.' Largest Storage Hub Nears Empty</a></p>
    </div>

    <p id="newsWait">Wait for New Updates. We will update you at the fastest. <span id="emoji">#9786;</span></p>

    <button id="showMore" onclick="showNews()">More</button>
</div>

</div>

<footer id="footer">
    <div class="container">
        <div class="footl">
            <p style="margin-bottom: 0%; color: yellow;" class="name"> <u>Ren-Future </u><br>
                <i>"The nation that leads in Renewable energy is the Nation that leads the world!"</i>
            </div>
        <div class="footm">
            Blogs <br><br>

```

```

    News <br><br>
    Research <br><br>

</div>
<div class="footr">
    <p>Made with <3 by: </p>
    <p>SAHIL NANDAL, ARIHANT JAIN, SYED ARSAL ABBAS</p>

    <h2>Contact us at:</h2>
    sahil.nandal2020@vitstudent.ac.in <br><br>
    arihant.jain2020@vitstudent.ac.in <br><br>
    syedarsal.abbas@vitstudent.ac.in

</div>
</div>
</footer>
</body>

</html>

```

styleResearch2.css:

```

body{
    margin: 0%;
    font-family: Arial, Helvetica, sans-serif;
    background-image: url("https://media.istockphoto.com/vectors/vector-
seamless-pattern-vector-
id859255000?k=20&m=859255000&s=612x612&w=0&h=pM0staGaZpLzWOnUx0x6X5-
upCxgZVrCmWxp8H93JYQ=");
}

/* navbar */

.navbar{
    display: flex;
    padding: 1%;
    text-align: right;
    background-color: rgba(26, 155, 0, 0.911);
}

.nav{
    width: 50%;
}

.name{
    text-align: left;
    color: white;
}

```

```
font-family:'Trebuchet MS', 'Lucida Sans Unicode', 'Lucida Grande', 'Lucida  
Sans', Arial, sans-serif;  
font-size: 250%;  
text-decoration:overline;  
padding-left: 4%;  
  
}  
  
.links{  
padding-top: 7px;  
}  
.navbar a{  
padding: 8px;  
margin: 5px;  
font-size: 120%;  
font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;  
color: white;  
text-decoration: none;  
}  
  
.navbar a.active {  
color: white;  
border-radius: 5px;  
text-decoration: underline;  
}  
  
.navbar a:hover{  
color: black;  
background-color: white;  
border-radius: 5px;  
}  
  
#bloghost{  
background-color: white;  
border-radius: 5px;  
margin: 2px;  
color: black;  
  
}  
  
#bloghost:hover{  
margin: 0%;  
border-radius: 5px;  
border: 2px solid rgb(255, 255, 56);  
color: black;  
background-color: rgb(255, 255, 56);  
}
```

```
/* ----- */  
  
h1, h2{  
    color: rgba(26, 155, 0, 0.911);  
}  
  
.flexContainer, .flexIn{  
    display: flex;  
    text-align: center;  
}  
  
.left{  
    width: 80%;  
    border-right: 2px solid gray;  
}  
.right{  
    width: 20%;  
}  
  
.flexIn, #showEnergy{  
    padding: 10px;  
    margin: 10px;  
}  
  
#energy1, #energy2, #energy3, #energy4, #energy5, #energy6{  
    cursor: pointer;  
    background-color: red;  
    width: 23%;  
    margin: auto;  
    border: 2px solid rgba(26, 155, 0, 0.911);  
    color: white;  
    font-weight: bold;  
    font-family: 'Trebuchet MS', 'Lucida Sans Unicode', 'Lucida Grande', 'Lucida Sans', Arial, sans-serif;  
    font-size: large;  
}  
  
.energyArticle{  
    background-color: rgba(172, 255, 47, 0.5);  
    padding: 10px;  
    text-align: center;  
}  
  
#energy1{
```

```
background-image: url(https://media.istockphoto.com/photos/solar-panels-
with-sunset-and-blue-sky-background-clean-power-energy-picture-
id1247794854?b=1&k=20&m=1247794854&s=170667a&w=0&h=p8Pub7pAJdXEtrvz1XeQ2UIcdRF
lXXxAWrhuzY_XUhec=);
background-size: cover;
background-position: center;
}

#energy2{
background-image: url(https://media.istockphoto.com/photos/aerial-view-of-
wind-turbines-and-agriculture-field-picture-
id1224819928?b=1&k=20&m=1224819928&s=170667a&w=0&h=sn2XyDa-
Qt8XadeNbRydMXrWHwODcZ8Ht_VvKA3gEFo=);
background-size: cover;
background-position: center;
}

#energy3{
background-image: url(https://media.istockphoto.com/photos/draining-water-
from-the-kowloon-reservoir-at-kam-shan-country-park-picture-
id1275814249?b=1&k=20&m=1275814249&s=170667a&w=0&h=ZJxyxqmtki4U3xaZwlhjlqneouW
mm1shXx5Hfevgun8=);
background-size: cover;
background-position: center;
}

#energy4{
background-image: url(https://media.istockphoto.com/photos/grand-prismatic-
spring-sunrise-yellowstone-national-park-wy-picture-
id1028386430?b=1&k=20&m=1028386430&s=170667a&w=0&h=OQ0soSZHCqWHv8MMc0t6RDgq00J
Sy0jnS02vdtxbm7k=);
background-size: cover;
background-position: center;
}

#energy5{
background-image: url(https://media.istockphoto.com/photos/biogas-plans-
picture-id1167642569?b=1&k=20&m=1167642569&s=170667a&w=0&h=2RP-PFpeWqq0-
ElopWDTVCoPVWm6N7f5EBvQw0qsgGE=);
background-size: cover;
background-position: center;
}

#energy6{
background-image: url(https://media.istockphoto.com/photos/drone-aerial-
sandy-beach-fishery-bay-picture-
id1299745517?b=1&k=20&m=1299745517&s=170667a&w=0&h=pxrgq_Zrt0FciRrCsfJOyfoGTmm
qfBFrJOfQMmqfwAY=);
```

```
background-size: cover;
background-position: center;
}

#energy1:hover, #energy2:hover, #energy3:hover, #energy4:hover,
#energy5:hover, #energy6:hover{
    border: 4px solid rgba(26, 155, 0, 0.911);
    border-radius: 8px;
    width: 25%;
    color: yellow;
    font-weight: bolder;
    font-size: larger;
}

#showEnergy{
    text-align: left;
}

#showEnergy img{
    margin-left: 35%;
    border: 2px solid black;
    width: 300px;
    height: 200px;
}

/*
-----
*/
.right li{
    list-style: disc;
} */

.right a:hover{
    color: red;
}

.news1 a, .news2 a, .news3 a{
    color: black;
    font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;
    text-decoration: none;
}

.news1, .news2, .news3{
    text-align: left;
    padding: 5px;
}
```

```
.news2, .news3, #newsWait{
    display: none;
}

#showMore{
    padding: 10px;
    margin-bottom: 20px;
    cursor: pointer;
    background-color: rgba(26, 155, 0, 0.911);
    border: none;
    border-radius: 5px;
    font-weight: bolder;
    font-size: larger;
    color: white;
}

#showMore:hover{
    color: yellow;
}

.pen{
    font-size: large;
}

#emoji{
    font-size: xx-large;
}

/*
----- */
----- */

/* footer CSS */
footer{
    background-color: green;
    color: white;
}

.footl{
    width: 30%;
    padding: 1%;
    padding-left: 5%;

}
.footm{
```

```

width: 20%;
padding-left: 10%;
padding-top: 3%;
font-size: large;
margin-top: 3%;
}
.footr{
width: 50%;
padding: 2%;
border-left: 2px solid rgb(255, 255, 255);
font-size: 80%;

}

.footr h2{
color: white;
}

.container{
display: flex;
}

```

JSResearch2.js:

\$(document).ready(function(){
 \$("#energy1").click(function(){
 \$("#showEnergy").html("<h2><i>What is Solar Energy?</i></h2> Solar energy is radiant light and heat from the Sun that is harnessed using a range of technologies such as solar water heating, photovoltaics, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis.

 It is an essential source of renewable energy, and its technologies are broadly characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power. Active solar techniques include the use of photovoltaic systems, concentrated solar power, and solar water heating to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light-dispersing properties, and designing spaces that naturally circulate air.

 The large magnitude of solar energy available makes it a highly appealing source of electricity. In 2021, Carbon Tracker Initiative estimated the land area needed to generate all our energy from solar alone was 450,000 km²- or about the same as the area of Sweden, or the area of Morocco, or the area of California (0.3% of the Earth's total land area).

 In 2011, the International Energy Agency said that \"the development of affordable, inexhaustible and clean solar energy technologies will have huge longer-term benefits. It will increase countries' energy security through reliance on an indigenous, inexhaustible, and mostly import-independent resource, enhance sustainability, reduce pollution, lower the costs of mitigating global warming, and keep fossil fuel prices lower than otherwise. These advantages are global. Hence the additional costs of the incentives for early deployment should be considered learning investments; they must be wisely spent and need to be widely shared\".

 ");
 });

 var url = 'https://www.abb-conversations.com/wp-content/uploads/2013/12/global-solar-PV-capacity-growth.png';
 var image=new Image();
 image.src=url;
 \$("#showEnergy").append(image);
}

\$("#showEnergy").append("
 <h2>Potential</h2> Solar radiation is absorbed by the Earth's land surface, oceans – which cover about 71% of the globe – and atmosphere. Warm air containing evaporated water from the oceans rises, causing atmospheric circulation or convection. When the air reaches a high altitude, where the temperature is low, water vapor condenses into clouds, which rain onto the Earth's surface, completing the water cycle. The latent heat of water condensation amplifies convection, producing atmospheric phenomena such as wind, cyclones and anticyclones. Sunlight absorbed by the oceans and land masses keeps the surface at an average temperature of 14 °C. By photosynthesis, green plants convert solar energy into chemically stored energy, which produces food, wood and the biomass from which fossil fuels are derived.

 The potential solar energy that could be used by humans differs from the amount of solar energy present near the surface of the planet because factors such as geography, time variation, cloud cover, and the land available to humans limit the amount of solar energy that we can acquire.

 Geography affects solar energy potential because areas that are closer to the equator have a higher amount of solar radiation. However, the use of photovoltaics that can follow the position of the Sun can significantly increase the solar energy potential in areas that are farther from the equator. Time variation effects the potential of solar energy because during the nighttime, there is little solar radiation on the surface of the Earth for solar panels to absorb. This limits the amount of energy that solar panels can absorb in one day. Cloud cover can affect the potential of solar panels because clouds block incoming light from the Sun and reduce the light available for solar cells.

</br>");

```
if($("#showEnergy").css("display", "none")){
{
    $("#showEnergy").css("display", "block");
}
});
```

\$(document).ready(function(){
\$("#energy2").click(function(){
\$("#showEnergy").html("<h2><i>What is Wind Energy?</i></h2> Wind Energy is one of the fastest-growing renewable energy technologies. Usage is on the rise worldwide, in part because costs are falling. Global installed wind-generation capacity onshore and offshore has increased by a factor of almost 75 in the past two decades, jumping from 7.5 gigawatts (GW) in 1997 to some 564 GW by 2018, according to IRENA's latest data. Production of wind electricity doubled between 2009 and 2013, and in 2016 wind energy accounted for 16% of the electricity generated by renewables. Many parts of the world have strong wind speeds, but the best locations for generating wind power are sometimes remote ones. Offshore wind power offers tremendous potential.

 Wind turbines first emerged more than a century ago. Following the invention of the electric generator in the 1830s, engineers started attempting to harness wind energy to produce electricity. Wind power generation took place in the United Kingdom and the United States in 1887 and 1888, but modern wind power is considered to have been first developed in Denmark, where horizontal-axis wind turbines were built in 1891 and a 22.8-metre wind turbine began operation in 1897.

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 Commercially available wind turbines have reached 8 MW capacity, with rotor diameters of up to 164 metres. The average capacity of wind turbines increased from 1.6 MW in 2009 to 2 MW in 2014.

 ");

```

var url =
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<h2>Generator characteristics and Stability</h2> Induction generators, which were often used for wind power projects in the 1980s and 1990s, require reactive power for excitation, so electrical substations used in wind-power collection systems include substantial capacitor banks for power factor correction. Different types of wind turbine generators behave differently during transmission grid disturbances, so extensive knowledge of the dynamic electromechanical characteristics of a new wind farm is required by transmission system operators to ensure predictable stable behavior during system faults (see wind energy software). In particular, induction generators cannot support the system voltage during faults, unlike steam or hydro turbine-driven synchronous generators.

 Induction generators aren't used in current turbines. Instead, most turbines use variable speed generators combined with either a partial- or full-scale power converter between the turbine generator and the collector system, which generally have more desirable properties for grid interconnection and have low voltage ride through-capabilities.[38] Modern concepts use either doubly fed electric machines with partial-scale converters or squirrel-cage induction generators or synchronous generators (both permanently and electrically excited) with full-scale converters.

 Transmission systems operators will supply a wind farm developer with a grid code to specify the requirements for interconnection to the transmission grid. This will include the power factor, the constancy of frequency, and the dynamic behaviour of the wind farm turbines during a system fault. ")

```
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});
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\$(document).ready(function(){
 \$("#energy3").click(function(){
 \$("#showEnergy").html("<h2><i>What is Hydro Energy?</i></h2> Hydroelectricity, or hydroelectric power, is electricity produced from hydropower. In 2015, hydropower generated 16.6% of the world's total electricity and 70% of all renewable electricity,[2] and was expected to increase by about 3.1% each year for the next 25 years.

 Hydropower is produced in 150 countries, with the Asia-Pacific region generating 33 percent of global hydropower in 2013. China is the largest hydroelectricity producer, with 920 TWh of production in 2013, representing 16.9% of domestic electricity use.

 The cost of hydroelectricity is relatively low, making it a competitive source of renewable electricity. The hydro station consumes no water, unlike coal or gas plants. The typical cost of electricity from a hydro station larger than 10 megawatts is 3 to 5 US cents per kilowatt hour. With a dam and reservoir it is also a flexible source of electricity, since the amount produced by the station can be varied up or down very rapidly (as little as a few seconds) to adapt to changing energy demands. Once a hydroelectric complex is constructed, the project produces no direct waste, and it generally has a considerably lower output level of greenhouse gases than photovoltaic power plants and certainly fossil fuel powered energy plants (see also Life-cycle greenhouse-gas emissions of energy sources). However, when constructed in lowland rainforest areas, where inundation of a part of the forest is necessary, they can emit substantial amounts of greenhouse gases.

 The construction of a hydroelectric complex can cause significant environmental impact, principally in loss of arable land and population displacement. They also disrupt the natural ecology of the river involved, affecting habitats and ecosystems, and the siltation and erosion patterns. While dams can ameliorate the risks of flooding, they also contain a risk of dam failure, which can be catastrophic.

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L/wJCu9wl408/SwAAAABJRU5ErkJggg==';
var image=new Image();
image.src=url;
$("#showEnergy").append(image);
$("#showEnergy").append("<br><br> <h2>Future Potential</h2> The technical potential for hydropower
development around the world is much greater than the actual production: the percent of potential hydropower
capacity that has not been developed is 71% in Europe, 75% in North America, 79% in South America, 95% in Africa,
95% in the Middle East, and 82% in Asia-Pacific. Due to the political realities of new reservoirs in western countries,
economic limitations in the third world and the lack of a transmission system in undeveloped areas, perhaps 25%
of the remaining technically exploitable potential can be developed before 2050, with the bulk of that being in
the Asia-Pacific area. Some countries have highly developed their hydropower potential and have very little
room for growth: Switzerland produces 88% of its potential and Mexico 80%. ");
if($("#showEnergy").css("display", "none"))
{
  $("#showEnergy").css("display", "block");
}
});

$(document).ready(function(){
  $("#energy4").click(function(){
    $("#showEnergy").html("<h2><i>What is Geothermal Energy?</i></h2> <b>Geothermal energy</b> is the
thermal energy in the Earth's crust which originates from the formation of the planet and from radioactive decay
of materials in currently uncertain but possibly roughly equal proportions. The high temperature and pressure in
Earth's interior cause some rock to melt and solid mantle to behave plastically, resulting in parts of the mantle
convecting upward since it is lighter than the surrounding rock and temperatures at the core–mantle boundary
can reach over 4000 °C (7200 °F). <br><br> Geothermal heating, for example using water from hot springs
has been used for bathing since Paleolithic times and for space heating since ancient Roman times, however
more recently geothermal power, the term used for generation of electricity from geothermal energy, has gained
in importance. It is estimated that the earth's geothermal resources are theoretically more than adequate to
supply humanity's energy needs, although only a very small fraction is currently being profitably exploited, often
in areas near tectonic plate boundaries. <br><br> As a result of government assisted research and industry
experience, the cost of generating geothermal power decreased by 25% over the 1980s and 1990s. More recent
technological advances have dramatically reduced costs and thereby expanded the range and size of viable
resource and in 2021 the U.S. Department of Energy estimates that geothermal energy from a power plant \\"built
today\\" costs about $0.05/kWh. <br><br> Worldwide, 13,900 megawatts (MW) of geothermal power was
available in 2019. An additional 28 gigawatts of direct geothermal heating capacity is installed for district
heating, space heating, spas, industrial processes, desalination and agricultural applications as of 2010.
<br><br> Forecasts for the future of geothermal power depend on assumptions about technology, energy
prices, subsidies, plate boundary movement and interest rates. Pilot programs like EWEB's customer opt in Green
Power Program show that customers would be willing to pay a little more for a renewable energy source like
geothermal. About 100 thousand people are employed in the industry. The adjective geothermal originates from
the Greek roots γῆ (gē), meaning Earth, and θερμός (hermos), meaning hot. <br><br> ");
  }
});
```

```
var url =
'data:image/png;base64,iVBORw0KGgoAAAANSUhEUgAAAPUAAADOCAMAAADR0rQ5AACJVBMVEX//96enqtra2T
k5Po6OikpKTs7Oz19fXKysrGxsagoKB/f3/7|||||/31|||/t|||||/x|||/l2dnb//+x//+ro//z8/Pg4OCLi4vWltb//|Le//9wcHCR
lqzQ0ND/78L//9q2trZigahmZmb//+389+327uKJk683NzeimJuqoaO9p5ulmbqbnKW9vb3r8vnC6vTWslbj2ayDutKXY
```

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```
var image=new Image();
image.src=url;
$("#showEnergy").append(image);
```

\$("#showEnergy").append("

 <h2>Geothermal Heating</h2> Geothermal heating is the direct use of geothermal energy for some heating applications. Humans have taken advantage of geothermal heat this way since the Paleolithic era. Approximately seventy countries made direct use of a total of 270 PJ of geothermal heating in 2004. As of 2007, 28 GW of geothermal heating capacity is installed around the world, satisfying 0.07% of global primary energy consumption. Thermal efficiency is high since no energy conversion is needed, but capacity factors tend to be low (around 20%) since the heat is mostly needed in the winter.

 Geothermal energy originates from the heat retained within the Earth since the original formation of the planet, from radioactive decay of minerals, and from solar energy absorbed at the surface. Most high temperature geothermal heat is harvested in regions close to tectonic plate boundaries where volcanic activity rises close to the surface of the Earth. In these areas, ground and groundwater can be found with temperatures higher than the target temperature of the application. However, even cold ground contains heat, below 6 metres (20 ft) the undisturbed ground temperature is consistently at the Mean Annual Air Temperature[37] and it may be extracted with a ground source heat pump.");

```
if($("#showEnergy").css("display", "none")){
{
  $("#showEnergy").css("display", "block");
}
});

$(document).ready(function(){
$("#energy5").click(function(){
$("#showEnergy").html("<h2><i>What is Biomass Energy?</i></h2> <b>Biomass</b> is plant or animal material used as fuel to produce electricity or heat. Examples are wood, energy crops and waste from forests, yards, or farms. Since biomass technically can be used as a fuel directly (e.g. wood logs), some people use the terms biomass and biofuel interchangeably. More often than not, the word biomass simply denotes the biological raw material the fuel is made of. The word biofuel is usually reserved for liquid or gaseous fuels, used for transportation. The U.S. Energy Information Administration (EIA) follows this naming practice. <br><br> The IPCC (Intergovernmental Panel on Climate Change) defines bioenergy as a renewable form of energy. In 2017 the IEA (International Energy Agency) described bioenergy as the most important source of renewable energy.[a] IEA also argue that the current rate of bioenergy deployment is well below the levels required in low carbon scenarios, and that accelerated deployment is urgently needed.[b] Researchers have disputed that the use of forest biomass for energy is carbon neutral. <br><br> ");
```

```

var url =
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var image=new Image();
image.src=url;
$("#showEnergy").append(image);
$("#showEnergy").append("<br><br>    <h2>Biomass Feedstocks</h2>    Wood and wood residues is the largest biomass energy source today. Wood can be used as a fuel directly or processed into pellet fuel or other forms of fuels. Other plants can also be used as fuel, for instance corn, switchgrass, miscanthus and bamboo. The main waste energy feedstocks are wood waste, agricultural waste, municipal solid waste, manufacturing waste, and landfill gas. Sewage sludge is another source of biomass. There is ongoing research involving algae or algae-derived biomass. Other biomass feedstocks are enzymes or bacteria from various sources, grown in cell cultures or hydroponics.    <br><br>    Biomass is also used to produce fibers and industrial chemicals.
<br><br>    Based on the source of biomass, biofuels are classified broadly into three major categories:    <ul>
<li>First-generation biofuels are derived from food sources, such as sugarcane and corn starch. Sugars present in this biomass are fermented to produce bioethanol, an alcohol fuel which serve as an additive to gasoline, or in a fuel cell to produce electricity.</li>    <li>Second-generation biofuels use non-food-based biomass sources such as perennial energy crops (low input crops), and agricultural/municipal waste. Proponents argue that there is huge potential for second generation biofuels. Third-generation biofuels refer to those derived from microalgae.</li>    </ul>");
```

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if($("#showEnergy").css("display", "none"))
{
  $("#showEnergy").css("display", "block");
}
});
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```
$(document).ready(function(){
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    $("#showEnergy").html("<h2>What is Tidal Energy?</h2>    <b>Tidal power</b> or <b>tidal energy</b> is harnessed by converting energy from tides into useful forms of power, mainly electricity using various methods.
<br><br>    Although not yet widely used, tidal energy has the potential for future electricity generation. Tides are more predictable than the wind and the sun. Among sources of renewable energy, tidal energy has traditionally suffered from relatively high cost and limited availability of sites with sufficiently high tidal ranges or flow velocities, thus constricting its total availability. However, many recent technological developments and improvements, both in design (e.g. dynamic tidal power, tidal lagoons) and turbine technology (e.g. new axial turbines, cross flow turbines), indicate that the total availability of tidal power may be much higher than previously assumed and that economic and environmental costs may be brought down to competitive levels.
<br><br>    Historically, tide mills have been used both in Europe and on the Atlantic coast of North America. The incoming water was contained in large storage ponds, and as the tide goes out, it turns waterwheels that use the mechanical power to produce mill grain. The earliest occurrences date from the Middle Ages, or even from Roman times. The process of using falling water and spinning turbines to create electricity was introduced in the U.S. and Europe in the 19th century.    <br><br>    Electricity generation from marine technologies increased an estimated 16% in 2018 and an estimated 13% in 2019. Policies promoting R&D are needed to achieve further cost
```

reductions and large-scale development. The world's first large-scale tidal power plant was the Rance Tidal Power Station in France, which became operational in 1966. It was the largest tidal power station in terms of output until Sihwa Lake Tidal Power Station opened in South Korea in August 2011. The Sihwa station uses sea wall defense barriers complete with 10 turbines generating 254 MW.

 ");

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qlA6QeNz3A8MtFVQ6cl2RQXoRvLwB5GogdZnJscBlk9NaGog89BSIjostTd0YloBQoduel84hFDW0Sdc5WK7brlVtoQ
d5UFJpc9nXrhQePhygh2gSqA2WFNyOKRpbFQ0krK7awNha9uS2gpzhfsGNZT00Hi3Nqe8LMQ6qwD6CxuP+GaNIKAs9
vZMiW6CsksmhmlgCEFVhyUhoRIJNW1CH0yJJ+oOtgsrgTxajcAwJNQgobKuaIiYYSp70hGyAQgpmWNdGd4WweEs
OBLCw4wjRJG0hmyINsCLXBkiaxCQn204HhCTJ180qwhOmEfS7728YWQdQt5EN615pOtkWeGRhoXZT0yDfDluU5c8c
qpdakw+0sQ9BvwludUSuTBKuWMJSirSiJdpircgU9xElpUZZs28rU0NtpQFcko0x2WFspxACG1gC97UbXbbq9Xzqylekq
GarclGgB2OnerJcm2CDm/rhnOhBC6e7jHfCP24TuMMpw+YrvL4mNt+4oiSnYVvJno/yUHShp909w8lGbDi+Js/CZJuM
i0v2PqhIXB5oXVRUVFRUIDmTkq1Enwmlt8YVbgNWScTmkuycb4fhmt28CHTHy0wyw0oFmWKhbxlyuShn0lrximp+8
eU6sCmCmRphcpwlzStxl3h7z5/7dp1DBCxDehnjb2X0U41Gaw+tWihx4VMiyOLOUKffvmzL78C6AfqccHj36O6MoHePp
RYBVZmoOou5gi9/dprbwP096JkzotRHSmWbDBWzaWrquQw9s5qsAXGabhDK/BPfXth8PTVK1dv4ab4b1XkvowTqVS
B/qsqAAM8IQHDQ6tTaGZ9Hz7QmcRGMwVjsfziudFb1petw6n7eFRgOT3GjbMummFmbQjQcPxgdnbZn2TC0q2R02
EUjzNCKGGqNfaXKoabU2GXPgMODBhuWsmMc5hx3Tcp6+6BZ7WbVWJIm3R5pbrPAVr3FFBjz6rbGtd9Dql8TAhJAVX2u
oGapXmTwqrSmrgA8glpD0022LA7/ryDLoxeKyJI4S/GmxypQ0eB3DBBc/xgHPdw9ZVUjb1qEk7KeCpoRvtYtvJuuR0JV
bYBvgohLILqFMIg5toC5dcTDEkA8Jr1dUkd2CVUatMoKm0NmWN0wo3t4GLGDqhZ4zz3/EG1wlc6gG5dHfYjjCNRHLDnL
daVk6yYoshRLrgrZ44lhVTYb0UimiTCzGlo8NDXBweqUKPTE03D3qgyVQojsy2Mdqq3LRNizLgitjtiEC9QkUjnKZ1bzQM
INubq3B8UFWWHGdjzqN3qm2EmLmYZqjnLfdjlpr+tFCYaxBTYJO4jC48FlkdnuCl2hFbghHgmZuUEdrxlP600MuFsFpJ
```

ee4zBzU5JTlwcDDnsj7lETQadSso8dixZ78W0CjoqJWXGLse0u2NyIDloLLplSoOaJBsZi8sDQwxkoq7hSaxJHz3kHTCYIKY
 Lr0aifMpCuFULhBXnGKja/+fDhO6DgjyYo5XjuEj1lvN5U0Cr0iAw3c4yst689cw0LpbjSUriwxkpboz+kpJr9LovH7777GCvg
 9BXHQtRuHcD5YUYUGRtg9GFnQuTefvXQPQ8+ryw3uSyYQdclcr7r3sqaDcGCOC54OULP3lm/c9eFTaZmTdVAUfHGrW
 doy926Fuc+A7eWlx9XUKd2372lFWA4U2HY4VaQMhdIGsIGKw/oCCe8nLGKMaGa55A3oKUR2lauOouN6CsY2AajYza7
 +anXQiKhHfTyRQ8aqXOsq+XQCDywGAyiY2vqDM2f+VR+86mnvo8esqxKDCZ1YaHQvHbhayMwuMCwEnJ3ArmtLdL
 UUL5mkVCObrIGN8wjMowoK0KdxvWXIRcH+LpQBQGCVVZVqQjQujty/kYBsg+bGP/z2c+k3f70A6kOxiCndJKDCpGhCr
 lQrAKI+lcrQLCbK9AfrT5aBNkgedZwfJCZ6ooXf8UGNzbYuSAZs55n9V6PI3u3r0lrFG8KnXP6rQytsAIEJQBXmTudQ/WVT
 GH9z96NxrblEmS6hsWdhS4eDjTmSMRWyRomcdnfd0jrHioLijPs2u4N0O4RMj7KmGNxuF8u5Pc2shi2siKLX7w6npCV
 QRFRVIOkrZwRnEkZM+uWOBcYaXhPEnNf6BdPQ4Nza6GyLYlobaFdDmItbWBvolk0eipWPXvFQlDqztXn7yIRQjT85R9Vt
 b8CaNYM5YoBXVn3cdObZIMbNmze3MljgO8CMZhn67e5upAx6GZKwjSlc5IFXSoMecOkcJ/STKnSQWjeX6WaYgaNTP3
 CthXO4ISusjZvudVlyHwgMCPlis1lUlql36lZ/mRHuapKjAh5mzVWrDXQ6hoa3jgHrxqFPe5GodmMlnbO5czhXh/CQlUFz
 rLGEEoD9qXUBQJ52jgfHjfMCzkAgWTQ00Zuu4SgzyHLQA/4jjqvhGBjY2MtshzqTPezzGJ47L7wYSCXOM5gsJ+LvOeGJqk
 4dqUqc4FtLuoKRyjplla0W6o1o5XL2eOGc6vwxlh5Pkfq+ZR2fjjb+n9Eny0t5wc2SwAAAABJRJU5ErkJggg==';

```
var image=new Image();
```

```
image.src=url;
```

```
($("#showEnergy").append(image);
```

(\$("#showEnergy").append("

 <h2>Principle</h2> Tidal energy is taken from the Earth's oceanic tides. Tidal forces result from periodic variations in gravitational attraction exerted by celestial bodies. These forces create corresponding motions or currents in the world's oceans. This results in periodic changes in sea levels, varying as the Earth rotates. These changes are highly regular and predictable, due to the consistent pattern of the Earth's rotation and the Moon's orbit around the Earth. The magnitude and variations of this motion reflect the changing positions of the Moon and Sun relative to the Earth, the effects of Earth's rotation, and local geography of the seafloor and coastlines.

 Tidal power is the only technology that draws on energy inherent in the orbital characteristics of the Earth–Moon system, and to a lesser extent in the Earth–Sun system. Other natural energies exploited by human technology originate directly or indirectly from the Sun, including fossil fuel, conventional hydroelectric, wind, biofuel, wave and solar energy. Nuclear energy makes use of Earth's mineral deposits of fissionable elements, while geothermal power utilizes the Earth's internal heat, which comes from a combination of residual heat from planetary accretion (about 20%) and heat produced through radioactive decay (80%).

 A tidal generator converts the energy of tidal flows into electricity. Greater tidal variation and higher tidal current velocities can dramatically increase the potential of a site for tidal electricity generation.

 Because the Earth's tides are ultimately due to gravitational interaction with the Moon and Sun and the Earth's rotation, tidal power is practically inexhaustible, and is thus classified as a renewable energy resource. Movement of tides causes a loss of mechanical energy in the Earth–Moon system: this is a result of pumping of water through natural restrictions around coastlines and consequent viscous dissipation at the seabed and in turbulence. This loss of energy has caused the rotation of the Earth to slow in the 4.5 billion years since its formation. During the last 620 million years the period of rotation of the Earth (length of a day) has increased from 21.9 hours to 24 hours; in this period the Earth–Moon system has lost 17% of its rotational energy. While tidal power will take additional energy from the system, the effect is negligible and would not be noticeable in the foreseeable future.");

```
if($("#showEnergy").css("display", "none"))
{
  $("#showEnergy").css("display", "block");
}
});
```

```
var add = (function () {
  var counter = 0;
  return function () {return counter += 1;};
})();
```

```
function showNews(){
  var x = add();
  if(x==1)
  {
    var y=document.getElementsByClassName("news2");
```

```

for(var i=0; i<y.length;i++)
{
  y[i].style.display="block";
}
}
if(x==2)
{
  var y=document.getElementsByClassName("news3");
  for(var i=0; i<y.length;i++)
  {
    y[i].style.display="block";
  }
}
if(x>2)
{
  var y=document.getElementById("newsWait");
  y.style.display="block";
}

document.getElementById("myList").style.listStyleType = "square";
}

```

Blogs:

The screenshot shows a web browser window with the address bar displaying 'Blogs' and 'Meet - vgz-fkbj-yda'. The title of the page is 'Ren-Future'. The navigation bar includes links for Home, Blogs, Research, About, and Host a blog.

Top Blogs

- Wind Energy: Harnessing the Wind** Read
Lorem ipsum dolor sit amet consectetur adipisicing elit. Quibusdam voluptatibus aut molestiae minimal Dignissimos nihil aliquid praesentium totam cupiditate, perferendis sit iusto saepe officia officiis, dolorem unde eum quia eal Repellat tempore est provident consequuntur architecto animi, vitae ut magni ipsam eius facere voluptate delectus odio quas illo dicta saepe.
- Solar Power: The Future is Bright** Read
Lorem ipsum dolor sit amet consectetur adipisicing elit. Quibusdam voluptatibus aut molestiae minimal Dignissimos nihil aliquid praesentium totam cupiditate, perferendis sit iusto saepe officia officiis, dolorem unde eum quia eal Repellat tempore est provident consequuntur architecto animi, vitae ut magni ipsam eius facere voluptate delectus odio quas illo dicta saepe.

Latest Blogs

- Solar Farm Update: A Glowing Success** Read
Lorem ipsum dolor sit, amet consectetur adipisicing elit. Nisi illum nemo omnis eaque in voluptate, autem ipsam magni dolorem pariatur.
- Renewable Energy: The Sun's Power** Read

The taskbar at the bottom of the screen shows various pinned icons and the system tray displays the date (08-11-2021), time (18:05), and battery level (ENG).

RENEWABLE ENERGY BLOGSPOT

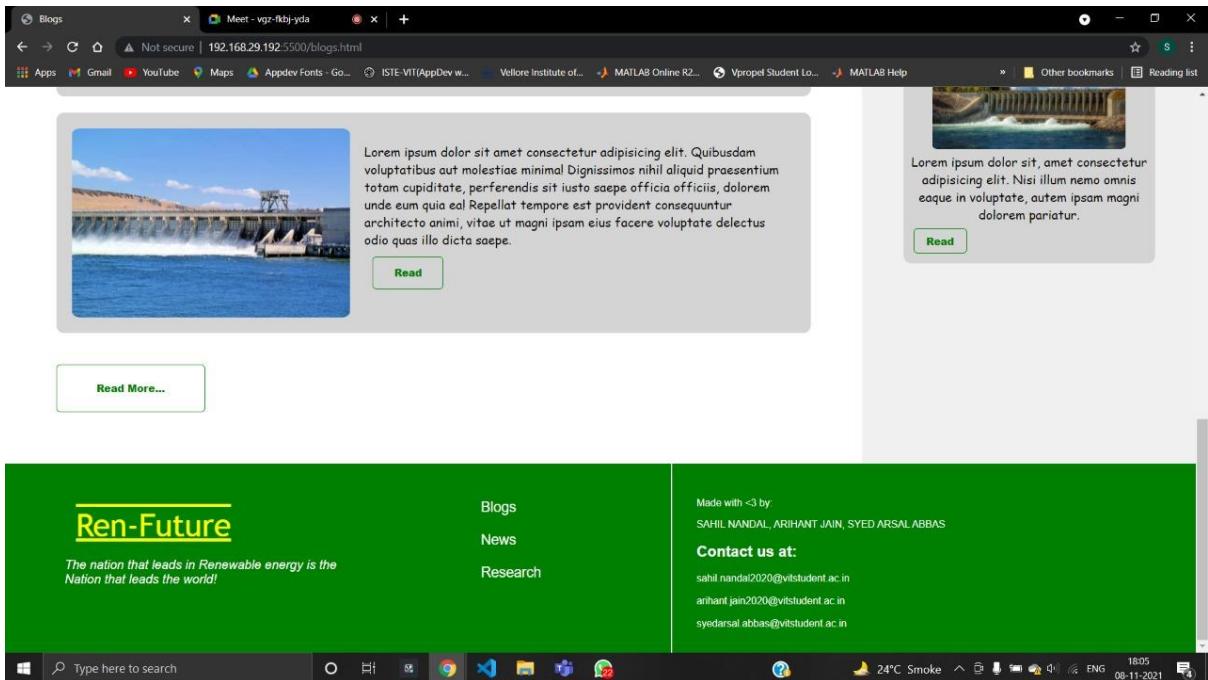
The screenshot shows a Windows desktop environment with a web browser open to a local host blogspot page at 192.168.29.192:5500/blogs.html. The page displays three blog posts:

- Post 1:** Features an image of solar panels and wind turbines. The text is placeholder text (Lorem ipsum...) and includes a green "Read" button.
- Post 2:** Features an image of a hand interacting with a circular interface showing various icons. The text is placeholder text (Lorem ipsum...) and includes a green "Read" button.
- Post 3:** Features an image of a dam. The text is placeholder text (Lorem ipsum...) and includes a green "Read" button.

Below the third post, there is a green "Read More..." button.

The screenshot shows the footer section of the Ren-Future website. It includes:

- Ren-Future** logo
- Slogan: "The nation that leads in Renewable energy is the Nation that leads the world!"
- Links: Blogs, News, Research
- Text: "Made with <3 by SAHIL NANDAL, ARIHANT JAIN, SYED ARSAL ABBAS"
- Contact information: sahil.nandal2020@vitstudent.ac.in, arihant.jain2020@vitstudent.ac.in



blogs.html:

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Blogs</title>
    <link rel="stylesheet" href="blogs_style.css">
</head>

<body>
    <!-- navbar -->
    <div class="navbar">
        <div class="name nav">
            <u>Ren-Future</u>
        </div>
        <div class="links nav">
            <a href="home.html">Home</a>
            <a class="active" href="blogs.html">Blogs</a>
            <a href="#research">Research</a>
            <a style="border-right: 2px solid white;" href="#footer">About</a>
            <a id="bloghost" href="#">Host a blog</a>
        </div>
    </div>
    <!-- body -->
```

```

<div class="container">
    <div class="left">
        <h3>Top Blogs</h3>
        <div class="container list">
            <div class="image">
                
            </div>
            <div class="brief">
                Lorem ipsum dolor sit amet consectetur adipisicing elit. Quibusdam voluptatibus aut molestiae minima! Dignissimos nihil aliquid praesentium totam cupiditate, perferendis sit iusto saepe officia officiis, dolorem unde eum quia ea! Repellat tempore est provident consequuntur architecto animi, vitae ut magni ipsam eius facere voluptate delectus odio quas illo dicta saepe.
                <br>
                <button type="button" class="read-btn">Read</button>
            </div>
        </div>
        <div class="container list">
            <div class="image">
                
            </div>
            <div class="brief">
                Lorem ipsum dolor sit amet consectetur adipisicing elit. Quibusdam voluptatibus aut molestiae minima! Dignissimos nihil aliquid praesentium totam cupiditate, perferendis sit iusto saepe officia officiis, dolorem unde eum quia ea! Repellat tempore est provident consequuntur architecto animi, vitae ut magni ipsam eius facere voluptate delectus odio quas illo dicta saepe.
                <br>
                <button type="button" class="read-btn">Read</button>
            </div>
        </div>
        <div class="container list">
            <div class="image">
                
            </div>
            <div class="brief">
                Lorem ipsum dolor sit amet consectetur adipisicing elit. Quibusdam voluptatibus aut molestiae minima! Dignissimos nihil aliquid praesentium totam cupiditate, perferendis sit iusto saepe officia officiis, dolorem unde eum quia ea! Repellat tempore est provident consequuntur
            </div>
        </div>
    </div>

```

```

architecto animi, vitae ut magni ipsam eius facere voluptate delectus odio
quas illo dicta saepe.
    <br>
    <button type="button" class="read-btn">Read</button>
</div>
</div>
<div class="container list">
    <div class="image">
        
    </div>
    <div class="brief">
        Lorem ipsum dolor sit amet consectetur adipisicing elit.
        Quibusdam voluptatibus aut molestiae minima! Dignissimos nihil aliquid
        praesentium totam cupiditate, perferendis sit iusto saepe officia officiis,
        dolorem unde eum quia ea! Repellat tempore est provident consequuntur
        architecto animi, vitae ut magni ipsam eius facere voluptate delectus odio
        quas illo dicta saepe.
    <br>
    <button type="button" class="read-btn">Read</button>
</div>
</div>
    <button type="button" class="read-btn">Read More...</button>
</div>

<div class="right">
    <h3>Latest Blogs</h3>
    <div class="list latest">
        <center> <br>
        Lorem ipsum dolor sit, amet consectetur adipisicing elit. Nisi
        illum nemo omnis eaque in voluptate, autem ipsam magni dolorem
        pariatur.</center>
        <button type="button" class="read-btn">Read</button>
    </div>
    <br>
    <div class="list latest">
        <center> <br>
        Lorem ipsum dolor sit, amet consectetur adipisicing elit. Nisi
        illum nemo omnis eaque in voluptate, autem ipsam magni dolorem
        pariatur.</center>
        <button type="button" class="read-btn">Read</button>
    </div>
    <div class="list latest">

```

```

<center> <br>
    Lorem ipsum dolor sit, amet consectetur adipisicing elit. Nisi
illum nemo omnis eaque in voluptate, autem ipsam magni dolorem
pariatur.</center>
        <button type="button" class="read-btn">Read</button>
    </div>
</div>
<!-- footer -->
<footer id="footer">
    <div class="container">
        <div class="footl">
            <p style="margin-bottom: 0%; color: yellow;" class="name"> <u>
Ren-Future </u></p><br>
            <i>The nation that leads in Renewable energy is the Nation
that leads the world!</i>
        </div>

        <div class="footm">
            Blogs <br><br>
            News <br><br>
            Research <br><br>
        </div>
        <div class="footr">
            <p>Made with <3 by:</p>
            <p>SAHIL NANDAL, ARIHANT JAIN, SYED ARSAL ABBAS</p>
            <h2>Contact us at:</h2>
            sahil.nandal2020@vitstudent.ac.in <br><br>
            arihant.jain2020@vitstudent.ac.in <br><br>
            syedarsal.abbas@vitstudent.ac.in
        </div>
    </div>
</footer>
</body>

</html>

```

blogs_style.css:

```

body{
    margin: 0%;
    font-family: Arial, Helvetica, sans-serif;
}

```

```
/* navbar */
.navbar{
    display: flex;
    padding: 1%;
    text-align: right;
    background-color: rgba(26, 155, 0, 0.911);
}

.nav{
    width: 50%;
}

.name{
    text-align: left;
    color: white;
    font-family:'Trebuchet MS', 'Lucida Sans Unicode', 'Lucida Grande',
    'Lucida Sans', Arial, sans-serif;
    font-size: 250%;
    text-decoration:overline;
    padding-left: 4%;
}

.links{
    padding-top: 7px;
}
a{
    padding: 8px;
    margin: 5px;
    font-size: 120%;
    font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;
    color: white;
    text-decoration: none;
}

a.active {
    color: white;
    border-radius: 5px;
    text-decoration: underline;
}

a:hover{
    color: black;
    background-color: white;
    border-radius: 5px;
}
```

```
#bloghost{
    background-color: white;
    border-radius: 5px;
    margin: 2px;
    color: black;
}

#bloghost:hover{
    margin: 0%;
    border-radius: 5px;
    border: 2px solid rgb(255, 255, 56);
    color: black;
    background-color: rgb(255, 255, 56);
}
/* body */
.container{
    display: flex;
}

.left, .right{
    padding: 3%;
}

.left{
    width: 75%;
}

.right{
    width: 25%;
    background-color: rgba(221, 221, 221, 0.445);
}

.list{
    border-radius: 10px;
    padding: 2%;
    margin: 2%;
    font-family: cursive;
    background-color: rgb(212, 212, 212);
}

.image{
    width: 40%;
}

.brief{
```

```
    width: 60%;  
    padding: 2%;  
}  
img{  
    width: 100%;  
    height: 100%;  
    border-radius: 3%;  
}  
  
.read-btn{  
    display: inline;  
    margin: 2%;  
    background-color: transparent;  
    border: 1px solid green;  
    border-radius: 5px;  
    color: green;  
    padding: 2%;  
    padding-left: 5%;  
    padding-right: 5%;  
    font-weight: 800;  
    font-size: 80%;  
}  
  
.read-btn:hover{  
    background-color: green;  
    color: white;  
}  
  
.latest_img{  
    width: 80%;  
}  
  
.latest{  
    padding-top: 10%;  
}  
  
/* footer */  
footer{  
    background-color: green;  
    color: white;  
}  
  
.footl{  
    width: 30%;  
    padding: 1%;  
    padding-left: 5%;  
}  
}
```

```
.footm{  
    width: 20%;  
    padding-left: 10%;  
    padding-top: 3%;  
    font-size: large;  
}  
.footr{  
    width: 50%;  
    padding: 2%;  
    border-left: 2px solid rgb(255, 255, 255);  
    font-size: 80%;  
}
```